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formation
9 ICSV

UNESCO

Addrss

ORGANISATION DES NATIONS UNIES
POUR L'EDUCATION, LA SCIENCE & LA CULTURE

COMMISSION PREPARATOIRE

Telephone : ~~Sloane 1921~~ KLEber 52-00
Telegrams : Preunesco, London

UNITED NATIONS EDUCATIONAL,
SCIENTIFIC & CULTURAL ORGANISATION

PREPARATORY COMMISSION

~~46, Belgrave Square,~~
~~London, S.W.1~~
19, Avenue Kléber,
Paris, 16e.

Your No.

Our No.

Please address all correspondence to
The Executive Secretary

7th October 1946.

My dear Professor Singer,

I have not thanked you earlier for your kind letter of September 7th because I was not sure whether I should stay here or go to New York. But after a friendly talk with Drs. Huxley and Needham during which we tried to define the scope of my work, I decided to remain in UNESCO which, as you can imagine, appeals very much indeed to my intellectual tastes. I only hope that I shall be able to tackle successfully the great job of work I have in front of me.

I am now Counsellor in Dr. Needham's Division (Natural Sciences). It is my duty to establish liaison with Social Science and Arts Divisions with special emphasis on History of Science; besides I shall have to look after UNESCO's Colonial matters. It seems that I am going to have some work to do, and in this period of organisation things still look a little complex and confused; but no doubt they will steadily develop and settle down within a few months' time.

I am going to London next Saturday, the 12th, and I shall stay there 10 days. It is really a pity that we cannot meet in London because we have so much to talk about. Unfortunately I shall be so busy that it will be impossible to go to Kilmarth as I should so much like to do.

I hope to see Prof. P. Brunet who, as you must know, is in Paris. I also expect to see J. Crowther and Dr. Underwood in

/London

Professor Charles Singer,
Kilmarth,
Par,
Cornwall.

London. Dr. Needham has already exchanged some ideas on the matter with Prof. Reymond and Mr. Crowther, besides yourself and Mrs. Singer, as I see from our files and gather from what he had told me. But I should like very much to hear from you and to follow any suggestion you may give me while I am in London, Do you think that I should see somebody else in London or elsewhere? Perhaps you could write me to my London address. (I shall probably have to keep my flat until I find suitable accommodation in Paris - such a problem!)

As regards my membership to I.A.H.S. I quite agree with what you say. Many thanks for your plan to lecture in America. It is possible that I shall go to the U.S.A. in the near future, but I think that my hands will be too full for a long time to come to be able to do anything else.

With kind regards,

Yours ever,

Armand Lwoff

RIVERSIDE 4395

48 STAMFORD COURT.
LONDON. W.6.
13.x.46

My dear Professor Singer,

I hope you have received my letter from Paris, of Oct.7. I arrived last night from Paris and have been trying in vain to 'phone to Kilmarth, but they keep telling me that there is no reply.

On the 11th I went with Dr Needham to see Prof.Pierre Brunet with whom we had a long talk. He told us of IAHS's present situation, and we told him of our (Unesco's) intention to help IAHS to their feet again in a purpose of mutual collaboration, amomg other things with money. Dr Needham mentioned something like £2000, which might be used,among otherthings, to pay the voyages of IAHS's officials to go to the Congress ~~of next year~~ next year. He told us that the next Congress will take place at Lausanne, perhaps not before the summer 1947. The first Step is, of course, to bring IAHS to federate with ICSU, and I know that you have already written to Prof.Stratton. I also hope to see Prof.Stratton, perhaps with Needham, who is coming to London on the 20th, I think, and then to Cambridge.
I am going to dedicate a good deal of my work to the IAHS, in order to coordinate all efforts and to help in every possible way. I think, therefore, that it is essntial that I should see you. As I do not know whether you would be able to come to London before Oct.25, date of me return to Paris, I am willing to come to Kilmarth and talk things over with you and Mrs. Singer.

I could come by the evening train and return in the afternoon next day, or then -and this might be better - to go with the

morning train and return by the evening train if I could get a bed in the sleeping carr. I would like to go on Thursday morning and return the same evening. If this scheme suits you, perhaps you could be good enough to book me a bed in the Thursday evening train, which I was told from Paddington Station on the 'phone leaves Par at 10.21 p.m. and arrives at Paddington at 7.30 a.m. That would be fine. In that case I should take the 10.30 a.m. train which arrives at Par at 4.02 p.m. on Thursday, 17. That would give us plenty of time to talk.

As I have plenty of things to do and to plan ahead, you would oblige very much if you could send me a wire as soon as you make a decision, or otherwise ring me up in the evening or before 9 a.m.

I am anxious, indeed, to have a good chat with you both.

Carlota and I send you both our love.

Yours ever,

Bernard Leach

Have I written Corlisao since 2 Nov —

RED CROSS AND ST. JOHN

CORNWALL JOINT WAR COMMITTEE

C.D. WORKERS' REST SERVICE

MEMORANDUM from the Hon. Organiser, Mrs. Charles Singer (Tel. Par 56) KILMARTH, PAR.

My dear Dr Corlesao

Thank you very much for your letter & the carbon. That is very good news of Miali.

But what about Sarton. I feel we need his council & he too is in a difficult position. I have written enclosed to Dr Needham who knows him well.

With our best greetings

Yours very sincerely

RED CROSS AND ST. JOHN

CORNWALL JOINT WAR COMMITTEE

C.D. WORKERS' REST SERVICE

MEMORANDUM from the Hon. Organiser, Mrs. Charles Singer (Tel. Par 56) KILMARTH, PAR.

My dear Joseph

I have had a rather disturbed letter from Mrs Sarton. It seems that the Carnegie Institute is definitely ceasing all work for the humanities with particular emphasis on the History of Science which has never appealed to Mr Bush the President. George has I gather been definitely "given notice" from August 1949. It seems a bit of time ahead but of course it is agitating though surely some "post" will be found in which he can continue his

writing. They are also very anxious about his assistant Pogo who will be cast adrift at the age of 55 & is apparently a psychologically difficult person to place as result of German imprisonment in the first war.

But the reason I am writing is to ask whether it will be possible for UNESCO to bring Sorton over by aeroplane to the Council Meeting of the Int. Acad. of Hist Sci ~~which~~ to be held in December? I feel his council will be needed & he certainly will not be able to afford time for a sea journey or cash for any journey. I am sending a carbon of this letter to Dr Cortesao.

All best from us both

Dorothea Waley Singer

We had such a nice birthday & Charlie is delighted with the greeting & that you made time to participate. You will be hearing from him

4.9 [redacted] Le 7 novembre 1946.

Cher Professeur Mieli,

Je crois que vous devez savoir déjà par Mme Singer ou Mr. Brunet l'intérêt que nous portons à l'Académie Internationale d'Hist des Sciences et à vous-même.

Nous voudrions bien vous aider à venir en Europe pour la prochaine Assemblée générale ou Congrès qui aura lieu à Lausanne dan un des premiers mois de 1947. Nous avons écrit à Mr. le Docteur Adolfo Bioy en lui demandant de se mettre en rapport avec vous et nous vous assurons que nous ferons tout le possible pour faciliter votre voyage en Europe, en donnant tout l'appui matériel et moral dont vous aurez besoin.

Je m'occupe de l'Histoire des Sciences à l'UNESCO, et j'espère avoir le plaisir de faire votre connaissance personnellement.

J'ai vu aujourd'hui Mr. Brunet qui m'a donné deux lettres pour vous que je joins ci-inclus.

Veuillez bien agréer, cher Professeur Mieli, l'assurance de mes sentiments très distingués.

Dr. Armando Cortesao,
Conseiller
Section des Sciences Exactes et Natur

Mr. le Professeur Aldo Mieli,
Calle Chacahuco 980,
Florida, Prov. de Buenos Aires,
Argentina

4.9

Le 7 novembre, 1946.

Monsieur le Dr. Adolfo Bioy,
Instituto de la Sorbona,
a cargo de la Senora Victoria Ocampo,
Villa Ocampo,
San Isidro,
Buenos Aires.

Cher Docteur Bioy,

Monsieur le Dr. David Efrón a eu l'amabilité de m'indiquer comment m'adresser à vous pourque je puisse vous écrire à cause d'un sujet que, nous croyons, pourra mériter votre attention bienveillante.

Il s'agit du Professeur Aldo Mieli, Secrétaire général de l'Académie Internationale d'Histoire des Sciences qui, pendant la guerre, a eu besoin de partir de Paris pour l'Argentine. La guerre a beaucoup influencé l'Académie et a assez désorganisé son activité, avec la dispersion de leur Secrétariat, etc. Mr. Mieli lui-même a beaucoup souffert et nous croyons qu'il se trouve à présent malade et dans une situation assez difficile.

L'Assemblée générale de l'Académie va se réunir au commancement de 1947 à Lausanne, afin de se reorganiser en collaboration avec l'UNESCO, et nous voudrions aider Mr. Mieli à y venir. Néanmoins nous croyons qu'il a bésoin au moins de toute assistance morale qu'on puisse lui apporter. Il est un savant à qui l'histoire des sciences et l'érudition en général doivent beaucoup.

..../

Aurez-vous l'amabilité de vouloir bien vous mettre en rapport avec Mr. Mieli et de lui donner toute l'assistance morale possible? Son adresse est:

Professeur Aldo Mieli,
Calle Chacabuco 980,
Florida,
Prov. de Buenos Aires.

Nous espérons que vous aurez la bonté de nous écrire bientôt en nous disant comment vous avez trouvé Mr. Mieli.

En vous remerciant d'avance, je vous prie, Monsieur le Dr. Bigy, de vouloir bien agréer l'assurance de ma considération distinguée.

Dr. Armando Cortesao,
Conseiller,
Section des Sciences
Exactes et Naturelles.

ORGANISATION DES NATIONS UNIES
POUR L'ÉDUCATION, LA SCIENCE & LA CULTURE

COMMISSION PRÉPARATOIRE

Tel. : KLÉber 52-00
Telegr. : UNESCO-PARIS

UNITED NATIONS EDUCATIONAL,
SCIENTIFIC & CULTURAL ORGANISATION

PREPARATORY COMMISSION

Unesco-House,
19, Avenue Kléber
Paris 16e

Your No.

Our No.

Please address all correspondence to
The Executive Secretary

7th November, 1946.

My dear Mrs Singer,

Many thanks for your letter of November 1st, enclosing a carbon of your letter to Dr. Needham, who asks me to thank you also in his name.

Herewith carbon of the letter I am sending to Professor Mieli and also of one to Dr. Adolfo Bioy. Our friend Dr. Establier, who is now working with us on behalf of I.C.U.S., is also writing to Prof. Rey Pastor, of Buenos Aires University, with the same purpose.

M. Brunet came to see me yesterday and we had a long talk, together with Dr. Establier, about the projected reorganisation of the I.A.H.S. statutes in order that it may federate in the ICSU.

M. Brunet told me that according to recent news Mieli is in a better position now. It seems that some "Maecenas" has created there an "Institute of Historical Sciences" of which Mieli will be the "Président perpétual". I hope that our letters will help to cheer him up.

Many thanks for mentioning my name to Madame Noufflard, whom I am looking forward to meeting. You are always so kind!

Dr. Needham has also received a letter from Prof. Dingle telling him about his work towards the formation of the British group.

With the kindest regards for both you and Professor Singer,
Yours very sincerely,

Dr. Dorothea Waley Singer,
Kilmarth,
Par,
Cornwall.

13 Nov. 1946

My dear Dr Cortesao

Thank you very much for your letter of Nov. 7th and the enclosed carbon. That is very good news of Mieli.

But what about Sarton ? I feel we need his counsel and he too is in a difficult position. I have written enclosed to Dr Needham who knows him well.

I must tell you how delighted and happy Charlie was to receive the beautiful birthday epistle, and to find your name on it. He is of course writing to you.

Our best greeting
Yours very sincerely

Mrs Charles Singer

Dr Cortesao
UNESCO
Commission Preparatoire
19 Avenue Kleber
Paris 16.

13th Nov. 1946

My dear Joseph

I have had a rather disturbed letter from Mrs Sarton. It seems that the Carnegie Institute is definitely ceasing all work for the humanities and with particular emphasis ceasing work for the History of Science which has never appealed to Mr Bush the President. George I gather has been definitely XXXXXX "given notice" as from August 1949 when he will be 65. I gather there is no suggestion of a pension. 1949 seems a bit of time ahead, but of course it is agitating, though surely some sort of post will be found in which he can continue his writing. The Sartons are also very anxious about his assistant Pogo who will be cut adrift on the same date at the age of 55, and is apparently psychologically a difficult person to place as a result of German imprisonment in the first war.

But the reason I am writing to you now is to ask whether it will be possible for UNESCO to offer to bring Sarton over by aeroplane to the Council Meeting of the International Academy of Hist. Sci. to be held in Paris in December ? I feel his counsel will be needed there, and he certainly will not be able to afford time for a sea journey or cash for any journey.

I am sending a carbon of this letter to Dr Cortesao from whom I was so glad to hear the developments concerning Mieli.

All hail from us both
Yours very sincerely

Mrs Charles Singer

We had such a nice birthday. Charlie is most touched and delighted with the greeting and that you made time to participate. You will be hearing from him of course.

Internation Academy for the History of Science.

President. M. le Professeur A. Reymond
La Rouvenaz,
Pully,
Lausanne.
Switzerland.

Written 29.VIII.46

Sec. Treasurer : M. J.A. Vollgraff - Roodbortsstraat 17
Leyden, Holland.

Sent 2 reprints Aug from Edwards

Archivist Librarian : M. P. Brunet. Centre de Synthèse
Hôtel Nevers,
12 Rue Colbert,
Paris 2 ième

---

1. full details of Micli case
2. size of grant required, how much money

Joseph Needham Unesco House
19 Avenue Kleber
Paris XVIe

# UNESCO

ORGANISATION DES NATIONS UNIES POUR L'EDUCATION, LA SCIENCE & LA CULTURE

UNITED NATIONS EDUCATIONAL, SCIENTIFIC & CULTURAL ORGANISATION

**COMMISSION PREPARATOIRE**

**PREPARATORY COMMISSION**

15/8/46

My Dear Charles & Dorothea

I enclose herewith a copy of my letter to Reymont – please discuss it with him before you leave Switzerland. Also the promised set of papers.

My proper bread & butter letter will come later when I send you a number of verbatim translations of key passages from the Chinese for your book. – Ever yrs

Joseph

I wish we were all at Kilmarth again.

1. For the Academy to become an ordinary Union they must apply in accordance with the Statute III 5 of ICSU.

2. So long as the Academy is electing its own members and combines as such had no votes in the decisions of the academy it will probably be difficult for the Academy to be accepted ~~and~~

3. Their statute cannot very well be modified till their ~~Council~~ General Assembly meets.

4. The General Assembly cannot meet under present circumstances without financial help.

5. Can UNESCO help first on the understanding that the Academy intends to take steps to adhere to the Council?

Write to Carleson + get Needham + get their reactions.

Then put the whole matter before the President

Carson Rae

Not Otter

Have rep. of Roy Soc Br. Acad
& Br Council
RSM
Soc Nat Chem.

? Sci Mus.
Hillcoma

Money comm from
1st Meeting of Executive of
Permanent Orgn of UNESCO

Int. Council SV
will probably go thro
& then
Work Agreement with US
& all parties agreements
comm thro UNESCO SV
When we are advised —
Write to Cortissoz

Re Union formation

6 Copies to Reymond

✓ 1 Stratton

✓ 1 Self

[ Vollgraff
  Brenet ] } letters only as Reymond will send with his comments

✓ 1 Dingle

3 Spare

Relations between UNESCO and Internat. Organisations

Formal Agreements concl. for prolonged period during which any grants may be made, but require approval of Exec Ctte & General Conf. of UNESCO + submission to Ecosoc Council only once a yr.

Working Agreements only one year not renewable. not involving grants-in-aid concl. under authority of DG

Working Agreements only one year not renewable involving grants-in-aid concl. by Exec Ctte 3 times a year

I suggest a working agreement + grant-in-aid as early as poss in 1947 – Adherence to ICSV and later on, aid for projects if any, under cover of the ICSV ~~blan~~ Formal Agreement

Art 18bis

Stratton → Allowing countries
have ↳ subscr ↳ our Int. Acad
~~to shall~~ 1% is fd or ↳ Int Council

Learned Body in a country

Country can adhere
by Institutions
or by Govt.

Astr Union either thro'.
"Natl - body" of any sort

Geophysics by bod or any body
or by

∴ Alter 43 § 18bis

Every National bodies should that we have accepted
~~must~~ not merely be empowered
to propose
but should nominate
representative people
as effectifs

Neutron:
iii. Wee Acad. should a ICSU
a) arrange adherence as possible
b) inform Dr Cortesao as soon as possible

Kilmarth,
Par,
Cornwall,
England.

27th May, 1946.

My dear Monsieur Reymond,

This time I have very good news. My husband and daughter and I are all looking forward to a month in Switzerland. We have booked places to fly to Geneva on Thursday, August 15th. May we come to see you on the following day ? In the hope that you will have some time free on that day, we are booking rooms at Ouchy for that night - as I am told that Switzerland is no less crowded than we are in this country - and that places must be booked well in advance.

Thank you very much for your proposal concerning Dr. Cortesao. We are writing to M. Paul Brunet on the matter at once.

I always remember heretofore that proposals for new members were put forward and settled at meetings of the Executive Committee . It would surely be quite unsuitable for them to take place in a session of the whole Congress ?

I am sure you will be pleased to hear that since I wrote to you Professor Dingle has been appointed Professor of the History and Philosophy of Science in the University of London and head of the Department at University College. While Dr. McKie has been appointed Reader in the same subject and, of course, remains in the Department at University College. Professor Dingle is a distihguished Physicist and a Fellow of the Royal Society. It is gratifying that the History and Philosophy of Science will now claim all his time.

Very much hoping that we shall see you and with our most cordial greetings to Madame Reymond and yourself -

Yours most sincerely,

Mrs Charles Singer

United Nations Educational
Scientific and Cultural Organisation.

Preparatory Commission.

46 Belgrave Square,
London S.W.1.

15th August, 1946.

Dear Dr. Reymond:

Recently I have been having some informal discussions with Dr. Charles Singer and Dr. Dorothea Singer about the question of the relations between the International Academy of the History of Science and the United Nations Educational, Scientific and Cultural Organisation (UNESCO)- one of the functional agencies of the United Nations.

I have pleasure in enclosing herewith a set of the documents of the Natural Sciences Division of UNESCO ( Section des Sciences Exactes et Naturelles), French version. From these papers you will see that UNESCO stands in great need of internationall recognised authoritative organisations ( a) as bodies to which important questions in their field can be referred, and (b)as channels for international funds which may become available for enterprises of international interest and benefit.

I also enclose herewith a couple of papers concerning the International Council of Scientific Unions, together with a copy of their statutes. With this body, as you will see from Document 11, we have a draft agreement.

We would very much hope that the officers of the International Academy of the History of Sciences would consider the question of whether the Academy could not affiliate itself tp the International Council of Scientific Unions. Its Secretary-General, Professor F.J.M. Stratton of Caius College, Cambridge would be the most suitable person to approach in this matter. It the IAHS were to become a "constituent Union" of ICSU, it would greatly facilitate relations between UNESCO and the Academy, which we hope in the future will be as close as possible, since it is our main aim to facilitate in every way possible the work of international cooperation in the scientific field. We take a particular interest in the history of science as we believe that this subject is of the highest cultural value, and we should hope to be able to give support later on to some publications in this line. Archeion, itself, as a fully international journal, might receive some support, both moral and financial.

Yours sincerely,
(Signed) Joseph Needham.

P.T.O.

P.S. I assume you will copy this letter to Dr. Brunet and Prof. Mieli, and let me have your views as soon as possible.

La Combaltaz par Aigle-Sépey
21 août 1946

Chère Madame

J'ai été très sensible à votre lettre et à l'obligeance que vous avez eue de m'écrire en français (je voudrais bien pouvoir écrire l'anglais aussi correctement que vous écrivez le français).

Croyez que nous avons eu, ma femme et moi, un vrai plaisir à vous rencontrer à Aigle, ainsi que Monsieur et Mademoiselle Singer. Ce revoir, après tant d'années de guerre et d'épreuves, fut émouvant et charmant.

Ma femme vous a envoyé 6 copies du passage

de la lettre de M. Sarton concernant notre pauvre ami Mieli. Je suis très reconnaissant à Monsieur Singer de s'occuper de la situation lamentable dans laquelle il se trouve et de faire des démarches pour l'améliorer.

Figurez-vous qu'en même temps que votre lettre j'ai reçu une lettre de M. Needman accompagnée de plusieurs documents concernant l'ICSU (international Council Scientific Union) et sa relation avec l'UNESCO.

J'ai lu attentive-

ment ces documents (et c'est pourquoi je vous écris si tardivement). J'ai trouvé fort intéressants les statuts et les projets qui sont présentés à l'UNESCO.

Après cette lecture je n'ai pour ma part aucune objection à ce que notre Académie se rattache à l'ICSU. Il me semble au contraire que notre Académie ne peut que gagner en autorité et en influence par ce rattachement, à condition qu'elle conserve son autonomie.

Seulement je ne vois pas encore très clairement si l'entrée dans l'ICSU doit être

décidée par l'ensemble de l'Académie (membres actifs et correspondants) ou par le Conseil (anciens Présidents, président actuel secrétaire perpétuel: M. Miélj, archiviste: M. Brunet et secrétaire-trésorier: M. Vollgraff)
Il me semble toutefois que, du moment que notre Académie n'est pas encore reconstituée, c'est au Conseil à prendre une décision.

Une autre difficulté est celle-ci. Notre Académie ne possède aucune fortune et je ne vois pas comment elle pourra s'acquitter des cotisations prévues pour

faire partie de l'ICSU.

Quoiqu'il en soit je vais écrire à M. Needham que pour ma part je verrai avec plaisir notre Académie se rattacher à l'ICSU et que probablement le Conseil partagera ce sentiment qu'il peut donc communiquer cette éventualité à l'UNESCO, par l'intermédiaire de M. Stratton.

Pratiquement, me semble-t-il, voici ce qu'il faudrait faire. Si Monsieur Singer voulait bien se charger de cette mission, il pourrait s'entendre avec M. Stratton pour expliquer

très brièvement comment l'Académie peut être rattachée à l'ICSU et à quelles conditions. Ce projet serait tiré à plusieurs exemplaires et envoyé à chaque membre du Conseil. S'il est adopté par le Conseil, l'affaire serait alors réglée.

De mon côté j'écrirai à M. Stratton en lui envoyant les statuts et l'organisation de notre Académie. Je ferai également cet envoi à M. Needman. J'enverrai de même un exemplaire à Monsieur Sigers pour qu'il puisse réfle-

chir à la question et en parler dès qu'il sera de retour en Angleterre avec M. Stratton. Je tiendrai également au courant MM. Brunet, Vollgraff et Sarton de cette question.

Enfin, comme je vous l'ai dit en ce qui concerne l'élection des membres de l'académie je partage tout à fait l'opinion de M. Sarton. Les élections ne devraient pas être basées sur la nationalité avant tout, mais sur la valeur scientifique. Un pays où personne ne s'occupe d'histoire des sciences ne devrait pas être représenté dans l'académie

tandis qu'un autre pays comp=
tant de vrais savants dans
cette discipline pourrait avoir
un grand nombre de repré=
sentants.

Ci-joint je vous envoie
un petit mot d'introduc=
tion pour le jardin botani=
que de Pont de Nant.

Le beau temps et le soleil
paraissent de nouveau. J'es=
père que vous allez jouir de
vos vacances et vous reposer

Croyez aussi que Monsieur
et Mademoiselle Singer à mes
sentiments cordiaux et très
dévoués

Respectueusement Votre
Arnold Reymond

Raymond Aug 46

Madame Charles Singer
Pension des Martinets
Les Plans
sur Bex
(Vaud)

A. R
La Rouvenaz
Pully / Lausanne

DWS

8 copies

as from
Kilmarth
Par
Cornwall.

19th October, 1946.

My dear Dr. Cortesao,

We saw Professor Stratton last night and Joseph Needham this morning. I arranged with the latter that I would write to report to you and I am sending six carbons of this letter to Professor Raymond, and one also to Professor Stratton.

1. As you know, Dr. Needham has been good enough to suggest that the International Academy for the History of Science should come under the wing of UNESCO and for that purpose should become an adhering Union of ICSU.

Professor Stratton points out that for the Academy to become an adhering Union, they must apply in accordance with the Statute III 5 of ICSU.

2. He further points out that by the present printed constitution of the International Acad. of the Hist. of Sc., the Academy ~~xxxxxxx~~ is electing its own members; and countries as such have no votes (but merely the right to send representatives to attend and observe at its Executive meetings). Professor Stratton considers that so long as countries as such have no vote in the decisions of the Academy, it will probably be difficult for the Academy to be accepted as an adhering member of ICSU. Professor Stratton takes note, however, that:

3. The Statutes of the International Academy cannot very well be modified until there is a General Meeting of their members, and:

4. They cannot well meet under present circumstances without financial help.

5. Professor Stratton was good enough to suggest that we should consult Dr. Needham and Dr. Cortesao to get their reactions as to whether it might be possible for UNESCO to give preliminary help for the meeting of the Academy on the understanding that the Academy intends to take steps to adhere to ICSU; and that thereafter we should put the whole matter before the President of the International Academy.

6. With regard to paragraph 2 : Professor Stratton proposed that every international body that has been accepted by the International Acad. for the Hist. of Sci. should nominate two representatives as membres effectifs (or effectives). Thus there would be a modification of the present Statute 18 bis (p. 43).

7. This would of course in no way prevent the present method of election of individual Members of the Academy, if duly proposed, seconded and their election carried ; nor of the choice of individual Membres effectifs et effectives from among existing Members by similar methods of election as at present.

8. Dr Needham, having considered the above points, observed as follows :

i. Relations between UNESCO and International bodies are organised as follows :

a. FORMAL AGREEMENTS are concluded for a prolonged period during which any grants may be made, but require the approval of Executive Cttee & General Conf. of UNESCO (which latter meets only once a year), and also submission to Eco Soc . Council.

b. WORKING AGREEMENTS FOR ONLY ONE YEAR NOT RENEWABLE AND NOT INVOLVING GRANTS IN AID concluded under authority of D.G.

c. WORKING AGREEMENTS FOR ONLY ONE YEAR NOT RENEWABLE AND INVOLVING GRANTS IN AID concluded by the Exec utive Cttee of UNO which meets 3 times a year.

ii. Dr Needham suggests:

For International Academy for the Hist of Sci:

Working Agreement with grant in Aid
as early as possible in 1947.

Ad herence to ICSU.

Later on, aid for projects (if any) under cover of ICSU Formal Agreement

ORGANISATION DES NATIONS UNIES
POUR L'EDUCATION, LA SCIENCE & LA CULTURE

COMMISSION PRÉPARATOIRE

Téléphone : Kleber 52-00

Prière d'adresser la correspondance au Secrétaire Exécutif

UNITED NATIONS EDUCATIONAL,
SCIENTIFIC & CULTURAL ORGANISATION

PREPARATORY COMMISSION

19, Avenue Kleber,
PARIS, 16me

Please address all correspondence to The Executive Secretary

2nd November 1946

My dear Mrs.Singer,

Dr Needham and I had a long and very interesting visit from M.Brunet on October 30. We all were joinned later by Professor Michel Lhéritier, Secrétaire Géneral (dimissionnaire) du Comité international des Sciences Historiques, et fondateur et Secrétaire Général (aussi dimissionnaire) de la Conférence international de l'enseignement de l'histoire.

M.Brunet is going to take the necessary steps for the next meeting of the executif council of the IAHS. You all will have to decide whether this meeting is to take place in Paris or in London. He thinks, however, that as Professor Reymond will have to come to Paris at the beginning of December, this favours the idea of the meeting taking place here. There is the difficulty that Unesco cannot give any financial help before January. But at my suggestion, with which Dr Needham agreed, we could make a "gentlemen's agreement" with the members of the Council who will need financial help with their expenses in order that they will be refunded by Unesco after the beginning of January. As there is a good deal of preparatory work to do for the next meeting of the Council, which, I think, will decide about the agenda for the next General Assembly in Lausanne, I am keeping in close touch with M.Brunet who is as enthusiastic as ever.

I shall be at The Hague on November 12, and I have already written to Dr Volgraaff asking him to come to dinner with me in order that we can talk over the subject.

I am going also to ask Professor L.Rosenfeld, of Utrecht, who has written me a long letter with some interesting ideas about the international organisation of the History of Science. I am going to The Hague chiefly on account of colonial matters, but I will take the opportunity to try to meet these two gentlemen.

Meanwhile we have received a letter from Professor Reymond, dated October 26, formally asking Unesco's "moral support and financial help" for the IAHS. I am going to make formal acknowledgement of the reception of his letter, as you will see by the enclosed carbon.

With kindest regards for both you and Professor Singer,

Yours very sincerely,

Fernand Lot

[redacted] KLEber 5200
[redacted] UNESCO PARIS

19 Avenue Kléber,
[redacted]
Paris, 16e.

4.9

[redacted]

Le 4 novembre, 1946.

Monsieur le Professeur Arnold Reymond,
Président de l'Académie internationale
d'Histoire des Sciences,
La Rouvenaz,
Pully,
Lausanne.

Monsieur le Président,

Au nom du Secrétaire Exécutif de la Commission Préparatoire de l'UNESCO, j'ai l'honneur de vous accuser réception de votre lettre du 26 octobre, dans laquelle vous voulez bien solliciter l'appui moral et l'aide financière de l'UNESCO pour votre Académie.

Nous nous occupons activement de ce sujet et, quoiqu'aucune décision définitive ne puisse être prise avant janvier 1947, je vous assure que nous ferons tout le possible pour vous donner satisfaction.

Je vous prie de vouloir bien agréer, Monsieur le Président, l'assurance de mes sentiments les plus distingués.

Dr. Armando Cortesao,
Conseiller
Section des Sciences
Exactes et Naturelles

le 6 Nov. 1946

Cher Monsieur Reymond

Samedi matin, le jour de naissance de mon mari, lui est arrivée la salutation si charmante des 154 collegues. Je ne peux pas vous exprimer combien il est emu de cette geste d'affection, et la joie especiale avec laquelle il a lu le nom de vous-meme. Mais en tres peu de temps, vous recevrez sa propre lettre et ses vives remerciments.

Merci bien pour votre aimable lettre du 3 Nov. a moi-meme, qui me parvient ce matin, en meme temps qu'une lettre de M. Cortesao me disant combien M. Needham et lui-meme sont heureux que tout marche si bien.

Mon mari et moi nous sommes naturellement tous deux parfaitement d'accord avec vous que la reunion importante doit prendre place a Paris ou se trouvera vous-meme, M. Brunet, M. Needham et M. Cortesao au mois de Decembre. Malheureusement mon mari ne doit pas voyager pendant l'hivers- et cela n'aiderait point a vos conseils s'il deviendrait malade.

Je suis sure que ni Monsieur Mieli ni Monsieur Sarton ne peuvent pas assister sans l'aide de UNESCO. Mais quel plaisir si tous les deux pourront faire le voyage par avion grace a UNESCO. J'espere que ca sera possible.

Moi-meme je ne suis pas membre du Conseil. Si vous deciderez (comme on l'a fait en 1934 et a autes occasions) de tenir une reunion des membres effectifs suivant immediatement a la reunion du Conseil, vous pouvez vous fier a ce que j'y assisterai, quel qu'en soit le date. Outre l'importance de l'occasion, quel grand plaisir de retrouver Madame Reymond et vous-meme.

Serait il possible de vous persuader tous deux de revenir avec moi et passer quelques journees chez nous ?

Mon mari envoie a Madame Reymond ses hommages devoues et a vous prie de lui adresser mes affectueux amities, et nous vous envoyons tous deux nos saluts tres cordiales.

Dorothea Daly Singer

M. le professeur Arnold Reymond
La Rouvenaz
Pully, Lausanne

Bibliothèque Universelle.

La Rouvenaz, Pully / Lausanne

12 nov. 1946

Chère Madame,

J'ai été très sensible à votre lettre. Croyez que c'est de tout coeur que ma femme et moi nous nous associons à la fête jubilaire du 70ème anniversaire de Monsieur Singer.

Nous sommes heureux de l'hommage si bien mérité qu'il vient de recevoir.

Monsieur Cortesao m'a écrit officiellement que l'Unesco fera son possible en faveur de l'Académie Internationale d'Histoire des Sciences et c'est bien

P.S. Veuillez à l'occasion me rappeler au bon souvenir de Monsieur Underwood et le remercier de sa lettre du 1er novembre.

grâce à Monsieur Singer et à Monsieur Stratton que ce résultat a été atteint.

Dans le cas où Monsieur Singer ne pourrait venir à Paris dans le courant de décembre et qu'il jugerait que votre présence y serait utile, vous pourriez très bien assister aux réunions du Conseil avec voix consultative.

Je ne vous écris pas plus longuement, car nous partons ma femme et moi demain pour Rome où j'ai été invité officiellement à un Congrès de philosophie

Recevez aussi que Monsieur et Madame Selle Singer, mes meilleurs messages auxquels ma femme joint les siens

Respectueusement votre Arnold Reymond

"Belvoir 10ème & 18ème"

La Rouvenaz, Pully / Lausanne
3 nov. 1946

Chère Madame,

Je vous remercie bien vi-
vement de votre bonne lettre
et des 6 copies de la lettre
adressée à Monsieur Cortesao.
Veuillez dire à Monsieur Sin-
ger et à Monsieur Stratton com-
bien je leur suis reconnais-
sant de tout ce qu'ils ont
fait et de toute la peine
qu'ils ont prise. Le soin
qu'ils ont apporté à exami-
ner la situation de l'aca-
démie et à envisager les
solutions possibles pour la
rattacher à l'ICSU me tou-
che beaucoup et je les remer-
cie de leur grand dévoue-

ment.

J'ai immédiatement envoyé un exemplaire de la copie de la lettre-Cortesao à chacun des membres du Conseil de l'Académie en les priant de me communiquer sans tarder leur opinion sur les solutions proposées. Dès que j'aurai reçu les réponses je vous les ferai parvenir.

Pour ce qui est de la séance du Conseil de notre Académie, comme je dois aller à Paris entre le 10 et 18 décembre (pour une conférence à présenter au Centre de synthèse), cette

séance aura lieu à ce mo=
ment et à Paris, M. Brunet
m'a écrit que cet arrangement
convenait particulièrement bien
puisque M.M Needham et Cor=
tesao habitent présentement à
Paris.

J'espère vivement que
l'état de sa santé permettra
à Monsieur Singer (car sa
présence nous serait précieuse)
d'assister à la séance
et que vous pourrez l'accom=
pagner.

Ma femme viendra à Pa=
ris avec moi et nous nous
réjouissons de vous voir tous
les deux à cette occasion;
nous gardons un si bon sou=
venir de votre visite en
Suisse.

Vous m'excuserez de

ne pas vous écrire longue=
ment, mais j'ai beaucoup
de correspondance ces jours.

Avec tous mes vœux
pour votre santé à tous
deux recevez l'expression
de mes sentiments les meil=
leurs et très respectueux.

Arnold Reymond

P. S Ma femme me charge
de vous adresser ses très
affectueux messages.

Dear Professor Stratton

You will have had my note from London and will have heard also from Professor Dingle. This morning come the enclosed, with a special message to yourself from Professor Reymond. All seems to be progressing well.

May I please have the enclosed letters back in due course ?

I hope you in Cambridge are enjoying the summer days that have come to us here.

With best greetings in which my husband joins

Yours very sincerely

CONSEIL INTERNATIONAL DES UNIONS SCIENTIFIQUES
(INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS)

DR JOHN A. FLEMING, *President*
PROF. B. NĚMEC, *Vice-President*
PROF. EMILE BOREL, *Vice-President*
PROF. F. J. M. STRATTON, *General Secretary*

*Gonville & Caius College*
CAMBRIDGE
ENGLAND

10/11/46

Dear Mr Price,

I return you the letters of Prof. Reymond and Mr. Cortesao. I have seen Prof. Dingle and had a chat with him about the ~~London~~ English committee.

I'm afraid that the pleasant summer days you spoke of were over here before your letter arrived.

Kind regards

Yours sincerely

F. Stratton

# INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

## BRUSSELS AND CAMBRIDGE

By Esther C. Brunauer

THE DEPARTMENT OF STATE

DEPARTMENT OF STATE

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# INTERNATIONAL COUNCIL of SCIENTIFIC UNIONS

## *Brussels and Cambridge*

By Esther C. Brunauer[1]

### I

THE WORLD WAR OF 1914–18 gave a great impetus to scientific research; it also created a movement for simpler yet stronger and more widespread organization of the scientists and scientific work of different nations. A profusion of international societies and committees already existed, but many were small and there was a considerable duplication of functions and membership. For example, 32 separate organizations dealt with as many different phases of astronomy, and 5 international chemical societies were organized. Moreover, as the war went on many scientists in the Allied countries wanted to prevent Germany from regaining her former strong position in scientific organizations, the French and Belgians being especially determined not to enter into personal contact with German scholars who had condoned their country's military and foreign policies.

The first steps toward the establishment of the International Research Council, which later became the International Council of Scientific Unions, were taken at the Inter-Allied Conference on International Scientific Organizations which met in London at the invitation of the Royal

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[1] Mrs. Brunauer is an assistant on international organization in the Division of International Organization Affairs, Office of Special Political Affairs, Department of State. The section of this article dealing with United States membership was prepared in collaboration with Lyle L. Schmitter of the Division of International Conferences, Department of State.

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Society, beginning on October 9, 1918. Eight countries, including the principal Allies, were represented. The problem of post-war contact with the scientists of Germany and the other Central Powers was dealt with in resolutions recommending that Allied scientists withdraw from existing international organizations and form new ones which the neutrals would also be asked to join.

The American Delegation to the London conference presented a plan for the establishment of an International Research Council, prepared by the National Academy of Sciences of the United States. The plan suggested that each country set up or recognize a central scientific body, one of whose principal functions would be to represent its nation on the International Research Council. At the same time, international unions would be organized in the major scientific fields under the auspices and general administrative control of the Council, and the national sections of these unions would be coordinated by the national research councils or academies.

At the invitation of the Academy of Sciences, a second conference was held in Paris several weeks later (Nov. 26–29). The delegates to that conference provisionally constituted the International Research Council. A provisional executive committee was formed to get the Council regularly constituted and to proceed with the organization of the separate scientific unions. Tentative statutes were adopted for the International Astronomical Union and the International Union of Geodesy and Geophysics, and plans were made for organizing the International Chemistry Union.

The International Research Council and the three unions so far set up were inaugurated at a conference in Brussels, July 18–28, 1919. Twelve countries were represented, as well as a wide range of scientific interests. The statutes of the Council were approved, but it was provided that they should expire at the end of 12 years. Additional Allied countries and several neutral countries were invited to join the Council and the unions; the

Central Powers were excluded by a reference in the membership provisions to the resolution of the London conference.

Besides agreeing on the statutes of the Unions of Astronomy, of Chemistry, and of Geodesy and Geophysics, the Brussels conference made plans and drafted provisional statutes for Unions of Mathematics, Physics, Scientific Radio, Geography, Geology, Biology and Medicine, and Bibliography. The Geological Union and the Union for Bibliography have never materialized, and the Mathematics Union disappeared when the Council was reorganized in 1931. Biology and medicine were separated later; the Union of Biological Sciences was developed and still exists, but the projected Union of Medical Sciences was never established.

During the life of the first statutes of the International Research Council the most important developments were the growth and stabilization of the separate scientific unions and the struggle to admit the former enemy countries to the Council and the unions.

The problem of the admission of Germany, Austria, Hungary, and Bulgaria was brought up at every meeting of the Council until the prohibitions against those countries were removed from the statutes at a special session in 1926. The neutrals started the movement before the second assembly in 1922. By 1925 they were joined by Great Britain and the United States. Belgium, France, Poland, and Czechoslovakia led the opposition and mustered enough votes to prevent a change in the membership regulations. In 1926 the admission of Germany to the League of Nations changed the situation. However, after the statutes were amended and the four excluded countries were invited, only Bulgaria and Hungary joined. The German scientists declined on the grounds that governments played too large a role in the Council. Later, Germany joined the Unions of Geodesy and Geophysics, Chemistry, Radio, and Geography. Austria joined neither the Council nor any of the unions.

In accord with the stated purpose, "to direct international scientific activity in subjects which do not fall within the purview of any existing international associations", the Council in 1922 authorized the establishment of the Committee to Investigate Relations between Solar and Terrestrial Phenomena. This Committee was created on the recommendation of the Astronomical Union, which sought the cooperation especially of the Geophysical Union and the Scientific Radio Union. It is an agency of the Council and is subsidized by it.

The Council has set up two other major committees. In 1932 the Executive Committee approved the appointment of a Committee on Instruments and Methods of Research which was expected to have affiliated national committees in the member countries. However, by 1937 it was found that the separate unions and national councils had developed their own facilities for the study of this subject and that a general committee could contribute very little. Therefore it was dissolved. The second, the Committee on Science and Its Social Relations, established in 1937, is still in existence. The decision to set it up was a result of the impact of the national and international political and economic crises of the 1930's on the lives and activities of intellectual workers in all fields.

The statutes of the Council were revised in 1931 when the convention adopted in 1919 expired. The name of the organization was changed to the International Council of Scientific Unions. The change of name reflected the growing international importance of the separate scientific unions as compared with the national academies and research councils. The most important differences between the statutes of 1931 and 1919 are related to this development. Unions were given larger representation on the Executive Committee, and it was provided that they should be represented directly in the Assembly as well. Also, the unions were left free to accept as members national committees

in their respective fields from countries that did not belong to the Council. Most countries in which significant scientific work was being done belonged already to the Council, and the only major nations affected were Germany and the Soviet Union, both of which belonged to some of the unions but not to the Council.

The 1937 Assembly of the International Council of Scientific Unions, the first of the triennial meetings to be held away from Brussels, which has remained the legal seat of the organization, was held in London. The 1940 meeting was to have taken place at Copenhagen.

In July 1937 the Executive Committee of the Council met with the International Committee on Intellectual Cooperation to put into effect an agreement for close collaboration between the Intellectual Cooperation Organization and the Council of Scientific Unions. Four projects were undertaken which constituted the principal activities of the Council between 1937 and the outbreak of war in 1939. The first was the establishment of a Committee for the Study of Phytohormones, which held a conference in Paris in October 1937. The International Union for Biological Sciences collaborated in the preparations. Another study committee was organized on physico-chemical methods of determining the molecular and atomic weights of gases; its first meeting was held at Neuchâtel in December 1937 with the cooperation of the Unions of Physics and Chemistry. A cooperative program was worked out for the republication and reprinting in facsimile of rare and important old scientific works, and the International Committee on Intellectual Cooperation was requested to put the program into effect. In May and June 1938 a Scientific Conversation on the New Theories of Modern Physics was held at Warsaw, at the invitation of the Polish Committee on Intellectual Cooperation.

The following countries are members of the International Council of Scientific Unions through national research councils or similar central scien-

tific bodies which are usually supported by governments: Australia, Belgium, Canada, China, Cuba, Czechoslovakia, Denmark, Estonia, Finland, France, Great Britain, Greece, Hungary, Italy, Japan, Lithuania, Netherlands, Netherlands Indies, New Zealand, Norway, Poland, Rumania, Spain, Sweden, Switzerland, United States of America, Uruguay, Vatican City, and Yugoslavia.

The following countries are members directly through their governments or through a governmental bureau: Argentina, Brazil, Bulgaria, Chile, Egypt, India, Mexico, Monaco, Morocco, Peru, Portugal, Tunisia, and Union of South Africa.

The following international scientific unions adhere to the International Council: International Astronomical Union, International Union of Geodesy and Geophysics, International Chemistry Union, International Scientific Radio Union, International Union of Physics, International Union of Geography, and International Union of Biological Sciences.

The International Council of Scientific Unions performs three principal functions: (1) provision for cooperation among the representative scientific agencies of various nations and among international scientific organizations; (2) direction of international scientific activity in subjects which do not fall within the purview of any existing international associations; and (3) entering into relation with the governments of member countries through the national adhering organizations, in order to promote scientific investigation in those countries.

The International Council of Scientific Unions is composed of international unions for various fields of science and a representative central scientific agency for each member country. For the purposes of membership in the Council, the term *country* includes dominions, diplomatic protectorates, and any dependency in which independent scientific activity has been developed. A country may join the International Council

through its principal academy, through a national research council or some other national institution or association of institutions, or, in the absence of these, through its government. A new international union must submit its statutes and have its application for membership approved by the General Assembly after at least six months' notice. The term *adhering organization* is used to designate both the national agencies and the international unions which belong to the Council.

The General Assembly, in which both the member countries and the international unions are represented, meets every three years. The delegates are appointed by the adhering organizations. In the Assembly, decisions on scientific questions are taken by a majority of the votes cast by the delegates present; on all questions not purely scientific, including administrative decisions, the vote is taken by adhering organizations, each national agency having one vote and each international union three. The approval of new scientific unions requires a two-thirds majority of the votes of adhering organizations present and voting; amendment of the statute requires a two-thirds majority of the votes of all adhering organizations. On all other non-scientific questions a simple majority of the votes of adhering organizations present and voting is required. The General Assembly meets at Brussels, the legal seat of the organization, unless another meeting-place is specifically fixed or authorized by the preceding Assembly.

The General Assembly elects from among the members of the adhering organizations a President, two Vice Presidents, a General Secretary, and two members of the Executive Committee. The President serves until the end of the next ordinary General Assembly after his election; the other officers, until the end of the second Assembly after their election. Except for the General Secretary they are not immediately eligible for re-election. The President and Vice Presidents of the organization serve in that capacity on the Execu-

tive Committee. The General Secretary is responsible for correspondence, administration of funds, and the distribution of publications authorized by the Assembly. Although the legal seat of the Council is Brussels, where the archives are kept, the actual administration is carried on from the place where the General Secretary resides. Since 1934 the administrative headquarters has been at Cambridge, England. The International Council of Scientific Unions publishes the proceedings of each triennial General Assembly.

The Executive Committee is composed of the officers of the Council, two members elected by the General Assembly and two representatives of each scientific union. It governs the Council between meetings of the General Assembly but is required to make annual reports to the adhering organizations, which are sent also to each delegate who attended the previous meeting of the Assembly. The Executive Committee may appoint special committees for the study of any question within the competence of the Council.

The annual contribution of each country is fixed in the statute at 100 gold francs. Since there are normally 42 countries in the Council, the annual income is ordinarily 4,200 gold francs, or approximately $1,300. The annual expenditure in the years before the outbreak of the war was about $1,000, the principal items being grants to the committees and the printing of the triennial proceedings.

## II

THE UNITED STATES played an important part in the establishment of the International Research Council in 1918 and 1919, and American participation in both the Council and the scientific unions has continued to be extensive.

The American contribution to the development of the International Research Council, and later the International Council of Scientific Unions, is based directly on the Executive order under which the National Research Council was transformed

from a temporary, wartime agency into a permanent institution. The duties of the Council outlined in this order, signed by President Wilson on May 11, 1918, include the promotion of cooperation in research at home and abroad, "in cooperation with government and other agencies".

The quasi-official status of the National Academy of Sciences and the National Research Council makes the participation of the United States in the International Council of Scientific Unions a matter of both governmental and private concern. Congress appropriates funds to pay the American financial contribution to the International Council and certain of the constituent unions. The National Research Council, however, is responsible for participation in the International Council and for promoting and coordinating American activities in the several unions. Representatives of the unions are members of the Division of Foreign Relations of the National Research Council, and the scientific divisions include the executive committees of the American sections of the corresponding international unions.

Besides the legal ties which place the National Research Council at the service of the United States Government for its foreign as well as its national scientific relations, the active participation in the Council of men from Government bureaus and laboratories makes very close the connection between the Government on the one hand and the National Research Council, the International Council, and the scientific unions on the other.

The United States is authorized to contribute annually to these unions by an act of Congress approved August 7, 1935 (49 Stat. 540) which reads as follows:

"*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled*, That there is hereby authorized to be appropriated, to be expended under the direction of the Secretary of State, in paying the

annual share of the United States as an adhering member of the International Council of Scientific Unions and Associated Unions, including the International Astronomical Union, International Union of Chemistry, International Union of Geodesy and Geophysics, International Union of Mathematics, International Scientific Radio Union, International Union of Physics, and International Geographical Union, and such other international scientific unions as the Secretary of State may designate, such sum as may be necessary for the payment of such annual share, not to exceed $9,000 in any one year."

Because of the suspension of many cooperative activities and cutting off of contacts due to the war, payments to certain of the associated unions have been suspended. The United States now contributes to the International Council of Scientific Unions, the International Union of Geodesy and Geophysics, and the International Scientific Radio Union. An annual appropriation is voted by Congress in the Department of State appropriation bill.

The first appropriation ($2,658) for official participation by the United States in the expenses of the International Council and associated unions was provided in Public Act 357, approved March 2, 1921 (41 Stat. 1213). There appears to have been no legislative authority for this appropriation other than the appropriation bill, but the practice continued until 1932, after which Congress discontinued the annual payments. The annual dues for the calendar years 1933, 1934, and 1935 were paid by the National Academy of Sciences and the National Research Council. Finally legislation was proposed to remedy this situation, and on June 16, 1934 Congress authorized an appropriation for one year. In August 1935, however, the United States again became an adhering member, and Congress authorized an annual appropriation not to exceed $9,000 in any one year. From this sum, the United States contributes 100 gold

francs ($32.67) to the International Council of Scientific Unions, 3,200 gold francs ($1,045.44) to the International Astronomical Union, 12,000 Swiss gold francs ($3,920.40) to the International Union of Geodesy and Geophysics, and 1,200 gold francs ($392.04) to the International Scientific Radio Union.

The National Academy of Sciences and the National Research Council, which were organized in 1863 and 1919 respectively to act in an advisory capacity to the United States Government, are the American members of the International Council.

## III

IN 1937 the International Council of Scientific Unions entered into an agreement with the International Intellectual Cooperation Organization for the coordination of programs and activities. Under the terms of the agreement the Council undertook to act as an advisory organ of the Intellectual Cooperation Organization on scientific problems and to consult the latter on all international questions affecting the organization of scientific work. The Intellectual Cooperation Organization agreed to provide the secretariat for committees set up by the Council. An exchange of representation was also agreed to.

Although the separate unions were able to carry on some work during the war, the International Council has been inactive since 1939. However, the Division of Foreign Relations of the National Research Council of the United States has maintained an interest in international scientific cooperation and has kept in close touch with the activities that could be carried on under war conditions. In order to prepare for resumption of relations after the war and for possible improvements in organization, the American representative on the International Committee on Science and Its Social Relations and the Chairman of the Division of Foreign Relations of the National Research Council have made a study of international science organizations, 1919–1944. At the conclu-

sion of this study they made the following recommendations, "on the assumption that science and technology are fundamental techniques in international relations, and that fundamental science affords an excellent opportunity for the improvement of methods in the art of international collaboration":

1. The Foreign Secretaries of the Russian Academy of Science, The Royal Society of Great Britain, and the National Academy of Sciences of the United States should explore the possibilities of an inter-academy study of their international relations in those phases of science which are of benefit to all men and inimical to none.

2. The International Council of Scientific Unions, through its British and American officers, should simultaneously prepare a memorandum for all governments which have adhered to the international scientific unions on how the unions may best collaborate in post-war research and educational problems.

3. The Division of Foreign Relations of the United States National Research Council should continue to advise the United States Academy of Sciences in all international scientific matters which may or may not be in the self-interest of United States scientists, their institutions, and their related responsibilities to the welfare of their countrymen.

The development and use of the atomic bomb in warfare has drawn attention to the international aspects of fundamental scientific research and has provoked wide-spread discussion about controlling the application of scientific knowledge so as to serve the general welfare and avert disaster to mankind. This heightened interest in international scientific collaboration will undoubtedly make itself felt in the associations and unions of scientists as well as in the projected Educational and Cultural Organization of the United Nations and in the United Nations Organization itself.

1927 Aldo Mieli convoked Editors

1928 Oslo – Section Hist Sci ~~drew up statutes~~
appointed Ctee of 5 to make statutes
& nominated first 15 additional effectifs
& these 22 elected further 19 Correspondents

May 1929 All met in Paris
under Gino Loria pt. Pres.
Adopted Statutes {Loria 20-25 May 1929
CS 1929-31
Smith 1931-4 but died in office
Vetter 1934-8

P 5 Presidents

Treasurers {Sigerist 1929-31
Mulligan 31-45

See Mieli

P 36 Statutes. Council numbers of Honorary and
50 Effectifs (see p. 13) most imp.
to elect others - by post
100 Correspondents
Reserve min. for each country. 6 The biggest
3 Next ch

P 42 National Groups
Only one for each country
But indivs to be elected indep'ly
No office holder of country at war
But Groups only entitled to "Observers"
UNESCO wished help
thro' ICSU

As regards Groups
see Swallow suggestion

NOTE.

Professor Stratton suggests that if it is decided to form a British National Group of the International Academy for the History of Science, this might well include representatives of:

Royal Society
British Academy (N.B. Sir Frederic Kenyon is ~~Hon. Pres.~~ one of 4 Hon. Members of the International Acad. for Hist. Sc.
British Council
Roy. Soc. Med. Historical Section
Soc. for Hist. of Early Chemistry & Alchemy
Science Museum
Wellcome Museum

etc.

England.

22nd October, 1946.

My dear Professor Reymond,

We have had a most fruitful week in London. First we saw Professor Stratton who is sympathetic to the enrolment of our International Academy as an adhering Union of the International Council of Scientific Unions with a view to help from UNESCO.

Then we were most luckily able to see both Dr. Needham and Dr. Cortesao. ( I should explain than Dr. Cortesao is now a Councillor under Dr. Needham and is especially concerned with the History of Science - being himself andistinguished historian of Geography. You will remember that before this appointment we proposed him for our International Academy.) After seeing Dr. Needham and before Dr. Cortesao came to see us, I formulated matters up to date in the enclosed letter of the 19th October.

I told Professor Stratton of your plan to obtain by correspondence the views of the Council of the International Academy as to the Academy's application to become an adhering Union to I.C.S.U., and Professor Stratton was good enough to say that he would propose that I.C.S.U. should consider such an application on the understanding that it would, of course, be endorsed by a meeting of our Membres Effectifs, and ultimately by a general meeting of the Members. As you will see Dr. Needham and Dr. Cortesao envisage the possibility of UNESCO giving a small subvention to enable the Membres Effectifs to attend a meeting as soon as possible. Dr. Cortesao, whom I saw last night, thought that the meeting should be held in January and, if possible, early in January. He would like an estimate as soon as possible of the subvention that would be needed to enable the Membres Effectifs to attend this meeting.

I think you will fee that Professor Stratton's recommendations 6 and 7 ( on page 2) meet all our views as regards corporate or individual membership of the International Academy.

My husband and I will eagerly await word from you as to the reactions of the members of the Council whom you are circularising.

P.T.O.

With regard to the British National Group we have asked Professor Herbert Dingle, Professor of the History and Philosophy of Science at University College, to call a meeting as soon as possible - and this will probably take place in November.

I rather doubt if my husband will be allowed to travel in the winter, but I will gladly come wherever you decide to hold the meeting, and I shall bring you his ideas too. As to the question between Paris and London this is entirely for you to decide, but I understand that the cost of living in Paris is terrifically high. I feel sure I could get hospitality in London for three or four persons, but, of course, that would not cover us all, and I think it would be a good plan for the estimate of expenses to include both cost of travel and cost of maintenance for those who can attend without a subvention. I imagine that our business meeting, as in the past, will take only about one day.

As regards Madame Reymond and yourself it will be a pleasure to arrange hospitality in London, and my husband and I hope that you will come down to Cornwall to spend a few days with us before you return hom.

We have no news yet of Mieli, but we are continuing to do our best.

With our most cordial greetings to Madame Reymond and yourself -

Yours very sincerely,

Mrs Charles Singer.

P.S. Please tell Madame Reymond that her novel has not reached us. I expect that like almost all good works it proves to be out of print !

HERE IS THE MOST IMPORTANT PS.: Both Dr. Needham with Dr. Cortesao and Professor Stratonn approve your plan of getting the decision of the Council by individual letter and of regarding this as a provisional decision which will be endorsed at the Executive Meeting and finally at the Lausanne General Meeting. So I am sending you 6 copies of the letter to Dr. Cortesao which summarises the whole plan.

iii. Th e International Academy for the History of Science should therefore :

a. Take steps to adhere to ICSU as soon as possible, as foreshadowed in Professor Reymond 's letter of 21 Aug. 1946 to Mrs Singer

b. Send to Dr. Cortesao as soon as possible an estimate of the probable cost of a Meeting of the Membres Effectifs in the spring of 1947 as suggested in Professor Reymond 's letter above-mentioned.

With all best greeting

Yours sincerely

Mrs Charles Singer

ORGANISATION DES NATIONS UNIES
POUR L'ÉDUCATION, LA SCIENCE & LA CULTURE

COMMISSION PRÉPARATOIRE

Tel. : KLÉber 52-00
Telegr. : UNESCO-PARIS

UNITED NATIONS EDUCATIONAL,
SCIENTIFIC & CULTURAL ORGANISATION

PREPARATORY COMMISSION

Unesco-House,
19, Avenue Kléber
Paris 16e

Your No.

Our No. 4.9

Please address all correspondence to
The Executive Secretary —

18th November, 1946.

My dear Mrs. Singer,

Thank you very much for your letter of November 13th, enclosing a carbon of your letter for Dr. Needham.

We are all very busy indeed with the Conference, and he asks me also to write to you in his name. We are both rather distressed with what you say about Professor Sarton, and we should like to help him to come to the Council Meeting of I.A.H.S., to be held in Paris in December. The difficulty is that we shall not be able to dispose of any funds for that purpose before January 1947. The most we can do - as Dr. Needham has just told me - is to extend to Professor Sarton the "gentlemen's agreement", to which I referred in my letter of November 2nd to you, assuming a reasonable continuity of personnel and policy, i.e. if Dr. Needham and I are still here in January and the new Director-General (who we very much hope will be Dr. Huxley) approves of it.

I had a very agreeable meeting with Dr. Volgraaff and Professor Rosenfeld at the Hague on November 12th. Professor Rosenfeld had some idea of starting a new international organisation "whose activity would be more especially concentrated on the study of the inter-relations of science and other social activities of mankind in the course of history". It was easy to convince him that this aspect of the history of science could find ample room in the I.A.H.S. I told him - and Dr. Volgraaff heartily agreed - that it would be a good thing if he could come to the next meeting of the Council of the I.A.H.S. in Paris. I hope that you and the other members of the Council will agree, and I am going to get in touch with M. Brunet about it. I do think that his presence would be greatly appreciated.

Dr. Dorothea Wally Singer,
Kilmarth,
Par, Cornwall.

Michael Roberts

Professor Dingle has written to Dr. Needham, telling him that he would like him to be present at the next meeting of the British Group in London. Dr. Needham told him that he was unable to come but that I might. We have just received a letter from Professor Dingle, saying that I would be welcome, but unfortunately, I cannot come either, owing to pressure of work during the Conference. Would you be so kind as to tell Professor Dingle ?

With kindest regards to Professor Singer and yourself.

Yours very sincerely,

(~~Dr.~~ A. Cortesao)

Dr. Dorothea Wally Singer,
Kilmarth,
Par,
Cornwall,
England.

ac/bs.

FEDERATION INTERNATIONALE D'HISTOIRE ET DE PHILOSOPHIE DES SCIENCES

## Avant-Projet des Statuts

Art.1. L'Union Internationale d'Histoire des Sciences et l'Union Internationale de Philosophie des Sciences se fédèrent dans une Fédération Internationale d'Histoire et de Philosophie des Sciences.

Art.2. La Fédération Internationale d'Histoire et de Philosophie des Sciences a pour but de favoriser le rapprochement entre historiens et philosophes des sciences et d'aider chacune des deux Unions à poursuivre ses buts propres. Le siège de la Fédération est à Paris, au siège de l'Union Internationale d'Histoire des Sciences.

Art.3. Dans leur activité scientifique et administrative chacune des deux Unions jouit d'une autonomie et d'une responsabilité propres. Chacune possède ses Statuts propres, sous réserve que ceux-ci soient en accord avec les présents Statuts. Chacune a une Assemblée Générale distincte, un budget, des biens et des publications propres. Chacune reste libre de s'affilier à toute autre organisation internationale compatible avec ses Statuts.

Art.4. Pour établir la collaboration entre les deux Unions, on fera, autant que possible, coïncider les dates et lieux de leurs Assemblées Générales. Un membre nommé par le Conseil de chaque Union fera partie de droit du Conseil de l'autre Union et sera convoqué à toutes ses réunions. Un Bureau commun veillera à la coordination des activités des deux Unions.

Art.5. Le Bureau est constitué de six membres, trois de chaque Union, délégués respectivement par chacune des deux Unions, et ayant l'agrément des Conseils des deux Unions. Le Bureau élit un Président et un Secrétaire de la Fédération, qui doivent obligatoirement ~~appartenir à~~ ne pas la même Union, le changement de Président et du Secrétaire ayant lieu tous les trois ans, et passant alternativement à chaque Union.

Art.6. Le Bureau transmet aux organismes internationaux (UNESCO, ICSU, etc?) au nom de la Fédération, les rapports, documents financiers, etc. de chaque Union. Chaque Union sera responsable seulement de la partie des documents qui la concernent. Le Président et le Secrétaire de la Fédération veilleront à ce que les documents soient transmis dans les délais nécessaires, en respectant les rédactions établies par chaque Union.

Art.7. Le Président et le Secrétaire représentent la Fédération dans toutes les réunions internationales où elle est invitée; ~~Fédération n'a le droit qu'à un seul représentant, ce droit reviendra alternativement~~ ment, pour chaque année civile, à chacune des Unions. Dans ce cas, le représentant de l'autre Union prendra part à ces réunions en qualité d'observateur; ses frais de voyage seront supportés par l'Union à laquelleil appartient.

Art.8. Un groupe national ou international peut adhérer à l'une ou à l'autre, ou à toutes les deux Unions. Mais chaque groupe est tenu de remplir ses devoirs statutaires par rapport à chaque Union à laquelle il adhère. En particulier, sa cotisation annuelle sera payée séparément et directement à chaque Union. D'autre part, chaque Union supporte les frais concernant ses propres activités, en remboursant au Bureau de la Fédération les frais correspondants.

...../.....

[Jan 1947]

# PROJET DE STATUT DE L'ACADEMIE INTERNATIONALE D'HISTOIRE DES SCIENCES ET DE L'UNION INTERNATIONALE D'HISTOIRE DES SCIENCES.

**Art. 1.** - L'organisation internationale de la discipline d'Histoire des Sciences comprend deux institutions étroitement liées entre elles : l'Académie Internationale d'Histoire des Sciences et l'Union Internationale d'Histoire des Sciences.

**Art. 2.** - L'Académie Internationale d'Histoire des Sciences - qui fonctionna depuis sa fondation à Oslo en août 1928 juqqu'au 25 juin 1935 sous le nom de Comité International d'Histoire des Sciences - a son siège à Paris.

**Art. 3.** - L'Académie Internationale d'Histoire des Sciences est constituée sur le modèle des grandes académies scientifiques. Elle comprend 50 membres effectifs et 100 membres correspondants, choisis parmi les historiens des Sciences dont les travaux dans cette spécialité sont les plus remarquables et qui ont le plus contribué au progrès de l'historiographie des Sciences.

Un minimum de places est réservé aux différents pays où groupements des pays, sans que ce nombre doive nécessairement être atteint. Si ce nombre n'est pas atteint, les places qui ne sont pas occupées par des savants des pays envisagés doivent rester vacantes. La répart-

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tion entre les pays est faite selon le tableau compris dans l'additif de cet article.

L'Académie comprend aussi des membres d'honneur, élus parmi les personnalités qui ont bien mérité des études d'Histoire des Sciences.

Art. 4. - L'Académie Internationale d'Histoire des Sciences est dirigée par un conseil composé d'un président, trois vice-présidents, un administrateur-trésorier (qui est ré-éligible), élus tous les trois ans, ainsi que des anciens présidents de l'Académie et d'un secrétaire perpétuel.

Art. 5. - Les membres de l'Académie Internationale d'Histoire des Sciences sont nommés à vie.

Tous les ans, vers la fin du mois de décembre, le secrétaire perpétuel invite les membres effectifs à nommer aux places vacantes des nouveaux membres effectifs ou correspondants. A cet effet il leur communique le nombre de places vacantes. Le vote qui suivra aura lieu exclusivement par correspondance.

Les nouveaux membres effectifs sont choisis exclusivement parmi les membres correspondants. Les bulletins de vote ne doivent pas porter plus de noms qu'il y a de places à pourvoir. Seront proclamés élus, dans l'ordre décroissant des voix obtenues et jusqu'au nombre de places à pourvoir, tous ceux qui obtiennent au moins la moitié des voix exprimées et par moins d'un tiers du nombre de membres effectifs en charge.

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Les nouveaux membres correspondants sont élus sur une liste comprenant les noms de tous les savants qui auraient obtenu au scrutin de deux années précédentes au moins cinq voix. La liste comprendra aussi tout ceux qui auraient été proposés par écrit par au moins trois membres effectifs. Ces propositions doivent être envoyées au secrétaire perpétuel au mois de novembre ou de décembre. Cette liste sera communiquée aux membres effectifs par le secrétaire perpétuel. L'élection se fait suivant la procédure indiquée pour l'élection des membres effectifs.

Les membres d'honneur sont élus dans les séances des sessions ordinaires triennales.

Art. 6. - L'Académie Internationale d'Histoire des Sciences se réunit en sessions ordinaires tous les trois ans dans les lieux désignés au cours de sessions précédentes sauf dans les cas de force majeure. A chaque sessions ordinaire, l'Académie procède, selon l'ordre indiqué, aux délibérations suivantes : désignation du lieu de la prochaine session ; élection du Président de l'Académie, élection de trois vice- présidents, élection de l'administrateur-trésorier. Les élections sont faites à la majorité des membres effectifs présents. Les nouveaux élus entrent en charge à la fin de la session.

Dans sa session triennale l'Académie s'occupe aussi de toutes les questions relatives à l'administration

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de l'Académie, à son budget, aux directives scientifiques et pratiques à suivre. Les années où n'ont pas lieu les sessions ordinaires triennales, l'Académie se réunit une fois à son siège où ont/ lieu des éventuels congrès internationaux des Sciences Historiques.

Dans des cas exceptionnels le président, après un vote favorable du Conseil, peut convoquer une session extraordinaire. Cette session doit être annoncée quatre mois d'avance et on n'y pourra discuter d'autres sujets que ceux portés à l'ordre du jour quatre mois d'avance.

Art. 7. - Lorsque la charge de secrétaire perpétuel devient vacante le président invite par correspondance tous les membres effectifs à proposer un candidat. Si le même candidat est désigné par les trois quarts des membres effectifs, celui-ci sera nommé secrétaire perpétuel. Dans le cas contraire, les membres effectifs voteront par correspondance pour un candidat qu'ils choisiront sur une liste comprenant les noms de ceux qui ont été proposés par quatre d'entre eux au moins. Sera proclamé élu le condidat qui aura obtenu les voix de trois quarts des votants. On procédera à autant de tours de scrutin qu'il sera nécessaire pour obtenir ce résultat.

Art. 8. - Pour élargir sa sphère d'influence et afin de contribuer plus directement à l'activité des grands organismes internationaux, spécialement l'ICSU

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et l'UNESCO, il est créé, à partir du I Janvier 1947, une Union Internationale d'Histoire des Sciences. Les buts de cette Union sont les suivants :

a) établir des rapprochements entre les historiens des Sciences et entre les institutions, les sociétés, les rédactions des revues, etc...) consácrées à cette discipline.

b) organiser du point de vue technique les réunions périodiques internationales, congrès, d'Histoire des Sciences.

c) rassembler tous les documents qu'on croira nécessaires au développement de l'Histoire des Sciences.

d) prendre toutes les mesures qu'on croirait nécessaires ou utiles pour le développement, pour l'organisation des études de l'Histoire des Sciences, notamment les congrès internationaux d'Histoire des Sciences qui auront lieu à l'occasion des sessions triennales de l'Académie de l'Histoire des Sciences.

e) attribuer les fonds nécessaires au bon fonctionnement de l'Académie Internationale de l'Histoire des Sciences. A part les traitements du secrétaire perpétuel, du trésorier-administrateur et de l'archiviste-bibliothécaire, toutes les autres subventions doivent être soumises au vote de l'assemblée générale.

Art. 9. - L'Union Internationale d'Histoire des Sciences comprend deux catégories de membres : a) les membres à titre personnel, qui sont tous les membres tant effectifs que correspondants de l'Académie Interna-

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tionale d'Histoire des Sciences, b) les membres représentants, élus par les groupes nationaux d'Histoire des Sciences, à raison de deux par pays, pour une période de cinq ans.

Art. 10. - L'Union Internationale d'Histoire des Sciences est dirigée par un Conseil composé d'un président, de deux vice-présidents, des assesseurs, un secrétaire exécutif (chargé de rapports avec les grand organismes internationaux), élus par l'Assemblée générale de l'Union pour cinq ans. Le secrétaire perpétuel et l'administrateur-trésorier de l'Académie Internationale des Sciences font partie de droit de ce conseil, avec les attributions de secrétaire général et de trésorier-administrateur.

L'Union Internationale d'Histoire des Sciences se réunit en assemblée générale tous les trois ans.

A l'Assemblée Générale de l'Union ont droit à un vote : 1) chaque membre effectif de l'Académie ; 2) chaque groupe national.

Art. 11. - On encouragera l'organisation dans chaque pays de Groupes Nationaux d'Histoire des Sciences, afin de faire entrer les savants de ce pays en rapport avec l'Union Internationale d'histoire des Sciences. Les buts des groupes sont, dans chaque pays, ceux indiqués à l'article 8 pour l'Union (points a,b,c,d,). L'organisation de ces groupes sera semblable, dans les lignes générales, dans tous les pays, et sera déterminée par un règlement spécial.

à titre personnel, ~~qui sont~~ c'est à dire tous les membres tant effectifs que correspondants de l'Académie Internationale d'Histoire des Sciences, b) les membres représentants, élus par les groupes nationaux d'Histoire des Sciences, à raison de deux par pays, pour une période de ~~cinq~~ trois ans, et qui sont rééligibles.

Les membres a titre personnel peuvent être élus aussi ~~comme~~ membre représentant

Art. 10 - L'Union Internationale d'Histoire des Sciences est dirigée par un Conseil composé d'un président de deux vice-présidents, ~~des~~ 2 assesseurs, ~~un secrétaire exécutif (chargé de rapports avec les grands organismes internationaux)~~, élus par l'Assemblée générale de l'Union pour ~~cinq~~ trois ans, et rééligibles et rééligibles de plus; Le secrétaire perpétuel et l'administrateur trésorier de l'Académie Internationale des Sciences font partie de droit de ce conseil, avec les attributions de secrétaire général et de trésorier-administrateur. ~~et qui sont rééligibles~~ l'administrateur

Sont et éventuellement rééligible.

L'Union Internationale d'Histoire des Sciences se réunit en assemblée générale tous les trois ans au moins.

A l'Assemblée générale de l'Union ont droit à un vote : 1) chaque membre effectif de l'Académie; 2) chaque groupe national. 3) chaque section d'une division quelconque

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# PROJET DE STATUTS DE L'ACADEMIE INTERNATIONALE D'HISTOIRE DES SCIENCES ET DE L'UNION INTERNATIONALE D'HISTOIRE DES SCIENCES

Art. 1 - L'organisation internationale de la discipline d'Histoire des Sciences comprend deux institutions étroitement liées entre elles : l'Académie Internationale d'Histoire des Sciences et l'Union Internationale d'Histoire des Sciences.

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Un minimum de places est réservé aux différents pays ou groupements des pays, sans que ce nombre doive nécessairement être atteint. Si ce nombre n'est pas atteint, les places qui ne sont pas occupées par des savants des pays envisagés doivent rester vacantes. La répartition entre les pays est faite selon le tableau compris dans l'additif de cet article.

L'Académie comprend aussi des membres d'honneur élus parmi les personnalités qui ont bien mérité des études d'Histoire des Sciences.

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Art. 4 - L'Académie Internationale d'Histoire des Sciences est dirigée par un conseil composé d'un président, trois vice-présidents, un administrateur-trésorier (qui est rééligible), élus tous les trois ans, ainsi que des anciens présidents de l'Académie et d'un secrétaire perpétuel.

Dans le cas où le Secrétaire Perpétuel n'a pas sa résidence à Paris, il sera suppléé au siège de l'Académie par un Secrétaire-Adjoint.

Art. 5 - Les membres de l'Académie Internationale d'Histoire des Sciences sont nommés à vie.

Tous les ans, vers la fin du mois de décembre, le secrétaire perpétuel invite les membres effectifs à nommer aux places vacantes des nouveaux membres effectifs ou correspondants. A cet effet il leur communique le nombre de places vacantes. Le vote qui suivra aura lieu exclusivement par correspondance.

Les nouveaux membres effectifs sont choisis exclusivement parmi les membres correspondants. Les bulletins de vote ne doivent pas porter plus de noms qu'il y a de places à pourvoir. Seront proclamés élus, dans l'ordre décroissant des voix obtenues et jusqu'au nombre de places à pourvoir, tous ceux qui obtiennent au moins la moitié des voix exprimées et pas moins d'un tiers du nombre de membres effectifs en charge.

Les nouveaux membres correspondants sont élus sur une liste comprenant les noms de tous les savants qui auraient obtenu au scrutin de deux années précédentes au moins cinq voix. La liste comprendra aussi tous ceux qui auraient été proposés par écrit par au moins trois membres effectifs. Ces propositions doivent être envoyées au secrétaire perpétuel au mois de novembre

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ou de décembre. Cette liste sera communiquée aux membres effectifs par le secrétaire perpétuel. L'élection se fait suivant la procédure indiquée pour l'élection des membres effectifs.

Les membres d'honneur sont élus dans les séances des sessions ordinaires triennales.

Art. 6 - L'Académie Internationale d'Histoire des Sciences se réunit en sessions ordinaires tous les trois ans dans le lieu désigné au cours de la session précédente, d'entente avec l'Union International d'Histoire des Sciences, sauf dans les cas de force majeure. A chaque session ordinaire, l'Académie procède, selon l'ordre indiqué, aux délibération suivantes : élection du Président de l'Académie élection de trois vice-présidents, élection de l'administrateur-trésorier. Les élections sont faites à la majorité des membres effectifs présents. Les nouveaux élus entrent en charge à la fin de la session.

Dans sa session triennale l'Académie s'occupe aussi de toutes les questions relatives à l'administration de l'Académie, à son budget, aux directives scientifiques et pratiques à suivre. Les années où n'ont pas lieu les sessions ordinaires triennales, l'Académie se réunit une fois à son siège à Paris, ou dans les villes où éventuellement ont lieu les congrès internationaux des Sciences Historiques.

Dans des cas exceptionnels, le Président, après un vote favorable du Conseil, peut convoquer une session extraordinaire. Cette session doit être annoncée quatre mois d'avance et on n'y pourra discuter d'autres sujets que ceux portés à l'ordre du jour quatre mois d'avance.

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Art. 7 - Lorsque la charge de secrétaire perpétuel devient vacante, le Président invite par correspondance tous les membres effectifs à proposer un candidat. Si le même candidat est désigné par les trois quarts des membres effectifs, celui-ci sera nommé secrétaire perpétuel. Dans le cas contraire, les membres effectifs voteront par correspondance pour un candidat qu'ils choisiront sur une liste comprenant les noms de ceux qui ont été proposés par quatre d'entre eux au moins. Sera proclamé élu le candidat qui aura obtenu les voix de trois quarts des votants. On procédera à autant de tours de scrutin qu'il sera nécessaire pour obtenir ce résultat.

Art. 8 - Pour élargir sa sphère d'influence et afin de contribuer plus directement à l'activité des grands organismes internationaux, spécialement l'UNESCO et l'ICSU, il est créé, à partir du I Janvier 1947, une Union Internationale d'Histoire des Sciences. Les buts de cette Union sont les suivants :

a) établir des rapprochements entre les historiens des Sciences et entre les institutions, les sociétés, les rédactions des revues , etc... consacrées à cette discipline,

b) rassembler tous les documents qu'on croira nécessaires au développement de l'Histoire des Sciences,

c) prendre toutes les mesures qu'on croira nécessaires ou utiles pour le développement et pour l'organisation des études de l'Histoire des Sciences , notamment les congrès internationaux d'Histoire des Sciences (qui ont lieu à l'occasion des sessions triennales de l'Académie de l'Histoire des Sciences),

d) organiser du point de vue matériel les réunions périodiques internationales, congrès d'Histoire des Sciences,

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e) attribuer les fonds nécessaires au bon fonctionnement de l'Académie Internationale de l'Histoire des Sciences, laquelle fixera les traitements du secrétaire perpétuel, de l'Administrateur-Trésorier et du Secrétaire-Adjoint (qui remplit aussi les fonctions d'archiviste-bibliothécaire).

Art. 9 - L'Union Internationale d'Histoire des Sciences comprend deux catégories de membres : a) les membres à titre personnel, c'est-à-dire tous les membres tant effectifs que correspondants de l'Académie Internationale d'Histoire des Sciences , b) les membres représentants, élus par les groupes nationaux d'Histoire des Sciences, à raison de deux par pays, pour une période de trois ans et qui sont rééligibles. Un membre à titre personnel peut être élu membre représentant.

Art. 10 - L'Union Internationale d'Histoire des Sciencex est dirigée par un Conseil composé dèun président, de deux vice-présidents, deux assesseurs, un secrétaire exécutif (chargé des rapports avec les grand organismes internationaux), élus par l'Assemblée générale de l'Union pour trois ans et éventuellement rééligibles . De plus, le secrétaire perpétuel et l'administrateur-trésorier de l'Académie Internationale d'Histoire des Sciences font partie de droit de de conseil, avec les attributions de secrétaire général et d' administrateur-trésorier.

L'Union Internationale d'Histoire des Sciences se réunit en assemblée générale tous les trois ans au moins.

A l'Assemblée générale de l'Union ont droit à un vote : 1) chaque membre effectif de l'Académie ; 2) chaque groupe national ; 3) chaque section d'une discipline particulière.

...;

Art. 11 - L'Assemblée Générale de l'Union Internationale d'Histoire des Sciences a les attributions suivantes : 1) élit les membres du Conseil de l'Union, ainsi que deux délégués pour la représenter au Comité Exécutif du Conseil International des Unions Scientifiques ; 2) édicte et amende ses statuts et règlements concernant la conduite des affaires qui lui sont propres ; 3) fixe le lieu de réunion de la prochaine session.

Art. 12 - On encouragera l'organisation dans chaque pays d'un Groupe National d'Histoire des Sciences , afin de faire entrer les savants de ce pays en rapport avec l'Union Internationale d'Histoire des Sciences. Les buts des groupes sont, dans chaque pays, ceux indiqués à l'article 8 pour l'Union (points a,b,c,d, e). L'organisation de ces groupes sera semblable, dans les lignes générales, dans tous les pays, et sera déterminée par un règlement spécial.

PROCES-VERBAL DE LA SEANCE DU CONSEIL DU

I9 DECEMBRE I946 DE I0/2 & I3 HEURES.

-:-:-:-:-:-:-:-:-:-:-:-:-

Président : M. A. REYMOND

Membres présents : Madame Waley SINGER, Messieurs Q. VETTER, A. Vo[illegible]graff, P. BRUNET et P. SERGESCU.

1° On discute la liste des places minima réservées aux différents pays dans l'Académie Internationale d'Histoire des Sciences. M. BRUNET attire l'attention sur le fait qu'il est trop tôt pour fixer cette liste définitivement à cause des complications internationales que cela peut entraîner. On décide que cette liste sera établie définitivement au Congrès de Lausanne de 1947.

2° M. Q. VETTER présente le compte-rendu du Congrès de Prague de 1937. Les revenus ont été :

110.000 couronnes tchèques, dont

| | | | |
|---|---|---|---|
| 20.000 | " | " | du Ministère de l'Instruction Publique |
| 10.000 | " | " | des Affaires Etrangères, |
| 1.000 | " | " | de la Maison Bata, |
| 1.000 | " | " | de Madame Bata |
| 78.000 | " | " | des cotisations des membres. |

Les dépenses ont été de :

90.000 couronnes tchèques.

Le Secrétaire Général du Congrès, le Professeur P. ULLRICH a été fusillé par les envahisseurs allemands. Une somme de 3.000 couronnes tchèques qui se trouvait chez lui a été confisquée par les Allemands. Tous les manuscrits du Congrès, qui

...

étaient réunis chez lui en vue de la publication du volume du Congrès, ont été dispersés par les Allemands, de sorte qu'il est probable que le volume des comptes-rendus du Congrès de Prague ne pourra plus être publié.

3° On décide que le prochain "5e Congrès International d'Histoire des Sciences" aura lieu à Lausanne en septembre 1947. En vue de l'organisation de ce Congrès, le Bureau de l'Académie Internationale interviendra auprès de l'UNESCO pour obtenir les subventions suivantes :

| | | |
|---|---|---|
| Pour l'organisation du Congrès, | francs suisses | 15.000 |
| Pour les voyages des membres effectifs de l'Académie | " " | 5.000 |
| Pour le voyage du Secrétaire Perpétuel A.MIELI | " " | 2.000 |

4° Le Conseil décide d'essayer de reprendre la publication de la revue officielle de l'Académie, qui sera une nouvelle série d' "ARCHEION". Son directeur sera A. MIELI, qui sera aidé par un comité de rédaction composé de 6 personnes. On évalue les dépenses nécessaires à la publication du tome de 1947 à 200.000 francs français.

5° Parmi les travaux collectifs de l'Académie d'Histoire des Sciences, on a déjà un catalogue des manuscrits scientifiques "d'avant l'imprimerie" qui se trouvent dans les bibliothèques d'Angleterre. Ce catalogue établis sous la direction de Madame Waley Singer comprend environ 200.000 numéros. Il est à souhaiter que ce travail soit étendu à toutes les bibliothèques d'Europe.

On devrait faire publier le travail de notre ancien vice-président G. SENN, sur Théophraste, ainsi que l'Annuaire de l'Académie pour 1947.

....

On souhaite l'établissement d'une Commission pour l'étude des rapports entre l'évolution de la Pensée scientifique et les conditions sociales correspondantes.

6°. Les dépenses des membres du Conseil et des observateurs réunis à l'UNESCO à l'occasion de cette séance de décembre 1946 sont :

| | |
|---|---|
| M. Q. VETTER (Prague) | 16.000 frs français |
| M. A. VOLLGRAFF (Leyde) | 16.000 |
| M. ROSENFELD (Utrecht) | 15.000 |
| M. P. SERGESCU (Bucarest) | 15.000 |
| M. A. REYMOND (Lausanne) | 10.000 |
| Mme WALEY SINGER (Londres) | 10.000 |

7° Le Conseil décide que les élections pour les membres effectifs et correspondants de l'Académie doivent avoir lieu par correspondance durant les mois de janvier et de février 1947. On a déjà reçu les propositions suivantes : pour membres effectifs : P. VER EECKE, A. BIRKENMAJER, C. WAARD, G. PELSENEER, M. CAULLERY, D'ARCY THOMPSON, B. NEMEC.

Vu qu'il n'y a pas eu d'élection depuis très longtemps, une partie des membres du Conseil propose que pour cette année on élise quelques membres effectifs directement sans passer par le stage "membre correspondant". A cet effet on pourrait proposer comme membres effectifs : M. E. ASHWORTH UNDERWOOD, M. O. MC KIE, M. A. CORTESAO, et M. J. NEEDHAM.

Dans le cas où l'élection des membres effectifs n'est pas possible directement, ils seront les premiers à être proposés membres correspondants.

...

Pour les autres places de membres correspondants, on a reçu les propositions suivantes :

M. BACHELARD (Paris), M. Y. GUIART (Lyon), M. P. HUMBERT (Montpellier), M. H. DINGLE (Londres), M. B. FARRINGTON, (Swansee), M. SHERWOOD TAYLOR, M. PARDINGTON, M. SEYDL (directeur Observatoire Prague), M. KOSTOJANCZ (Moscou), M. W.E. van WYK (Pays Bas), M. E. DYKSTERHUIS (Oisternyk), M. M. FLORKIN (Bruxelles), M. L. ROSENFELD (Utrecht).

MM. BRUNET et Vollgraff prépareront en temps utile les circulaires en vue des élections.

Signé : A. REYMOND, madame Waley SINGER, C. VETTER, A. VOLLGRAFF, P. BRUNET et P. SERGESCU.

A.I.H.S./1/1947

PARIS, le 13 janvier 1947.

# PROJET DE STATUTS DE L'ACADEMIE INTERNATIONALE D'HISTOIRE DES SCIENCES ET DE L'UNION INTERNATIONALE D'HISTOIRE DES SCIENCES

Art. 1 - L'organisation internationale de la discipline d'Histoire des Sciences comprend deux institutions étroitement liées entre elles : l'Académie Internationale d'Histoire des Sciences et l'Union Internationale d'Histoire des Sciences.

Art. 2 - L'Académie Internationale d'Histoire des Sciences - qui fonctionna depuis sa fondation à Oslo en août jusqu'au 25 juin 1935 sous le nom de Comité International d'Histoire des Sciences - a son siège à Paris.

Art. 3 - L'Académie Internationale d'Histoire des Sciences est constituée sur le modèle des grandes académies scientifiques. Elle comprend 50 membres effectifs et 100 membres correspondants, choisis parmi les historiens des Sciences dont les travaux dans cette spécialité sont les plus remarquables et qui ont le plus contribué au progrès de l'historiographie des Sciences.

Un minimum de places est réservé aux différents pays ou groupements des pays, sans que ce nombre doive nécessairement être atteint. Si ce nombre n'est pas atteint, les places qui ne sont pas occupées par des savants des pays envisagés doivent rester vacantes. La répartition entre les pays est faite selon le tableau compris dans l'additif de cet article.

L'Académie comprend aussi des membres d'honneur élus parmi les personnalités qui ont bien mérité des études d'Histoire des Sciences.

Art. 4 - L'Académie Internationale d'Histoire des Sciences est dirigée par un conseil composé d'un président, trois vice-présidents, un administrateur-trésorier (qui est rééligible), élus tous les trois ans, ainsi que des anciens présidents de l'Académie

et d'un secrétaire perpétuel.

Dans le cas où le Secrétaire Perpétuel n'a pas sa résidence à Paris, il sera suppléé au siège de l'Académie par un Secrétaire-Adjoint.

Art. 5 - Les membres de l'Académie Internationale d'Histoire des Sciences sont nommés à vie.

Tous les ans, vers la fin du mois de décembre, le secrétaire perpétuel invite les membres effectifs à nommer aux places vacantes des nouveaux membres effectifs ou correspondants. A cet effet il leur communique le nombre de places vacantes. Le vote qui suivra aura lieu exclusivement par correspondance.

Les nouveaux membres effectifs sont choisis exclusivement parmi les membres correspondants. Les bulletins de vote ne doivent pas porter plus de noms qu'il y a de places à pourvoir. Seront proclamés élus, dans l'ordre décroissant des voix obtenues et jusqu'au nombre de places à pourvoir, tous ceux qui obtiennent au moins la moitié des voix exprimées et pas moins d'un tiers du nombre de membres effectifs en charge.

Les nouveaux membres correspondants sont élus sur une liste comprenant les noms de tous les savants qui auraient obtenu au scrutin de deux années précédentes au moins cinq voix. La liste comprendra aussi tous ceux qui auraient été proposés par écrit par au moins trois membres effectifs. Ces propositions doivent être envoyées au secrétaire perpétuel au mois de novembre ou de décembre. Cette liste sera communiquée aux membres effectifs par le secrétaire perpétuel. L'élection se fait suivant la procédure indiquée pour l'élection des membres effectifs.

Les membres d'honneur sont élus dans les séances des sessions ordinaires triennales.

Art. 6 - L'Académie Internationale d'Histoire des Sciences se réunit en sessions ordinaires tous les trois ans dans le lieu désigné au cours de la session précédente, d'entente avec l'Union Internationale d'Histoire des Sciences, sauf dans les cas de force majeure. A chaque session ordinnire, l'Académie procède, selon l'ordre indiqué, aux délibérations suivantes : élection du Président de l'Académie, élection de trois vice-présidents, élection de l'administrateur-trésorier. Les élections sont faites à la majorité des membres effectifs présents. Les nouveaux élus entrent en charge à la fin de la session.

Dans sa session triennale l'Académie s'occupe aussi de toutes les questions relatives à l'administration de l'Académie, à son budget, aux directives scientifiques et pratiques à suivre. Les années où n'ont pas lieu les sessions ordinaires triennales, l'Académie se réunit une fois à son siège à Paris, ou dans les villes où éventuellement ont lieu les congrès internationaux des Sciences Historiques.

Dans des cas exceptionnels, le Président, après un vote favorable du Conseil, peut convoquer une session extraordinaire. Cette session doit être annoncée quatre mois d'avance et on n'y pourra discuter d'autres sujets que ceux portés à l'ordre du jour quatre mois d'avance.

Art. 7 - Lorsque la charge de secrétaire perpétuel devient vacante, le Président invite par correspondance tous les membres effectifs à proposer un candidat. Si le même candidat est désigné par les trois quarts des membres effectifs, celui-ci sera nommé secrétaire perpétuel. Dans le cas contraire, les membres effectifs voteront par correspondance pour un candidat qu'ils choisiront sur une liste comprenant les noms de ceux qui ont été proposés par quatre d'entre eux au moins. Sera proclamé élu le candidat qui aura obtenu les voix de trois quarts des votants. On procédera à autant de tours de scrutin qu'il sera nécessaire pour obtenir ce résultat.

Art. 8 - Pour élargir sa sphère d'influence et afin de contribuer plus directement à l'activité des grands organismes internationaux, spécialement l'Unesco et l'Icsu, il est créé, à partir du 1 janvier 1947, une Union Internationale d'Histoire des Sciences. Les buts de cette Union sont les suivants :

a) établir des rapprochements entre les historiens des Sciences et entre les institutions, les sociétés, les rédactions des revues, etc... consacrées à cette discipline,

b) rassembler tous les documents qu'on croira nécessaires au développement de l'Histoire des Sciences,

c) prendre toutes les mesures qu'on croira nécessaires ou utiles pour le développement et pour l'organisation des études de l'Histoire des Sciences, notamment les congrès internationaux d'Histoire des Sciences (qui ont lieu à l'occasion des sessions triennales de l'Académie d'Histoire des Sciences),

d) organiser du point de vue matériel les réunions périodiques internationales, congrès d'Histoire des Sciences,

e) attribuer les fonds nécessaires au bon fonctionnement de l'Académie Internationale de l'Histoire des Sciences, laquelle fixera les traitements du secrétaire perpétuel, de l'Administrateur-Trésorier et du Secrétaire-Adjoint (qui remplit aussi les fonctions d'archiviste-bibliothécaire).

Art. 9 - L'Union Internationale d'Histoire des Sciences comprend deux catégories de membres : a) les membres à titre personnel, c'est-à-dire tous les membres tant effectifs que correspondants de l'Académie Internationale d'Histoire des Sciences, b) les membres représentants, élus par les groupes nationaux d'Histoire des Sciences, à raison de deux par pays, pour une période de trois ans et qui sont rééligibles. Un membre à titre personnel peut être élu membre représentant.

Art. 10 - L'Union Internationale d'Histoire des Sciences est dirigée par un Conseil composé d'un président, de deux vice-présidents, deux assesseurs, un secrétaire exécutif (chargé des rapports avec les grands organismes internationaux), élus par l'Assemblée générale de l'Union pour trois ans et éventuellement rééligibles. De plus, le secrétaire perpétuel et l'administrateur-trésorier de l'Académie Internationale d'Histoire des Sciences font partie de droit de ce conseil, avec les attributions de secrétaire général et d'administrateur-trésorier.

L'Union Internationale d'Histoire des Sciences se réunit en assemblée générale tous les trois ans au moins.

A l'Assemblée générale de l'Union ont droit à un vote : 1) chaque membre effectif de l'Académie; 2) chaque groupe national; 3) chaque section d'une discipline particulière.

Art. 11 - L'Assemblée Générale de l'Union Internationale d'Histoire des Sciences a les attributions suivantes : 1) élit les membres du Conseil de l'Union, ainsi que deux délégués pour la représenter au Comité Exécutif du Conseil International des Unions Scientifiques: 2) édicte et amende ses statuts et règlements concernant la conduite des affaires qui lui sont propres; 3) fixe le lieu de réunion de la prochaine session.

Art. 12 - On encouragera l'organisation dans chaque pays d'un Groupe National d'Histoire des Sciences, afin de faire entrer les savants de ce pays en rapport avec l'Union Internationale d'Histoire des Sciences. Les buts des groupes sont, dans chaque pays, ceux indiqués à l'article 8 pour l'Union (points a,b,c,d).

L'organisation de ces groupes sera semblable, dans les lignes générales, dans tous les pays, et sera déterminée par un règlement

CONSEIL INTERNATIONAL DES UNIONS SCIENTIFIQUES
(INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS)

DR JOHN A. FLEMING, *President*
PROF. B. NĚMEC, *Vice-President*
PROF. EMILE BOREL, *Vice-President*
PROF. F. J. M. STRATTON, *General Secretary*

*Gonville & Caius College*
CAMBRIDGE
ENGLAND

23 : 47

Dear Swigle,

Thanks for your letter. I have received a letter from Reymond, Sergesen and Bernet saying (a) that an application for the affiliation of the Union will be made to the Council after reference to the members of the International Academy; and (b) applying for affiliation.

I admit the inconsistency in the two parts of their letter, but I am referring the application to my executive committee with a copy of the proposed new statutes. This may hasten a decision and if there should be any difficulty it may facilitate its being cleared up next September in Lausanne.

yours sincerely
F. Stratton

Yes Cambridge is cold!

Folder (38)

Ve Congrès International

D'HISTOIRE DES SCIENCES

du 30 septembre au 6 octobre 1947

Tuesday

Lausanne, le 10 septembre

Avis aux Congressistes

1. Les Congressistes trouveront à leur hôtel le programme détaillé du Congrès, y compris la carte d'inscription, s'ils l'ont acquittée.
2. Pour les cérémonies officielles tenue de ville.
3. La durée des communications est de 20 minutes, non comprise la discussion qui suit l'exposé.
4. Les Congressistes qui n'ont pas retenu leur chambre et ceux qui n'ont pas encore acquitté leur carte d'inscription sont priés de passer dès leur arrivée au Secrétariat de l'Université (Palais de Rumine, Place de la Riponne, 1er étage).
5. Ci-joint la liste des communications, établie et close le 10 septembre.
6. La carte d'inscription (Fr. 25.- suisses) donne droit à toutes les manifestations prévues au programme, ainsi qu'au volume qui contiendra les actes et les communications du Congrès.

# UNIVERSITÉ DE LAUSANNE

*Lausanne, le* 12 Sept. 1947

Ve Congrès International
D'HISTOIRE DES SCIENCES
(30 septembre - 6 octobre 1947) à Lausanne

Liste des Travaux annoncés jusqu'au 10 septembre

MM.

ALMAGIA, Roberto (Rome)

La question de l'origine des cartes nautiques et des portulans d'après les recherches les plus récentes.

BIRKENMAJER, Aleksander (Université de Poznan)

Les Babyloniens ont-ils connu des équations algébriques du premier degré ?

BODENHEIMER, Frita S. (Université de Jérusalem)

1. Survey of the zoology of the Sumero-Accadians.
2. Ancient documents on honey-hunt and on bee-keeping mainly from the Middle East.

BOLESLAW, Gorniki (Université de Varsovie)

L'influence d'Albert Haller sur la pensée physiologique polonaise (de la fin du XVIIIe siècle au commencement du XIXe siècle).

CODELLAS, Pan S. (Université de San Francisco)

Ancient Greek Women leaders in Science.

CORTESAO, Armando

L'UNESCO: sa tâche et son but concernant les sciences et leur développement historique.

CROMBIE, A.C. (University College, London)

Scholastic logic and experimental Method

DELORME, Suzanne

Sujet réservé.

DUFOUR, L. (Institut royal de météorologie, Bruxelles)

Quelques considérations sur le développement de la météorologie.

FORETAY, Eugène, Ingénieur-chef des câbleries de Cossonay.

Histoire de la fabrication des câbles: les débuts, l'état présent et les perspectives d'avenir.

GOMOIU, V. (Université de Bucarest)

Le rôle de quelques médecins roumains dans l'évolution et le progrès des sciences.

HOOYKAAS, R. (Hollande )

1. The first kinetic theory of gases
2. The distinction of "natural"and "artificiel" substances and its meaning for the developpement of corpuscular philosophy.

KARPINSKI, Louis C. (University of Michigan, USA.)

Sur l'histoire des sciences aux Etats-Unis.

LAIGNEL-LEVASTINE, Maxime (Université de Paris)

Histoire de la médecine et Histoire des sciences.

LILLEY, S. (Cambridge, Angleterre)

Attitudes to the nature of Heat about the beginning of the Nineteenth Century.

LORIA, Gino (Université de Gêne)

Projet d'une histoire universelle des mathématiques.

MONTEIRO, Arlindo Camilo (Rio de Janeiro)

1. Le médecin et naturaliste suisse Conrad Gesner (1516-1565) et le poète et paysagiste Salomon Gessner (1730-1788) dans le mouvement culturel au Portugal et au Brésil.
2. L'épopée des Portugais, Les Lusiades, dans l'histoire des sciences.

ONDE, Henri (Université de Lausanne)

Observations glaciologiques en Suisse et en Savoie, il y a un siècle.

MATOUSEK, Otakar (Université de Prague)

Les problèmes de l'histoire des sciences en Tchécoslovaquie.

PELSENEER, Jean (Université libre de Bruxelles)

Pour l'édition de la correspondance de Lavoisier

ROSSIER, Paul (Genève)

1. L'histoire des postulats géométriques et l'évolution psychologique de l'enfant.
2. A propos du cours complet de mathématiques de l'abbé Saury.

SERGESCU, Pierre (Université de Bucarest)

A propos du Dictionnaire biographique des mathématiciens.

SCHOPFER, W.H. (Université de Berne)

Les débuts de l'anatomie végétale moderne au 19e siècle: l'histoire du cambium (avec projections).

SPIESS, Otto (Université de Bâle)

La nouvelle édition de l'oeuvre des mathématiciens Bernoulli.

SUHEYL, A. (Université d'Istamboul)

Ouvrages scientifiques se trouvant dans les bibliothèques des Artikides.

SZUMOWSKI, Wladislaw (Université de Krakow)

La philosophie de la médecine, son histoire et sa définition.

TATON, R. (Paris, Centre national de la recherche scientifique)

Les mathématiques dans le bulletin de Férussac (1823-1831)

TRICOT-ROYER, J. (Université de Louvain)

Histoire de la médecine. Les arbres guérisseurs en Belgique

VETTER, Quido (Université de Praghe)

1. Le commencement de la géométrie et de la perspective en Bohême (avec projections).
2. Les commencements de la géométrie en Bohême.

VOLLGRAFF, J.A. (Leyde)

Cornelis Drebbel (1572-1633), premier inventeur des vaisseaux sous-marins, etc. (avec projections).

WICKERSHEIMER, Ernest (Strasbourg)

Arcana Paracelsica Caspari Ulrici Hartenfelsii Basiliensis.

WALTER, E.J. (Zurich)

Warum gab es im Altertum keine Dynamik ?

ZBINDEN, Christian, Ingénieur-chimiste de la Maison Nestlé

Considérations sur l'origine, le développement et l'orientation de l'industrie alimentaire.

Note. Les communications qui, annoncées en juillet, ne figurent pas dans cette liste, ont été annulées.

Lausanne Univ Prof ?

UNIVERSITÉ
DE
LAUSANNE

Vᵉ CONGRÈS INTERNATIONAL

# D'HISTOIRE DES SCIENCES

DU 30 SEPTEMBRE AU 6 OCTOBRE 1947

*COMITÉ D'HONNEUR*

Monsieur le Conseiller fédéral Max Petitpierre, Chef du Département Politique fédéral
Monsieur le Conseiller d'Etat Edmond Jaquet, Chef du Département de l'Instruction publique de l'Etat de Vaud
Monsieur le professeur Henri Meylan, Recteur de l'Université

*COMITÉ D'ORGANISATION*

Monsieur Arnold Reymond, professeur honoraire de l'Université, Président de l'*Académie internationale d'histoire des sciences* (adresse : La Rouvenaz, 31 avenue des Cerisiers, Pully près Lausanne), *président*.
Monsieur le professeur Georges Bonnard, Chancelier de l'Université
Monsieur Florian Cosandey, professeur à la Faculté des Sciences
Monsieur Elie Gagnebin, professeur à la Faculté des Sciences
Monsieur le professeur Edgar Goldschmid, chargé de cours à la Faculté de médecine
Monsieur Paul-Henri Jaccard, Directeur de l'Association des Intérêts de Lausanne.

## PROGRAMME DES JOURNÉES

*Mardi 30 septembre*

16 h. 30 — Réception et collation offerte aux Congressistes par M. Roger de Cérenville, 10 avenue de l'Elysée (Croix-d'Ouchy).

*Mercredi 1ᵉʳ octobre*

9 h. — Ouverture et séance officielle du Congrès à l'Aula de l'Université :
Discours de M. le professeur Henri Meylan, Recteur de l'Université.
Allocutions du Président et du Secrétaire de l'Académie.
Messages des délégués.
Séance administrative préparatoire.

11 h. — Conférence générale : M. le professeur P. Sergescu : *Le renouveau de la pensée mathématique au début du XIXᵉ siècle.*

14 h. 30 — Travaux des sections.

*Jeudi 2 octobre*

9 h. — Travaux des sections.

11 h. — Conférence générale : M. le professeur J. Needham : *L'histoire de la pensée chinoise.*

14 h. 30 — Travaux des sections.

19 h. 30 — Dîner offert aux Congressistes à l'Hôtel Beau-Rivage, Ouchy. Films cinématographiques sur la Suisse.

*Vendredi 3 octobre*

9 h. — Travaux des sections.

11 h. — Conférence générale.

14 h. 30 — Travaux des sections.

*Samedi 4 octobre*

9 h. — Séance administrative.

10 h. 30 — Travaux des sections.

15 h. — Travaux des sections.

17 h. — Collation offerte par la Municipalité de Lausanne dans les salons de Mon-Repos.

*Dimanche 5 octobre*

15 h. — Visite de la Cathédrale et du Jardin botanique.

*Lundi 6 octobre*

matin — Excursion aux Rochers de Naye avec conférence de M. le professeur Elie Gagnebin : *L'Histoire des théories géologiques sur la formation des Alpes.*
Déjeuner à 13 h.

après-midi — Visite de Montreux et collation de clôture offerte au Château de Chillon.

## COMMUNICATIONS

Les participants au Congrès sont priés d'indiquer *sans tarder*

*a)* le titre de leur(s) communication(s),

*b)* s'ils sont membres de l'Académie internationale d'Histoire des sciences, s'ils ont une mission représentative de leur gouvernement ou d'un corps académique,

*c)* dans quelle catégorie d'hôtels ils désirent être logés, hôtels dont voici les conditions :

6 jours de pension, les 3 repas offerts étant déduits :

| | | |
|---|---|---|
| Hôtels de luxe : | Fr. 139.70 | Fr. 222.30 (avec bain) |
| » » 1er rang | » 108.— | |
| » » 2e rang | » 94.20 | |

6 jours, chambre et petit déjeuner :

| | | |
|---|---|---|
| Hôtels de luxe : | Fr. 90.— | Fr. 138.— (avec bain) |
| » » 1er rang | » 68.40 | |
| » » 2e rang | » 63.— | |

Le prix des chambres à deux lits est exactement le même, par personne, que celui des chambres à un lit.

*Les Congressistes pourront se faire servir au réfectoire de l'Université des repas au prix spécial de 2 fr. chacun. Menu : potage, viande, légumes, dessert ou café.*

*d)* L'*Union internationale d'Histoire des Sciences* remboursera une partie de leurs frais de voyage et de séjour à ceux des membres effectifs qui prendront part au Congrès.

*e)* La carte d'inscription au Congrès donnant droit à toutes les manifestations indiquées au programme est de 25 fr. suisses. Cette somme doit être envoyée AVANT LE 1er SEPTEMBRE au Secrétariat de l'Université, Palais de Rumine, Lausanne, avec mention : « 5e Congrès international d'Histoire des Sciences ».

*f)* Les Congressistes pourront à cette même adresse, s'ils le désirent, recevoir leur courrier pendant la durée du Congrès.

*g)* Les Congressistes seront avisés au début de septembre, par l'Association des Intérêts de Lausanne, du nom de l'hôtel où, d'après les indications qu'ils auront données, ils seront logés.

# THE P.E.N. AND ITS AIMS

By DESMOND MacCARTHY

THE International Congress of P.E.N. was held at Copenhagen during the first week in June. It was the third held since the war, and it differed from the two previous ones (Stockholm in 1946 and Zürich in 1947) in time being set aside for literary discussion. This was the result of a resolution passed at Zürich to the effect that the P.E.N. should return to its pre-war custom of making these annual gatherings attended by writers from almost every nation in the world, also an opportunity for seeing their views on literature, as well as mutual entertainment.

After the first day, during which the Danish Minister and the Delegates had managed to prepare over hospitality, we were the Royal Danish Theatre and the Royal Ballet, and the Danish Minister of Education and Ecclesiastical Affairs made a speech of welcome. He was the first to say that no Peace or Freedom can be had from Culture. Only two days before, Mr. Churchill had said the same thing.

It was an admirable address, and I wish I could have heard it. But I was not present at the opening of the Congress, as I had been unable to get a visa for Denmark in time.

A[1] one of the main concerns of P.E.N. is co-operation between those countries which are less than friendly, it was inevitable that some of the conflicts of free opinion should be brought into the discussions. Some of the delegates from behind the Iron Curtain were prevented from coming, and others were forbidden to leave their countries. Those who did come were subjected to a barrage of questions from the Press, and were pestered by photographers. Their replies were guarded, and they were obviously under the influence of authorities who wished to avoid trouble. And when the Russian delegate, Fadeyev, addressed a meeting, he was so enormously applauded and cheered that it was impossible to hear what he said. Nevertheless, his presence was welcomed as a sign that the Russian Government was not entirely hostile to the P.E.N. Club, and that it was willing to co-operate with it.

The most important resolution passed at the Congress was that which declared that the P.E.N. Club should be kept out of politics. Some of the delegates from countries behind the Iron Curtain had wished to pass a resolution condemning the suppression of free opinion in their countries, but this was opposed by the majority of the delegates, who thought that such a resolution would be contrary to the principles of the Charter of the P.E.N.

Another important resolution

Remind Sergescu

International Union

le 23 juillet 1948.

Mon cher Professeur Sergescu,

J'ai remarqué que pendant sa réunion à Copenhague qui a eu lieu au début du mois de juin, P.E.N. a adopté la résolution suivante faisant appel à tous les gouvernements d'abolir les restrictions imposées pour des raisons monétaires sur l'importation et l'exportation des livres.

La résolution déclare "Il ne faut pas considérer le commerce des livres comme une marchandise du papier et du coton".

Il me semble que toute organisation érudite devrait suivre ce bon exemple, et il se peut qu'à la fin tout gouvernement y fera attention. Est-ce que vous êtes d'accord de mettre une telle résolution sur l'ordre du jour de notre prochain réunion du Conseil pour décider alors de la mettre devant le Congrès?

Je voudrais ajouter que mon mari est du même avis que moi sur cette question.

En passant, M. Douglas McKie, professeur de l'histoire des sciences à l'Université de Londres et rédacteur des Annals of Science, m'a dit qu'il n'a reçu aucun avis concernant le comité de Lavoisier. Je me souviens qu'à notre réunion du Conseil où le travail sur Lavoisier a été adopté par l'Académie, il a été décidé d'inviter le docteur McKie de se joindre au Comité pour ce travail. Je sais qu'il a fait de fort intéressantes découvertes dans la correspondence de Lavoisier, et je me demande si c'est par erreur qu'il n'a pas encore reçu l'invitation officielle de se joindre au Comité.

Présentez je vous prie à Mme. Sergescu les hommages respectueuses de mon mari, et agréez pour vous deux nos

salutations très cordiales.

Mrs. Charles Singer.

P.S. J'ai à peu près épuisé le papier officiel de l'Académie que vous avez bien voulu me donner.

Professeur P. Sergescu,
7 rue Daubenton,
PARIS Ve.

ACADÉMIE INTERNATIONALE D'HISTOIRE DES SCIENCES.

Commission de Bibliographie.

29th September, 1948.

Your ref:- 190/DCM/JPS.

Dear Mr. Martin,

Thank you for your letter of 24th September, 1948, and enclosure. I have sent the letter to Paris at once and explained that the matter is urgent. I have no doubt that the delay has been due to the serious illness of one of our officers, in Paris.

Yours sincerely,

Charles Singer.

(Chairman, Commission de Bibliographie).

D.C. Martin Esq
Assistant Secretary,
The Royal Society,
Burlington House,
London, W.1.

ACADÉMIE INTERNATIONALE D'HISTOIRE DES SCIENCES.
Commission de Bibliographie.

29th September, 1948.

My dear Armando,

It happens that the enclosed reached Charlie at this moment, when Joseph and Dophi Needham are with us. Joseph advises that we send you the two notes at once and asks whether you could be kind enough to deal with it.

You may happen to remember that after the International Academy for the History of Science and the International Union for the History of Science had appointed the British Society for the History of Science as their British National Group, a letter was received by them from the Royal Society announcing that the Royal Society wished to institute a National Group for this country. The International Academy and the International Union referred the matter to the British Society for the History of Science and the British Society decided to suggest to the International Union that the Royal Society be invited to form a National Group, which should include delegates representing the British Society for the History of Science.

That puts you au fait to the enclosed letter.

Joseph thinks that it is a good plan to encourage the Royal Society in this small move toward the History of Science.

(By the way, I wrote both to M. Sergescu and to Dr. Pelseneer, clearing up that my receipt for the subvention for the share of the Commission de Bibliographie in the UNESCO subvention for 1948 to our Academy had duly reached me on the 30th May and that I had at once written to the Treasurer of the Academy to acknowledge its receipt).

How delightfully near we are getting to the 1st January! We do so look forward to seeing you and Carlotta.

Our love to you both.

Mrs. Charles Singer.
(Chairman, Commission de Bibliographie).

Dr. Armando Cortesao,
UNESCO,
19, Avenue Kleber,
Paris, 16e.

22nd November, 1948.

Dear Sir,

I must apologise for not having written sooner to thank you for your letter of the 18th July telling me of the foundation of your National Group of our Academie. I write now to send you our best wishes. You will have already received greetings from M. Sergescue, the President of our National Academie.

You will no doubt be in close touchh with the great pioneer on the subject of The History of Science, Professor Aldo Mieli.

With many good wishes for your work.

Yours truly,

Charles Singer.
President of the International Union
for The History of Science.

Professor Dr Gregorio Aráos Alfaro
San Lorenzo 1110.-
Rosario-

File under Union pinned on to letter from CS to Sergescu 2 Dec 1948

ACADÉMIE INTERNATIONALE D'HISTOIRE DES SCIENCES

HOTEL DE NEVERS, 12 RUE COLBERT, PARIS IIe

SECRÉTAIRE PERPÉTUEL ALDO MIELI (FLORIDA, BUENOS-AIRES)


| *Président:* | *Vice-Présidents:* | | | *Secrétaire-Adjoint:* |
|---|---|---|---|---|
| P. SERGESCU | Mme D. WALEY SINGER | R. ALMAGIÀ | J. A. VOLLGRAFF | P. BRUNET |
| 7 Rue Daubenton | Kilmarth. Par. | Via Bruno Buozzi 99 | Roodborststraat 17 | 12 Rue Colbert |
| Paris Ve | Cornwall, England | Roma | Leiden | Paris IIe |


PARIS, le 20 Novembre 1948

Chère Madame Singer

Je vous remercie bien vivement de la convocation pour la séance du 2 Déc. de la Commission de Bibliographie. Malheureusement, je suis empêché de pouvoir me rendre à Londres pour cette réunion. Je vous prie de bienvoloir excuser mon absence. D'ailleurs, je serai complètement d'accord avec toutes les décisions que prendra la commission.

J'ai sorti du vn 5 des Archives le procès verbal de la réunion du mois de Mai de la commission. J'attends votre texte signé pour le faire imprimer dans le vn 6. Quand vous nous autoriserez, nous publierons aussi le procès verbal de la réunion du 2 Dec. Pour le moment, je pense qu'on peut ajouter après le procès verbal de Mai une phrase comme:

"Une troisième réunion de la Commissim a eu lieu à Londres, à University College, le 2 Déc. 1948."

UNESCO me prévient officiellement par écrit que les subventions sont accordées exclusivement pour des publications, à votre Commission. Il faudra donc, pour le point 6 de l'Agenda, allouer les fonds en conséquence.

Je dois présenter le rapport financier à UNESCO en Décembre, accompagné de tous les actes justificatifs.

Veuillez agréer l'expression de mes sentiments très respectueux. Saluations les plus distinguées et les meilleures au professeur Ch. Singer.

Meilleurs souvenirs de ma femme.

P. Sergescu

P.S. Au moment où je sortais à la poste pour envoyer cette lettre, je viens de

reçoin la lettre du professeur Singer avec le manuscrit du procès-verbal de la réunion de Mai. Je vous remercie beaucoup. Je ferai exactement comme vous le demandez. Mais je ne crois pas que cela soit fait avant la fin du mois de Décembre. D'ailleurs, cela ne presse pas.

Union Intern.

le 18 Nov. 1948

Mon cher Collègue

Je vous r mercie bien de votre lettre du [illegible] Nov. Que de travail pour vous de rediger et copier à main tous ces pages du Procès Verbal du Conseil de notre UNION . Je vous en félicite et je vous remercie.

Mais néanmoins que je le trouve excellent (sauf une petite correction ci-encluse) il y a cette difficulté qu'il m'est impossible de les signer avant que j'y suis autorisé par une réunion du Conseil même.

(S'il vous est vraiment important de faire imprimer le Procès Verbal avant notre prochaine réunion l'année prochaine, je propose :

i) que vous ~~fassiez~~ multipliier par typewriter les Procès verbal et le circulierez à chaque membre du Conseil en demandant si l'on désire y faire aucune correction

ii) que v

~~ii)~~ que, dès que vous auriez reçu les réponses et inséré les ~~réponses s'il y~~ corrections s'il y en a de telles, que vous appelleriez une réunion du Conseil. S'il ne sera possible pour un grand nombre des membres du Conseil d'assister à la réunion, ça ne fait rien, parce que tous auront lu le Procès.

iii) Alors le Président de la réunion signera le Procès verbal.

Pour L'Agenda de votre réunion , vous n'aurez que :

1). Apologies de ceux qui n'ont pas pu ~~assister~~ à cette réunion

2). Procès Verbal de la dernière réunion

3). Projet de Budget pour 1950

4). Date de prochaine réunion du Conseil

---

Dont que

ce qui concerne le numéro 3 (Projet de Budget de 1950)

P.T.O.

je trouve excellent votre propos de consulter les membres du Conseil par Correspondance - et alors la réunion, même de quelques uns , vous mettra dans une position impeccable vis-à-vis la Constitution de l'Union et de UNESCO.

Du reste, cher Collègue, je suis parfaitement de votre avis que ce sera excellent que le Conseil de l'Union également que le Conseil de l'Académie se réuniera entre le 1er et le 12 Sept. 1949.

Je vous prie de présenter mes hommages très respectueux à Madame Sergescu avec les meilleures salutations de Madame Singer et d'agréer l'expression de notre haute considération à vous deux

Charles Singer

Union Internationale d'Histoire des Sciences.

Procès Verbal de la réuinion du Mai 1948( ci-enclus).

Madame Singer vous prie de vouloir bien faire les petites corrections suivantes à numéro 8 sure la page 5:

Après les mots : "fait ressortir que sa Commission"a déja "

supprimer : collaboré dans le passé

substituer : offerte une collaboration

et supprimer les mots à la fin du paragraphe :

"et qu'on envisage la même collaboration pour l'avenir"

substituer : puisque l'Union Académique Internationale a déja publié les Catalogues des manuscrits alchimiques

**Union Internationale**
**d'Histoire des Sciences**
12, Rue Colbert
**PARIS-2e**

Paris, le 1 Novembre 1948
7 Rue Daubenton

Mon cher Président

J'ai enfin réussi à rédiger le Procès Verbal de notre Union du Conseil du Mai 1948. Je me suis servi des notes prises en séance par Mme Virieux, par Mlle Delorme et par moi-même. Je me permets de vous envoyer ci-joint le texte de ce procès-verbal, en vous priant de bien vouloir l'examiner, le rectifier là où il y aurait des fautes éventuelles de ma part, et le signer. J'en ai besoin pour le donner à l'impression pour le no 6 de nos Archives.

En ce qui concerne la date de la réunion prochaine de notre Conseil, voici ce qui se passe. UNESCO nous demande de donner le 15 Mars le projet de budget pour 1950. Or, il est impossible de nous réunir avant le 15 Mars, car le budget 1949 n'est pas encore approuvé par l'UNESCO et nous n'aurons pas l'argent avant Mai ou Juin 1949. Donc, si vous le croyez, je pense que nous devrons consulter le Conseil par lettres afin de présenter le projet de budget.

En dehors du budget, les autres questions ne sont pas tellement pressées. D'autre part, Mr. Almagia écrit qu'il ne peut pas venir aux réunions avant la fin de Juin. Or, Juillet et Août sont des mois de vacances où les savants se déplacent très difficilement. D'autre part, l'Assemblée Générale de l'ICSU est à Copenhague le 14 Sept. et nous devons y présenter notre rapport annuel. Vu tout ceci, il me semble que l'intervalle le plus favorable pour notre réunion de 1949 des Conseils de l'Académie et de l'Union serait entre le 1er et le 12 Sept 1949. Que pensez vous de cette suggestion ? Préférez vous une autre date ? Pour moi c'est parfaitement égal, parceque je ne quitte pas du tout Paris durant toute l'année et je peux être présent aux réunions à n'importe quel moment.

J'attends votre décision, pour faire les autres démarches (correspondance, agenda, etc.) et vous prie de croire à l'expression de ma haute considération. Hommages très respectueux à Madame Singer.

P. Serzeron

Union Internationale
d'Histoire des Sciences
12, Rue Colbert
PARIS-2e

Paris, le 7 Juin 1948

Bien chère Madame, Très cher Président,

Les journées, si pleines de travaux – du 18 au 25 Mai – ont passé comme un éclair. Nous n'avons même pas eu le temps de vous voir comme nous l'aurions désiré. Le programme était trop chargé. Nous sommes désolés de ce que vous n'avez pas pu assister à notre petite réception.

Mais votre pensée y était. Toutes nos pensées étaient tournées vers vous et tout le monde a regretté votre absence. Les si belles fleurs, que vous avez bien voulu envoyer à ma femme, fleurissaient la maison. Permettez nous de vous exprimer nos remerciements très émus pour votre si délicieux souvenir.

En ce moment, je travaille pour rédiger les procès verbaux, et les lettres avec les décisions du Conseil. J'ai déjà écrit à Mr Underwood, en annonçant que nous tenons à sa disposition – en 1949 – une somme de mille dollars.

Mr. Vollgraff a dû vous faire envoyer, chère Madame, un chèque de 825 dollars. Il représente la subvention pour 1948 à votre commission de la Bibliographie, et vous pouvez l'employer selon les nécessités de la commission. Je vous serais reconnaissant de m'envoyer en Septembre les quittances – actes justificatifs – pour les dépenses effectuées, de sorte que je puisse les présenter à temps à l'Unesco.

Je me suis permis de vous envoyer quelques uns de mes travaux. Malheureusement, la plus grande partie est restée en Roumanie et je ne peux pas les avoir. Je n'ai pas même pour moi un seul exemplaire de mes tirages à part des peu de 150 travaux de mathématiques ou d'histoire des sciences. J'espère qu'un jour je pourrai récuperer au moins une partie de mes papiers de Roumanie. Alors, je me ferai un grand plaisir de vous envoyer une collection de mes tirages à part et de mes livres.

En ce moment je suis très occupé au Palais de la Découverte. J'y organise une section permanente: Histoire du Nombre. Elle doit être inaugurée

le 28 juin.

Veuillez agréer mes hommages très respectueux et l'assurance de mes sentiments de haute considération. Meilleures salutations et remerciements de ma femme.

P. Sergescu

**Union Internationale**
**d'Histoire des Sciences**
*12, Rue Colbert*
**PARIS-2e**
o

Paris, le 30 Septembre 1948

Monsieur Charles SINGER
Professeur d'Histoire de la Medecine
a l'Universite de Londres
Kilmarth
PAR
Cornwall
Grande-Bretagne

N 43

Mon cher Collegue,

Je viens de recevoir de la part de Mr. A. Establier, agent de liaison ICSU-UNESCO, la notification de la création, avec le concours de l'UNESCO, d'un Conseil International de la Philosophie et des Sciences Humaines, conseil analogue a l'ICSU et qui sera composé d'organisations internationales specialisees dans la philosophie, les sciences humaines et les domaines connexes. Il y aurait lieu d'examiner si notre Union, par son objet, ne rentre pas dans le cadre de telles organisations.

Une des Unions formant le nouveau Conseil est la Fédération Internationale des Sociétés de Philosophie. Son Secrétaire le Prof. R. Bayer, vient de m'adresser la lettre dont vous trouverez ci-joint la copie ; il demande si nous désirons affilier notre Union a cette Fédération.

Il me semble que les deux questions précédentes sont d'un intérêt capital pour le développement futur de notre Union, de sorte que nous devons les discuter lors de notre prochain conseil.

Je me permets de vous les soumettre dès à present, afin que vous puissiez prendre tout renseignement utile et considérer, sans attendre le moment du Conseil, les solutions les plus compatibles avec nos statuts et avec les intérêts de notre Union.

Veuillez agréer, mon cher Collegue, l'expression de mes sentiments les meilleurs et les plus cordialement devoues.

Le Secretaire éxécutif

P. Sergesu

1 annexe

P. SERGESCU

INSTITUT INTERNATIONAL DE PHILOSOPHIE

PARIS

(Sous le Patronage des Congres Internationaux de Philosophie)

Siege Social :

Sorbonne, Faculte des Lettres
17, rue de la Sorbonne
PARIS 5e

51, av. Georges Mandel
PARIS 16e

Administrateurs permanents :
Aks Petzall, R. Bayer

Le 9 septembre 1948

a Monsieur Pierre SERGESCU
President de l'Academie Internationales d'Histoire des Sciences
Secretaire de l'Union Internationale d'Histoire des Sciences
7, rue Daubenton, Paris 5e

Monsieur le President et Cher ami,

Voulez-vous pressentir le Prof. Charles Singer de ma part, et retenir pour vous-meme la proposition que je suis en mesure de vous faire aujourd'hui.

Nous avons constitue a Amsterdam la Federation Internationale des Societes de Philosphie. Je vous reitere donc l'offre que je vous faisais l'an dernier a titre officieux d'une affiliation de l'Union Internationale d'Histoire des Sciences a notre Federation qui va faire partie cette semaine de la Federation generale des Humanites de l'UNESCO, affiliation qui completerait du cote des Humanites celle que vous avez deja contractee a l'ICSU du cote des Sciences.

Il est inutile de vous dire que je me rejouirais personnellement d'une solution favorable qu'adopterait eventuellement votre Comite, et je vous remercie des maintenant tres amicalement de votre entremise.

Croyez-moi toujours, mon cher Collegue, votre tres cordialement devoue.

Raymond BAYER

Professeur a la Sorbonne
Administrateur permanent de l'I.I.P.
Secretaire Administratif
de la Federation Internationale des
Societes de Philosophie

# INSTITUT INTERNATIONAL DE PHILOSOPHIE

**PARIS**

(SOUS LE PATRONAGE DES CONGRÈS INTERNATIONAUX DE PHILOSOPHIE)


Siège Social :
Sorbonne, Faculté des Lettres
17, Rue de la Sorbonne
PARIS-V·

Administrateurs permanents :
Åke PETZALL, Raymond BAYER



Prière de répondre :
51, avenue Georges Mandel
PARIS 16°


Le 19.10.48

Monsieur le Président,

Les Sociétés de Philosophie se sont constituées, à leur dernier Congrès International d'Amsterdam, en une Fédération de toutes les Sociétés qui désirent s'entendre sur toutes les questions d'intérêt commun, et qui, lorsqu'il s'agit de défendre la mise en chantier et la réussite financière de certaines de leur entreprise, pensent s'adresser ainsi avec plus de force et de crédit auprès des diverses fondations particulières et organismes internationaux, par exemple la Carnegie ou la Rockfeller Fondations ou l'Unesco.

En vous faisant parvenir un exemplaire des Statuts de notre Fédération et la liste des Sociétés fondatrices, permettez-moi de vous faire savoir que votre Société nous paraîtrait de nature à bénéficier des avantages offerts à toutes les Sociétés déjà membres de notre Fédération. Et c'est pourquoi nous vous demandons de considérer cette lettre comme une offre d'affiliation pour l'avenir. Il vous suffira de nous envoyer en ce sens une lettre signée de vous, après avoir pris connaissance de nos Statuts, et de joindre pour notre Bureau d'informations, quelle que soit votre réponse, le petit questionnaire ci-joint, dûment rempli, qui servira pour nous de fiche signalétique de votre Société.

Croyez, Monsieur le Président, à l'assurance de mes sentiments bien cordiaux et dévoués.

Raymond BAYER

Professeur à la Sorbonne

Administrateur permanent de l'I.I.P.

Secrétaire Général de la Fédération Internationale
des Sociétés de Philosophie

TITRE EXACT (en caractères du pays et traduction en français) :

Siège social et adresse :

Date de fondation :

Bureau fondateur :

Bureau actuel pour l'année en cours (.....
(.....
(.....
(.....

Adresse personnelle du Président :

Adresse personnelle du Secrétaire :

Nombre des membres (en envoyer aussitôt que possible la liste avec les adresses) :
(.....)

Cotisation annuelle par membre :

Buts (extraits des Statuts concernant l'activité de la Société) :

Nombre de réunions par an :

Caractère de ces réunions :

Contacts ou coopération avec d'autres Sociétés :

T.S.V.P.

Résumé de l'activité des dernières années :

Activités pour la prochaine année :

Publications récentes :

Publications projetées :

Observations particulières :

LISTE DES SOCIETES FONDATRICES

DE LA FEDERATION INTERNATIONALE DES SOCIETES DE PHILOSOPHIE

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Sociétés Nationales

| | |
|---|---|
| ARGENTINE | Instituto de Filosofia juridica y Social<br>Société Argentine de Philosophie |
| AUSTRALIE | Société Australienne de Philosophie |
| BELGIQUE | Société Belge de Philosophie<br>Société Philosophique de Louvain |
| CANADA | Association Canadienne-Française pour l'avancement des Sciences (Montréal)<br>Société Thomiste de l'Université d'Ottawa |
| DANEMARK | Selskabet for Filosofi og Psykologi |
| ETATS-UNIS | American Philosophical Association (les 5 divisions) |
| FINLANDE | Psykologinen Seura<br>Filosofinen Yhdistis |
| FRANCE | Cercle Philosophique de Nancy<br>Société d'Etudes Philosophiques du Sud-Est<br>Société Française de Philosophie<br>Société Languedocienne de Philosophie<br>Société Lilloise de Philosophie<br>Société Lyonnaise de Philosophie<br>Société de Philosophie de Bordeaux<br>Société de Philosophie de Strasbourg<br>Société Toulousaine de Philosophie |
| GRANDE-BRETAGNE | Aristotelian Society<br>Mind Association<br>The Royal Institute of Philosophy<br>Scots Philosophical Society |
| GRECE | Ekpedefticos Omilos |
| ITALIE | Istituto di Studi Filosofici di Roma<br>Institut Lombard des Sciences de Milan<br>Société Philosophique de Calabre<br>Société Philosophique Ligurienne |
| NORVEGE | Norsk Forening for Samfunnsforskning |
| PAYS-BAS | Union des Sociétés Philosophiques Néerlandaises |

T.S.V.P.

## Sociétés Nationales (suite)

| | |
|---|---|
| POLOGNE | Polskie Towarzystwo Filozoficzne |
| ROUMANIE | Société Roumaine de Philosophie |
| SUEDE | Filosofiska Föreningen i Lund<br>Filosofiska Föreningen i Stockholm |
| SUISSE | Société Suisse de Philosophie |
| TCHECOSLOVAQUIE | Filosoficka Jednota Praha |
| URUGUAY | Société Philosophique d'Uruguay |
| VATICAN | Academia Romana di S. Tommaso d'Aquino di Religione Cattolica |

## Sociétés Internationales

Association des Amis de Bergson
Institut International de Philosophie
Institut International de Psychologie des Peuples
Institut International des Sciences Théoriques
International African Institute
International Phenomenological Society
International Spinoza Foundation
Société Internationale de Linguistique Psychologique
Société Internationale de Logique et de Philosophie des Sciences
Société Russe de Philosophie des Sciences
Union Mondiale des Sociétés Catholiques

*Fédération Internationale des Sociétés de Philosophie*

# STATUTS

## CHAPITRE I

### Nature, but, siège et durée de la Fédération

ART. 1. — La FEDERATION INTERNATIONALE DES SOCIETES DE PHILOSOPHIE groupe les Sociétés, nationales ou internationales, dont l'activité propre est le développement des études et des recherches philosophiques.

ART. 2. — Le but de la Fédération est le suivant:

a) Contribuer directement au développement des échanges de vues et des relations scientifiques entre les philosophes de tous pays, dans un esprit de liberté et de respect mutuel;

b) Faciliter les relations entre les philosophes des divers pays lorsqu'il est utile ou nécessaire d'avoir recours à une coopération internationale;

c) Favoriser les contacts entre les institutions, les Sociétés et les Revues périodiques, consacrées à la Philosophie;

d) Rassembler une documentation utile au développement et à l'organisation des études philosophiques. Des Archives seront ouvertes et tenues à la disposition des membres des Sociétés fédérées;

e) Contribuer par tous les moyens financiers, cotisations ou autres ressources, à la formation, au développement et à l'entretien de ces Archives philosophiques;

f) Lorsque le besoin s'en fera sentir, et moyennant l'obtention de crédits extraordinaires, entreprendre telles autres tâches dont l'accomplissement sera profitable à l'activité philosophique sur le plan international.

ART. 3. — La Fédération peut recevoir certaines subventions des différents Gouvernements ou des Organisations intergouvernementales, ainsi que des donations de Sociétés privées ou de particuliers, afin d'entreprendre certaines tâches, recherches, publications, ou d'organiser certains Congrès, à condition que ces activités se rattachent clairement aux fins propres qui sont les siennes et qu'elles soient de nature à faciliter, sur le plan international, le progrès des études philosophiques et leur communication au monde savant et au public cultivé.

Dans les cas ici prévus, la Fédération pourra, soit procéder elle-même à l'exécution de ces travaux, soit la confier à une organisation compétente à qui elle transférerait, dans ce cas, le montant de la subvention afférente au travail à effectuer, tout en gardant la responsabilité dernière des résultats.

ART. 4. — Le siège de la Fédération Internationale des Sociétés de Philosophie est, dans les conditions statutaires, fixé à Paris, 17, rue de la Sorbonne (Sorbonne).

ART. 5. — La durée de la Fédération est illimitée.

## CHAPITRE II

### Composition de la Fédération

ART. 6. — Seules, peuvent demander leur admission à la Fédération les Sociétés de philosophie régulièrement constituées.

ART. 7. — L'admission des membres est prononcée sur leur demande par le Comité Directeur à la majorité des ¾, sauf appel devant l'Assemblée Générale.

ART. 8. — Tous les membres de la Fédération bénéficient des avantages et supportent les charges prévues par les présents Statuts.

Ils prennent part aux travaux de l'Assemblée Générale dans les conditions fixées par l'article 11 ci-après.

Ils versent une cotisation normale annuelle, proportionnelle aux cotisations de leurs membres sociétaires, et qui ne peut être inférieure à 5 % de leur montant. Les fonds provenant de ces cotisations seront intégralement affectés à l'entretien des Archives philosophiques.

ART. 9. — La qualité de membre de la Fédération prend fin:

a) Par la démission, subordonnée à un préavis d'un an;

b) Par l'exclusion, prononcée par l'Assemblée Générale à la majorité des deux tiers des votants, pour cause:

1. de non-application des clauses des présents Statuts;
2. d'opposition systématique à la réalisation des buts de la Fédération.

## CHAPITRE III

### Fonctionnement de la Fédération

ART. 10. — Le fonctionnement de la Fédération est assuré par l'Assemblée Générale et le Comité Directeur.

ART. 11. — L'Assemblée Générale comprend les représentants de toutes les Sociétés membres, à raison d'un délégué pour chacune d'elles, dûment mandaté à cet effet. Tous les délégués participent aux travaux de l'Assemblée avec droit de délibération. Mais chaque Nation ne peut avoir plus de 2, ni l'ensemble des sociétés internationales plus de 12 délégués jouissant du droit de vote.

ART. 12. — L'Assemblée Générale se réunit en session ordinaire à l'occasion des Congrès Internationaux de Philosophie, qui ont lieu, en principe, tous les quatre ans et, en session extraordinaire, toutes les fois que les circonstances paraissent l'exiger.

L'initiative de la convocation revient, dans tous les cas, au Président du Comité Directeur.

ART. 13. — Les travaux de l'Assemblée sont effectués par les délégués présents et dûment mandatés. Les représentations sont valables à condition qu'elles soient formulées par lettre adressée, par la Société intéressée, au Président du Comité Directeur, au moins une semaine avant la réunion de l'Assemblée, en indiquant:

a) Le nom du mandataire;

b) La portée du mandat.

ART. 14. — La compétence de l'Assemblée s'étend à toutes les questions relatives à l'activité de l'organisation.

En particulier:

a) Elle établit le budget de la Fédération et assure le contrôle de la gestion précédente;

b) Elle se prononce sur les cas d'exclusion des membres;

c) Elle procède à des élections pour constituer ou renouveler le Comité Directeur;

d) Elle trace les grandes lignes de l'activité du Comité Directeur et se prononce sur son activité passée;

e) Elle procède, s'il y a lieu, à la révision des clauses des présents Statuts, si elle en est saisie par le Comité Directeur, ou par l'initiative des deux tiers des membres;

f) Elle peut nommer des Commissions chargées d'étudier des problèmes particuliers et de lui soumettre des rapports.

ART. 15. — Les décisions en assemblée plénière sont prises à la majorité des deux tiers des votants, pourvu qu'elle atteigne la majorité absolue.

Dans les cas urgents et sur décision du bureau, des votes peuvent avoir lieu en dehors des assemblées plénières et par correspondance.

ART. 16. — L'Assemblée est présidée par le Président de la Fédération, qui, sur consultation du Comité Directeur, prépare son ordre du jour, et fait rédiger les comptes rendus des débats.

ART. 17. — Le Comité Directeur est l'organe d'administration de la Fédération. Il est constitué de trente membres élus par l'assemblée générale au scrutin secret, sur présentation des délégations nationales et des sociétés internationales. Il ne peut compter plus de deux membres représentant une même nation, ni plus de six représentants des sociétés internationales.

Il est renouvelable par tiers au moment où se tiennent le congrès et l'assemblée plénière. Les membres en sont rééligibles.

Il nomme lui-même, séance tenante, le bureau de la Fédération pour la période qui s'étend entre deux congrès consécutifs. Le bureau comprend un président, au moins deux vice-présidents et un secrétaire administratif.

ART. 18. — Le Comité Directeur est présidé par le Président de la Fédération.

Le Comité Directeur est chargé:

a) De recueillir les voeux des Sociétés, relatifs à leur activité internationale;

b) De coordonner ces voeux;

c) D'étudier les moyens d'en assurer la satisfaction;

d) De présenter un projet de budget à l'Assemblée Générale;

e) De surveiller l'exécution des travaux inscrits au programme de la Fédération, qu'ils soient ou non confiés à un organisme extérieur ou affilié, et de recevoir à cet effet des rapports périodiques du Président;

f) Dans les cas d'urgence, et lorsqu'une convocation extraordinaire de l'Assemblée Générale ne paraîtra pas nécessaire, de conclure des accords aux termes desquels la Fédération se chargerait d'accomplir sur le plan international certaines tâches en accord avec ses buts et avec la nature et les conditions de l'activité philosophique, contre l'octroi d'une subvention qui viendrait s'ajouter spécialement à son budget, ou inversement, aux termes desquels elle transférerait certaines de ces sommes à un organisme compétent en le chargeant d'exécuter pour

elle ces travaux; dans les cas ici prévus, un rapport serait fait à la prochaine Assemblée Générale.

ART. 19. — Le Président de la Fédération assume les fonctions suivantes:

a) Il préside les séances de l'Assemblée Générale;

b) Il préside les réunions du Comité Directeur, ou en consulte les membres par correspondance;

c) Il représente la Fédération, ou se fait représenter, dans tous les cas où l'activité de la Fédération l'exige;

d) Il engage les dépenses dans les cadres statutaires du budget.

ART. 20. — Les modalités non prévues aux présents statuts seront fixées par un règlement intérieur élaboré par le Comité Directeur.

North-Holland Publishing Co., Amsterdam.

TELEPHONE : KLEBER 52-00 - TELEGR. : UNESCO PARIS

UNESCO

UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANISATION

ORGANISATION DES NATIONS UNIES POUR L'ÉDUCATION, LA SCIENCE ET LA CULTURE

19, Avenue Kléber, PARIS 16e

In your reply, please refer to :
En répondant, veuillez rappeler :
N°
NS 73014

Monsieur le Professeur Ch. SINGER
Kilmarth
P A R
Cornwall (Great Britain)

Paris, December 15, 1948

My dear Dr. Singer,

I just read in "Endeavour" the review which you so kindly wrote on my little book. I want to express you my deep gratitude; it is a great honour indeed that a scientist and a scholar like you, did accept to write on such a little work.

Concerning your letter of December 8 to Prof. Sergescu, of which you were so kind as to send me a copy, I think our Union should keep in touch only with ICSU; it would be wiser to give up the other suggested affiliations.

No 5 of the Archives is out this week and I suppose you will tell us your criticisms; they will help us very much to improve the review, and your advices and suggestions will be especially welcomed, as ever.

Please pay my hommages to Mrs Singer.

I am, dear Dr. Singer,

Yours very gratefully and respectfully

J. PELSENEER
Natural Sciences Dept.

Int. Union

TELEPHONE : KLEBER 52-00 - TELEGR : UNESCO PARIS

UNESCO

UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANISATION

ORGANISATION DES NATIONS UNIES POUR L'ÉDUCATION, LA SCIENCE ET LA CULTURE

19, Avenue Kléber, PARIS 16e

In your reply, please refer to :
En répondant, veuillez rappeler :
N° [redacted]

6 December 1948.

My dear Charles,

I arrived this morning from London, where I had to go for a couple of days, to find your letter of 2 December waiting for me; your other letter of 4 December had also just arrived. I am glad to learn that, as you say, our letters have "had the desired effect", and that our friend Underwood is on the move. It is high time, good heavens! We will talk at length about all this when we meet before the New Year.

Our friend Lilley had lunch with me in London yesterday. I asked him if he had sent you his essay on the "Social Relations of Science" and I was glad that he had already done so. I think this is a remarkable work, and I am glad that I took the initiative of having him write it in time to be distributed at Beirut during Unesco's Third General Conference, which is taking place there now. I must say, however, that there is in some quarters of the Union and Academy a very disagreeable resistance to everything that Lilley does. But I have supported him and am very glad to do so, because I think that he is of real value. I would even go so far as to say that I wish I had the power to bring him into Unesco, as I am sure that he would render very good service, and it would be as well to have somebody from the extreme Left to counterbalance the influence from the opposite direction. I told him to approach Joseph Needham on this subject because I am convinced that if Needham decided to support his candidature it would not be very difficult to bring him into Unesco.

As you may remember, at Lausanne last year, you, Dorothea and myself proposed the name of Lilley for election as membre correspondant of the Academy, but it seems that he did not get enough votes to go automatically as a candidate to the new election. I spoke of this to Pelseneer and Sergescu, but they did not seem disposed to vote for Lilley. I think that you, Dorothea and I should put his name forward again, and I think we should go even further and ask our friends to vote for him. I have written to Needham today and mentioned the question of Lilley's election. I have had a letter from Jaguaribe de Mattos, President of the Brazilian Academy of the History of Science, and am also going to write to him mentioning Lilley. It seems to me very unfair that given the scholarly

Professor Charles Singer,
Kilmarth,
Par,
Cornwall.

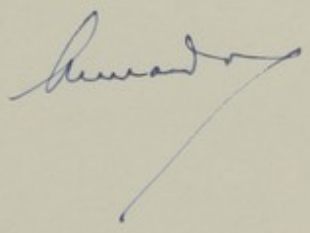
work and devotion of Lilley he should be put systematically aside.

He deserves at least as much as anybody else to be elected for the Academy.

As I told you, we intend to arrive at Kilmarth in the afternoon of the 30 December; but I will confirm this from Conygar.

With love from us both to Dorothea and yourself,

Yours ever,



AC/mhj

[Union] Intrat

le 6 Dec. 1948

UNION INTERNATIONALE D'HISTOIRE DES SCIENCES

Mon cher Collègue

Pardon que je n' i pas répondu plus promptement à votre aimable lettre du 30 Sept. ( vec la lettre ci-enclose de Monsieur Bayer).

Je suis parfaitement de votre avis que nous devrons considérer à la prochaine réunion de notre Conseil:

a) La proposition de Monsieur Bayer au sujet d'une affiliation de notre UNION avec la Fédération Internationale des Société Sociétés de Philosophie ;

b) Question d'une affiliation de notre UNION avec le Le Conseil international de la Philosophie et des Sciences Humaines .

Moi-même, je désirerais naturellement l'opinion de nos collègues sur chacune de ces deux propositions. Il me parait que notre Union commencerait plus naturellement parti du Conseil ( proposition b en haut) que de la Fédération (proposition a). mais puisque nous avons déja l'affiliation avec ICSU; et que les subventions à notre UNION nous parviennent de UNESCO par l'agence de ICSU; je crois que nous devrons savoir l'opinion de UNESCO sur les affiliations doubles ( en notre cas par example avec ICSU et aussi avec le Conseil international de la Phifosophie et des Sciences Humaines) avant que nous prendrons la décision sur cette question .

J'enverrai, cher Collègue à Monsieur Belsenecr à UNESCO une copie de cette lettre dans l'espoir que ça vous épargnera un peu de votre grand travail.

Je vous prie de présenter à Madame Sergescu mes hommages très respectueux avec les meilleures salutations de Madame Singer et d'agréer vous-même nos sentiments très cordiales.

CHARLES SINGER, Président

A Monsieur le Professeur
~~Le Secrétaire le Professeur~~ P. Sergescu

Le Secrétaire executif

Union Internationale d'Histoire des Sciences
7 Rue Danbenton
Paris 5e

6th Dec. 1948

UNION INTERNATIONALE D'HISTOIRE DES SCIENCES

My My dear Pelseneer

Enclosed explains itself.

Mrs Singer joins me in warmest greetings and we both hope that you will manage to pay us a visit here.

Yours most sincerely

Charles Singer

28th November 1949.

My dear Armando,

I have been reflecting on the future course of the International Union for the History of Science. As you know, I was greatly touched that my colleagues insisted on my accepting the office of first President. But I feel that a younger man should now take the helm. From every point of view, I think that the International Union would be splendidly served by Forbes. I should like to know at this unofficial stage your reactions on the matter.

You have most wisely put him in your list for election as an effective member, and we must hope that his election will go through this spring. (I know that Dorothea has already written to you that we entirely agree with both lists given by yourself and Dr. Pelseneer in your letter of November 24th, and that we suggest if possible that Dr. E.J. Holmyard should be added to the recommended list for election as an effective member.)

Dorothea at my request dropped a hint at the Council meetings at Paris in September that I would like to retire from the Presidency of the Union in August 1950 and that I thought it would be an excellent idea for Forbes to succeed me. The suggestion was in general well received.

It is usual for the International Academy to choose at its council meeting prior to the International Congress the place where the next Congress shall be held, and then to propose to the assembly of the effective members of the Academy, also held at the time of the Congress, both the place for the new Congress and the election as President of the Academy of the most distinguished historian of science of the country where the Congress is to be held.

A similar procedure no doubt will take place as regards the President of the International Union.

When I hear from you, and if you see no objection, I think I shall write to Sergescu asking him to put the suggestion from me on the Agenda of the next meeting of the Council of the International Union.

It would of course not do to have the President of the International Academy and the President of the International Union belonging to the same nation, but we may be sure that, much as we shall enjoy this Congress, some country other than Holland will be chosen for the next.

Our love to Carlota and yourself. I do hope we shall see you soon.

Yours ever,

CHARLES SINGER

Dr. Armando Cortesao,
U.N.E.S.C.O.,
19 Avénue Kléber,
Paris XVI.

International Union

13 January, 1949.

2.7/IUHS (1948)
NS/64076

Dear Professor Sergescu,

With reference to your letter of 20 December 1948, I take pleasure in informing you that the Director-General has approved your request to divert the unspent balance of $ 569 from Item A of the 1948 grant-in-aid, towards the Publication of the Archives Internationales d'Histoire des Sciences.

Yours sincerely,

F. J. Malina
Deputy Head
Department of Natural Sciences

Professor P. Sergescu,
Secretary-General,
International Union
of the History of Science,
12 Rue Colbert,
Paris (7)

cc to Dr. Charles Singer
" " ICSU/UNESCO Liaison Officer

N/1(49)

# THE ROYAL SOCIETY

N/1(49)

## BRITISH NATIONAL COMMITTEES

### Letter from Professor Stratton concerning the Society for Visiting Scientists

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Copy of a letter, dated 27 January 1949
From: Professor F.J.M. Stratton, D.S.O., O.B.E., F.R.S., Society for Visiting Scientists, 5 Old Burlington Street, W.1.
To; Professor E.D. Adrian, O.M., For.Sec.R.S., Royal Society, Burlington House, W.1.

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As you may know, I was recently elected Secretary of the Society for Visiting Scientists which has now been formally established under the Companies Acts 1929 and 1947 as a Company limited by guarantee and not having a share capital.

Recently the British Council found it necessary, because of other demands on its resources, to reduce the amount of the annual grant to the Society for Visiting Scientists and as a result the Society reconsidered its general policy. The aims of the Society are:-

(i) To be a focus for all scientists visiting the United Kingdom, and to put them in touch with British scientists and with one another and make them feel at home in the shortest possible time.

(ii) To promote and encourage an active interchange of scientific thought and discussion between scientists of the United Kingdom and scientists from overseas.

(iii) To provide a centre in London where British scientists can meet.

The Council of the Society for Visiting Scientists is anxious that the facilities that it can offer should be as widely known as possible not only to scientific societies in this country but particularly to those who have a special interest in the international relations of science.

The Society is faced with serious financial difficulties and the Council feels that the best method of meeting those difficulties is to encourage increased membership of the Society and the greater use of the Society's premises. With this end in view the Society has launched a membership drive and is approaching scientific societies with a view to obtaining their collaboration. The Council of the Society has also taken steps to improve the catering facilities and in addition to offering daily lunches (at 2/6d), morning coffee and afternoon tea (at 1/-d), it is hoped to arrange evening meals if there should be a demand. In addition, the Society's caterers would be willing to arrange meals for groups on special occasions, such as meetings of dining clubs of scientific societies, special receptions and meetings when distinguished overseas scientists are in London etc.

The Society is very pleased to have been able to arrange a reception to the members of the Bureau of the International Union of Biological Sciences which is due to take place in February and it has occurred to me that the National Committees of the Royal Society might wish to make further use of the facilities which the Society for Visiting Scientists can offer in a similar way.

(OVER)

I enclose a brochure which gives a brief description of the Society and its activities and I should be willing to let you have further supplies should you wish to have them.

As the members of the National Committees are all especially interested in international relations of Science would it be possible for you to inform them, possibly by circulating this letter, of the desire of the Council of the Society for Visiting Scientists for extended use to be made of the Society's facilities? Needless to say, we would, of course, welcome applications for membership from National Committee members and I should be very happy to send full details to anyone who may care to write to me.

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3.2.49.

THE ROYAL SOCIETY
BURLINGTON HOUSE
LONDON W.1
REGENT 3335

7 February 1949

To members of the BRITISH NATIONAL COMMITTEES:

Dear Sir or Madam,

Professor Adrian has asked me to circulate the attached copy of a letter from Professor F.J.M. Stratton relating to the Society for Visiting Scientists. I understand that copies of the brochure referred to have already been sent to you by the Secretary of the Society for Visiting Scientists, together with particulars of membership.

Also enclosed for the information of National Committees is an offprint of pages 59 to 67 of the Year Book of the Royal Society relating to the constitution and functions of Royal Society Committees on international relations.

Yours faithfully,

D.C. MARTIN

Assistant Secretary

# THE ROYAL SOCIETY

## COMMITTEES ON INTERNATIONAL RELATIONS 1949

# COMMITTEES ON INTERNATIONAL RELATIONS

## International Council of Scientific Unions

As the result of an International Conference held in the rooms of the Royal Society in October 1918, and of subsequent conferences held in Paris in November 1918, and in Brussels in July 1919, an International Council was formed for the purpose of facilitating international cooperation in scientific work, and promoting the formation of International Unions in different branches of science. The affairs of the International Council are managed by an Executive Committee, consisting of the President, the retiring President, two Vice-Presidents, the General Secretary, two elected members, and in addition two members appointed by each Union ; the General Secretary is Professor F. J. M. Stratton, D.S.O., of Gonville and Caius College, Cambridge.

The Royal Society, as the National Academy of Science for Great Britain, is the adhering organization for the country and appoints the British delegates to the meetings of the International Council and of the International Unions.

Under the auspices of this Council, International Unions have been formed for Astronomy, Geodesy and Geophysics, Chemistry, Scientific Radio, Physics, Geography, Biology, Crystallography, Theoretical and Applied Mechanics, and the History of Science ; to each of these the Royal Society has notified its adhesion.

Under the Statutes of each International Union an adhering academy, society, research council or government should appoint a committee to maintain contact with the Bureau of each Union to which it has adhered with the object of facilitating international cooperation in the branch of science with which it is concerned, to recommend to the adhering organization such changes of statute, proposals for scientific action or matters for discussion as may be desirable to bring before the General Assembly of the Union and also to select delegates to represent the adhering organization at the General Assembly of the Union.

## National Committees

For each of these Unions a committee for Great Britain has been formed ; the functions of such committees are defined in the Statutes of the various Unions. In general, they are the promotion of the branches of sciences with which they are concerned, more especially as regards international requirements, the nomination of delegates to represent the United Kingdom at meetings of the Unions, and the initiation of proposals or questions for discussion at such meetings.

Such Committees for Astronomy, Geodesy and Geophysics, Scientific Radio of Great Britain, Physics, Geography, Biology, Chemistry, Crystallography, Theoretical and Applied Mechanics and the History of Science have been constituted by the Council of the Royal Society, their appointment being governed by the following rules (*Council Minutes*, 26 *May* 1921 and 18 *January* 1923) :

The members nominated to a committee by any body shall in no case serve as nominees of that same body for a period exceeding six years consecutively. When an *ex-officio* member of a Committee is appointed to act as Chairman his tenure of office as Chairman shall in no case exceed six years consecutively. All British Officers of the Executive Committees of the International Unions are *ex-officio* members of the relevant British National Committees.

Each committee has power to recommend to the Council of the Royal Society the appointment of ' Additional Members ' to the Committee, the number of such additional members not to exceed three at any time, and their appointment in no case to extend beyond the end of the then current three-year period.

### NATIONAL COMMITTEE FOR ASTRONOMY [1919]

CHAIRMAN : SIR HAROLD SPENCER JONES

*ex officio*

ASTRONOMER ROYAL
ASTRONOMER ROYAL for Scotland
SUPERINTENDENT of the *Nautical Almanac*
PRESIDENT, Royal Astronomical Society
PRESIDENT, British Astronomical Association
SIR HAROLD SPENCER JONES (Member of Executive of the Union)

*Royal Society* (6)
* Professor T. G. COWLING
§ Professor G. M. B. DOBSON
§ Professor G. R. GOLDSBROUGH
§ Professor H. JEFFREYS
* Professor H. S. W. MASSEY
* Professor R. O. REDMAN

*Royal Society of Edinburgh* (2)
* Professor W. H. McCREA
§ Dr W. M. SMART

*Royal Astronomical Society* (6)
* Miss M. G. ADAM
* Dr M. A. ELLISON
* Dr E. H. LINFOOT
§ Professor H. H. PLASKETT
§ Dr R. STONELEY
§ Professor F. J. M. STRATTON

*British Astronomical Association*
* Dr G. MERTON
§ Dr W. H. STEAVENSON

*Royal Irish Academy* (2)
* Dr E. M. LINDSAY
§ Dr T. E. NEVIN

## NATIONAL COMMITTEE FOR BIOLOGY [1930]

Chairman: § Professor H. M. FOX

*Royal Society* (6)
* Professor G. R. de BEER
* Professor W. BROWN
§ Professor H. M. FOX
§ Professor H. L. HAWKINS
§ Dr H. H. THOMAS
* Dr A. E. TRUEMAN

*Anatomical Society* (2)
§ Professor J. C. BRASH
* Professor W. E. Le GROS CLARK

*Association of Applied Biologists* (2)
* Dr I. THOMAS
§ Dr C. B. WILLIAMS

*Biochemical Society* (2)
* Professor J. N. DAVIDSON
§ Professor G. F. MARRIAN

*British Ecological Society* (2)
§ Professor W. H. PEARSALL
§ Dr D. W. RICHARDS

*Geological Society* (2)
* Dr W. J. ARKELL
§ Dr C. J. STUBBLEFIELD

*Linnean Society* (2)
§ Dr E. HINDLE
* Colonel F. C. STERN

*Pathological Society* (2)
* Professor G. R. CAMERON
* Professor E. T. C. SPOONER

*Physiological Society* (2)
* Dr G. L. BROWN
§ Dr E. N. WILLMER

*Royal Entomological Society* (2)
* Dr E. B. FORD
§ Mr F. HEMMING

*Freshwater Biological Association* (1)
* Mr H. CARY GILSON

*Marine Biological Association* (1)
* Mr F. S. RUSSELL

*Society for General Microbiology* (1)
§ Dr K. M. SMITH

*Royal Society of Edinburgh* (2)
* Professor J. WALTON
§ Professor M. C. YONGE

*Zoological Society* (2)
* Dr L. HARRISON MATTHEWS
§ Dr A. LANDSBOROUGH THOMSON

*Genetical Society* (1)
* Dr E. B. FORD

*Society for Experimental Biology* (1)
* Professor R. BROWN

*Royal Irish Academy* (2)
* Dr J. DOYLE
§ Dr A. E. J. WENT

§ To retire 31 December 1951
* To retire 31 December 1954

## NATIONAL COMMITTEE FOR CHEMISTRY [1935]

CHAIRMAN : § SIR CYRIL HINSHELWOOD

*ex officio*

THE GOVERNMENT CHEMIST
THE DIRECTOR of the Chemical Research Laboratory
SIR IAN HEILBRON (Vice-President of the Union)
SIR ROBERT ROBINSON (Member of the Bureau of the Union)
DR L. H. LAMPITT (Treasurer of the Union)

*Royal Society* (6)
* PROFESSOR J. W. COOK
* PROFESSOR E. C. DODDS
§ PROFESSOR G. I. FINCH
§ PROFESSOR E. L. HIRST
* PROFESSOR H. W. MELVILLE
§ SIR JOHN SIMONSEN

*Chemical Society* (3)
§ SIR NORMAN HAWORTH
§ SIR CYRIL HINSHELWOOD
* PROFESSOR M. STACEY

*Society of Chemical Industry* (3)
* DR E. B. HUGHES
§ PROFESSOR E. K. RIDEAL
* MR S. ROBSON

*Society of Public Analysts* (1)
* DR A. M. WARD

*British Ceramic Society* (1)
§ DR H. W. WEBB

*Institute of Fuel* (1)
§ DR D. T. A. TOWNEND

*Institute of Petroleum* (1)
§ DR A. E. DUNSTAN

*Oil and Colour Chemists' Association* (1)
* DR L. A. JORDAN

*Institute of Brewing* (1)
§ MR B. M. BROWN

*Biochemical Society* (1)
* DR W. T. J. MORGAN

*Faraday Society* (1)
§ PROFESSOR W. E. GARNER

*Royal Institute of Chemistry* (1)
* MR E. T. OSBORNE

*Institution of Chemical Engineers* (1)
* MR H. W. CREMER

*Institute of Gas Engineers* (1)
§ DR E. V. EVANS

*International Society of Leather Trades' Chemists* (1)
§ MR A. HARVEY

*Society of Dyers and Colourists* (1)
§ MR J. BARRITT

*Society of Glass Technology* (1)
§ PROFESSOR W. E. S. TURNER

## NATIONAL COMMITTEE FOR CRYSTALLOGRAPHY [1947]

CHAIRMAN : SIR LAWRENCE BRAGG

*ex officio*

DR R. C. EVANS (Secretary of the Union)
PROFESSOR P. P. EWALD (Member of Executive of Union)

*Royal Society* (7)
PROFESSOR W. T. ASTBURY
PROFESSOR J. D. BERNAL
SIR LAWRENCE BRAGG
DR D. C. HODGKIN
DR K. LONSDALE
SIR GEORGE THOMSON
PROFESSOR C. E. TILLEY

*Chemical Society* (1)
DR G. M. BENNETT

*Institute of Physics* (1)
PROFESSOR E. G. COX

*Institute of Metals* (1)
MR D. A. OLIVER

*Iron and Steel Institute* (1)
DR C. SYKES

*Mineralogical Society* (1)
DR F. A. BANNISTER

*Physical Society* (1)
DR H. WILMAN

*Additional Member :* § DR W. H. TAYLOR

§ To retire 31 December 1951
* To retire 31 December 1954

## NATIONAL COMMITTEE FOR GEODESY AND GEOPHYSICS
[1919]

CHAIRMAN : DR R. STONELEY

*ex officio*
ASTRONOMER ROYAL
DIRECTOR of the Meteorological Office
DIRECTOR of the Geological Survey
DIRECTOR-GENERAL of the Ordnance Survey
HYDROGRAPHER of the Navy
DIRECTOR of Military Surveys
PROFESSOR S. CHAPMAN (Vice-President of the Union)
DR J. M. STAGG (General Secretary of the Union)
DR R. STONELEY (Member of Executive Committee of Union)

*Royal Society* (12)
* DR R. A. BAGNOLD
§ PROFESSOR D. BRUNT
§ DR G. E. R. DEACON
* PROFESSOR G. M. B. DOBSON
* DR A. T. DOODSON
§ SIR JOHN EDGELL
§ PROFESSOR G. R. GOLDSBROUGH
* DR H. W. HARVEY
* DR J. DE GRAAFF HUNTER
§ PROFESSOR J. E. RICHEY
§ SIR GEOFFREY TAYLOR
* MR J. M. WORDIE

*Royal Society of Edinburgh* (2)
§ DR A. H. R. GOLDIE
* PROFESSOR R. McADAM

*Royal Astronomical Society* (2)
* MR B. C. BROWNE
§ PROFESSOR H. H. PLASKETT

*Royal Geographical Society* (2)
§ DR K. S. SANDFORD
* DR J. A. STEERS

*Royal Meteorological Society* (2)
* MR E. GOLD
§ SIR CHARLES NORMAND

*British Association* (2)
§ SIR EDWARD APPLETON
* DR R. STONELEY

*Geological Society* (2)
* DR J. PHEMISTER
§ PROFESSOR V. C. ILLING

*Royal Irish Academy* (2)
§ MR D. W. BISHOPP
* DR J. H. J. POOLE

### GEODESY SUB-COMMITTEE

Astronomer Royal, Director of the Geological Survey, Director-General of the Ordnance Survey (*chairman*), Hydrographer to the Navy, Director of Military Surveys, Brigadier G. Bomford, Mr B. C. Browne, Dr E. C. Bullard, Mr J. Clendinning, Mr J. H. Cole, Brigadier E. A. Glennie, Professor C. A. Hart, Brigadier M. Hotine, Dr J. DE Graaff Hunter, Professor H. Jeffreys, Dr G. M. Lees, Sir Gerald Lenox-Conyngham.

### HYDROLOGY SUB-COMMITTEE

Director of the Meteorological Office, Director of the Geological Survey, Hydrographer to the Navy, Mr W. Allard, Professor D. Brunt, Dr Dixey, Mr E. Gold, Sir Claude Inglis, Mr D. Lloyd, Captain W. N. McClean, Dr R. K. Schofield, Mr G. Seligman, Dr C. M. White, Mr J. M. Wordie (*chairman*).

§ To retire 31 December 1951
* To retire 31 December 1954

### METEOROLOGY SUB-COMMITTEE

Astronomer Royal, Director of the Meteorological Office, Sir Edward Appleton, Professor D. Brunt (*chairman*), Professor S. Chapman, Dr G. E. R. Deacon, Professor G. M. B. Dobson, Mr C. K. M. Douglas, Dr A. H. R. Goldie, Professor H. Jeffreys, Sir Charles Normand, Professor A. O. Rankine Professor P. A. Sheppard, Professor O. G. Sutton, Sir Geoffrey Taylor.

### OCEANOGRAPHY SUB-COMMITTEE

Director-General of the Ordnance Survey, Hydrographer to the Navy (*chairman*), Dr J. N. Carruthers, Dr G. E. R. Deacon, Dr A. T. Doodson, Sir John Edgell, Professor G. R. Goldsbrough, Professor A. C. Hardy, Dr H. W. Harvey, Professor H. Jeffreys, Mr H. L. P. Jolly, Dr N. A. Mackintosh, Mr D. J. Matthews, Mr H. G. Maurice, Professor J. Proudman, Dr J. B. Tait, Sir Geoffrey Taylor, Dr J. D. H. Wiseman.

### SEISMOLOGY SUB-COMMITTEE

Director of the Geological Survey, Mr B. C. Browne, Dr E. C. Bullard, Professor H. Jeffreys (*chairman*), Sir Gerald Lenox-Conyngham, Professor H. H. Plaskett, Professor A. O. Rankine, Dr J. M. Stagg, Dr R. Stoneley, Mr E. Tillotson, Mr P. L. Willmore.

### TERRESTRIAL MAGNETISM AND ELECTRICITY SUB-COMMITTEE

Astronomer Royal, Hydrographer to the Navy, Sir Edward Appleton, Mr D. W. Bishopp, Dr E. C. Bullard, Professor S. Chapman (*chairman*), Professor T. G. Cowling, Mr V. C. Ferraro, Dr A. H. R. Goldie, Professor W. M. H. Greaves, Dr Crichton Mitchell, Mr H. W. Newton, Mr T. H. O'Beirne, Mr A. T. Price, Dr G. E. Roberts, Sir George Simpson.

### VULCANOLOGY SUB-COMMITTEE

Director of the Geological Survey (*chairman*), Professor H. Jeffreys, Sir Gerald Lenox-Conyngham, Dr J. E. Richey.

## NATIONAL COMMITTEE FOR GEOGRAPHY [1920]

CHAIRMAN : PROFESSOR H. J. FLEURE

*ex officio*

HYDROGRAPHER of the Navy
DIRECTOR-GENERAL of the Ordnance Survey
DIRECTOR of Military Surveys
PRESIDENT, Section E, British Association
PRESIDENT of the Royal Geographical Society
PRESIDENT of the Royal Scottish Geographical Society
PRESIDENT of the Manchester Geographical Society
PRESIDENT of the Geographical Association
PROFESSOR H. J. FLEURE (Vice-President of the Union)

*Royal Society* (2)

§ BRIGADIER R. A. BAGNOLD
* SIR EDWARD SALISBURY

*Royal Geographical Society* (3)

§ PROFESSOR C. B. FAWCETT
§ DR J. A. STEERS
* MR J. M. WORDIE

§ To retire 31 December 1951
* To retire 31 December 1954

*Ministry of Civil Aviation* (1)
§ MR W. E. B. GRIFFITHS
*Institute of British Geographers* (1)
* DR R. O. BUCHANAN
*Directorate of Colonial Surveys* (1)
§ BRIGADIER M. HOTINE
*Royal Society of Edinburgh* (1)
* MR J. BARTHOLOMEW
*Ministry of Town and Country Planning* (1)
* DR E. C. WILLATTS
*Royal Irish Academy* (1)
* DR E. E. EVANS
*Geographical Association* (1)
§ DR A. GARNETT
*Royal Scottish Geographical Society* (1)
* PROFESSOR A. G. OGILVIE
*Air Ministry* (2)
* AIR COMMODORE N. H. D'AETH
§ GROUP CAPTAIN P. H. CATOR
*Additional Member*
§PROFESSOR E. G. R. TAYLOR

## NATIONAL COMMITTEE FOR THE HISTORY OF SCIENCE [1948]

CHAIRMAN : PROFESSOR E. N. DA C. ANDRADE

*Royal Society* (9)
PROFESSOR E. N. DA C. ANDRADE
PROFESSOR F. J. COLE
SIR WILLIAM DAMPIER
DR C. DOBELL
PROFESSOR R. A. FISHER
SIR HAROLD HARTLEY
PROFESSOR J. READ
SIR EDWARD SALISBURY
PROFESSOR H. W. TURNBULL
*British Society for the History of Science* (2)
DR C. SINGER
DR E. ASHWORTH UNDERWOOD
*Newcomen Society* (1)
MR S. B. HAMILTON
*Society for the Study of Alchemy and Early Chemistry* (1)
DR E. J. HOLMYARD

## NATIONAL COMMITTEE FOR PHYSICS [1921]

CHAIRMAN : § PROFESSOR N. F. MOTT

*ex officio*
DIRECTOR of the National Physical Laboratory
DIRECTOR of Scientific Research at the Admiralty
PROFESSOR P. P. EWALD (Member of Executive of Union)

*Royal Society* (8)
§ PROFESSOR W. T. ASTBURY
* PROFESSOR W. E. CURTIS
§ MRS K. LONSDALE
§ PROFESSOR H. S. W. MASSEY
§ PROFESSOR N. F. MOTT
* PROFESSOR J. T. RANDALL
* PROFESSOR F. E. SIMON
* DR H. W. B. SKINNER

*Royal Society of Edinburgh* (2)
* PROFESSOR N. FEATHER
§ PROFESSOR G. D. PRESTON

*Physical Society* (3)
§ PROFESSOR G. I. FINCH
* DR A. C. MENZIES
§ PROFESSOR M. L. E. OLIPHANT

*Royal Irish Academy* (2)
* DR F. E. HACKETT
* DR P. J. NOLAN
*Institute of Physics* (1)
* MR J. H. AWBERY
*Faraday Society* (1)
§ MR R. P. BELL
*British Institute of Radiology* (1)
§ PROFESSOR L. H. CLARK
*Cambridge Philosophical Society* (1)
* DR W. E. BURCHAM
*Institution of Electrical Engineers* (1)
* DR T. E. ALLIBONE
*Royal Meteorological Society*
* DR J. F. SCRASE

THE CHAIRMAN of the Optical Sub-Committee

§ To retire 31 December 1951
* To retire 31 December 1954

## OPTICAL SUB-COMMITTEE [1947]

To act through the National Committee for Physics in matters connected with the International Optical Commission.

Professor R. W. Ditchburn, Mr H. H. Emsley, Professor H. Hartridge, Dr H. H. Hopkins, Dr E. Linfoot, Professor L. C. Martin, Dr A. C. Menzies, Professor H. Moore, Mr A. J. Philpot, Mr E. W. H. Selwyn, Mr T. Smith (*chairman*), Dr D. Starkie, Mr E. W. Taylor, Dr W. D. Wright, Mr C. G. Wynne.

## NATIONAL COMMITTEE FOR SCIENTIFIC RADIO [1920]

CHAIRMAN : SIR EDWARD APPLETON

*ex officio*

SIR EDWARD APPLETON (President of the Union)
DIRECTOR of the National Physical Laboratory

*Royal Society* (4)
* SIR EDWARD APPLETON
§ PROFESSOR P. M. S. BLACKETT
* PROFESSOR S. CHAPMAN
§ PROFESSOR J. SAYERS

*Radio-Research Board* (1)
* MR J. A. RATCLIFFE

*Wireless Telegraphy Board* (1)
§ GROUP CAPTAIN H. G. LEONARD-WILLIAMS

*Royal Society of Edinburgh* (2)
* PROFESSOR M. G. SAY
§ PROFESSOR J. T. RANDALL

*Royal Irish Academy* (2)
* PROFESSOR R. W. DITCHBURN
§ PROFESSOR E. T. R. WALTON

*Institution of Electrical Engineers* (2)
§ SIR STANLEY ANGWIN
* MR H. BISHOP

*Physical Society* (2)
* DR W. J. G. BEYNON
§ MR C. W. OATLEY

*Meteorological Office* (1)
* MR H. W. L. ABSALOM

*Post Office, Chief Engineer's Branch* (1)
§ MR A. H. MUMFORD

*British Broadcasting Corporation* (1)
§ MR W. P. WILSON

*Department of Scientific and Industrial Research* (1)
* DR R. L. SMITH-ROSE

## NATIONAL COMMITTEE FOR THEORETICAL AND APPLIED MECHANICS [1947]

CHAIRMAN : SIR RICHARD SOUTHWELL

*Royal Society* (4)
PROFESSOR S. GOLDSTEIN
SIR RICHARD SOUTHWELL
SIR GEOFFREY TAYLOR
MR B. N. WALLIS

*Institution of Naval Architects* (1)
MR L. WOOLLARD

*London Mathematical Society* (1)
PROFESSOR G. TEMPLE

*Physical Society* (1)
MR C. N. H. LOCK

*Royal Aeronautical Society* (1)
PROFESSOR A. A. HALL

§ To retire 31 December 1951
* To retire 31 December 1954

## INTERNATIONAL RELATIONS COMMITTEE [1937]

To advise, when requested, concerning the relations with foreign institutions and organizations as regards scientific or other matters which might affect the interests or the policy of the Society.

CHAIRMAN: THE FOREIGN SECRETARY

The chairmen of the British National Committees of the International Council of Scientific Unions.

PROFESSOR F. J. M. STRATTON

## BRITISH COMMITTEE FOR COOPERATION WITH UNESCO IN THE NATURAL SCIENCES [1947]

To cooperate with UNESCO in the field of natural sciences on behalf of the United Kingdom and to make recommendations to the Council of the Royal Society and to the Minister of Education.

CHAIRMAN: THE FOREIGN SECRETARY

*The Royal Society*
DR C. H. DESCH
DR J. NEEDHAM
PROFESSOR H. H. READ
THE PRESIDENT
THE TREASURER
A SECRETARY

*Advisory Council on Scientific Policy*
DR A. E. TRUEMAN

*Agricultural Research Council*

*Association of Scientific Workers*
PROFESSOR J. D. BERNAL

*Medical Research Council*
SIR EDWARD MELLANBY

*Parliamentary and Scientific Committee*
MR T. DEWHURST

*British Association*
DR E. HINDLE
DR O. J. R. HOWARTH

*British Council*
DR E. BOLTON-KING
MISS NANCY PARKINSON

*Department of Scientific and Industrial Research*
SIR EDWARD APPLETON

*Ministry of Education*
MR RITCHIE CALDER
PROFESSOR H. J. FLEURE
MR N. B. KINNEAR
MR R. A. R. TRICKER

*Science Masters' Association*
MR J. P. STEPHENSON

*Association of Universities of the British Commonwealth*
THE SECRETARY

Together with the members of the International Relations Committee.

PRINTED BY
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LONDON AND EDINBURGH

England.

9th February 1950.

My dear Colleague,

At the Amsterdam meeting of the Council of the International Union for the History of Science I am proposing to resign from the Presidency. I have held it now, I think, for three years. It seems to me that, in the interests of the subject, this is as long as it is desirable for any man to hold it.

As my successor, I do not think we could do better than Professor Forbes. I would much like to know your view. If you agree with me, will you be kind enough to second my proposal of Professor Forbes as our new President ?

As soon as I hear from you I will write to Sergescu and ask him to put this matter on the agenda.

My wife joins me in warmest greetings to Madame Reymond and yourself and to your charming daughters. We have just received Antoinette's new and very impressive work and look forward to studying it.

With fraternal greetings,
Yours cordially,

CHARLES SINGER

M. le Professeur A. Reymond,
31 Avénue des Cerisiers,
Pully,
Lausanne,
Switzerland.

24th March 1950

Dear Professor Corbett

I hope you received my brief note of 11 Nov. 0949, which I see was accudebtakkt addressed ti ti, at the University who I remember are not always prompt in forwarding.

It will be delightful if you and Mrs Corbett cine to the International Congress for the Hist. Sci. at Amsterdam (14-20 Aug. 1950) and if at the same time we at last have the pleasure at a Meeting of the Bibliographical Commission of having you with us.

With best greeting

Yours very sincerely

Mrs Charles Singer

James/
Professor Corbett
818 East Minier Street
South Bend 19
Indiana
U.S.A.

(ENCLOSURE) [Letter of 24 March, 1950, "Dear Colleague" enclosed]

*Conseil International des Unions Scientifiques - International Council of Scientific Unions*

PRÉSIDENT : Prof. A. von MURALT, Berne, Suisse.

*Secrétariat :*
Gonville & Caius College,
CAMBRIDGE, England.
PROF. F.J.M. STRATTON

*Bureau de Liaison ICSU-UNESCO :*
Maison de l'UNESCO,
19, Avenue Kléber,
PARIS - 16e
Dr. RONALD FRASER

7 June 1950

Dr. Charles SINGER,
President of the
International Union for
the History of Sciences,
Athenaeum,
Pall Mall,
LONDON S.W.1.

Dear Mr. President,

I understand from Prof. STRATTON that Prof. BAYER of the Sorbonne, General Secretary of the Union Internationales de Philosophie des Sciences has written to say that that Union would be willing to form a joint Union, with two sections, with the I.U.H.S.. This has been suggested in the past by the Executive Committee of the International Council of Scientific Unions, and I understand that Prof. BAYER has already been in consultation on the matter with Prof. SERGESCU. May I suggest that at the forthcoming General Assembly of IUHS the Union should, without committing itself in the matter, appoint a committee to consider redrafting the Statutes of IUHS to allow for a Union with two or more sections, on the general lines of the Unions of Biological Sciences or of Geodesy and Geophysics. Such a Committee would naturally consult with those interested in the Philosophy of Sciences, and if my suggestion is adopted I should be glad to be informed. ICSU would gladly help to bring your committee into touch with those interested in the philosophy of the Sciences.

Yours sincerely,

A. von MURALT
President, ICSU

*Conseil International des Unions Scientifiques - International Council of Scientific Unions*

PRÉSIDENT : Prof. A. von MURALT, Berne, Suisse.

*Secrétariat :*
Gonville & Caius College,
CAMBRIDGE, England.
PROF. F.J.M. STRATTON

*Bureau de Liaison ICSU-UNESCO :*
Maison de l'UNESCO,
19, Avenue Kléber,
PARIS - 16e
Dr. RONALD FRASER

7 June 1950

Dr. Charles SINGER,
President of the
International Union for
the History of Sciences,
Athenaeum,
Pall Mall,
LONDON S.W.1.

Dear Mr. President,

I understand from Prof. STRATTON that Prof. BAYER of the Sorbonne, General Secretary of the Union Internationales de Philosophie des Sciences has written to say that that Union would be willing to form a joint Union, with two sections, with the I.U.H.S.. This has been suggested in the past by the Executive Committee of the International Council of Scientific Unions, and I understand that Prof. BAYER has already been in consultation on the matter with Prof. SERGESCU. May I suggest that at the forthcoming General Assembly of IUHS the Union should, without committing itself in the matter, appoint a committee to consider redrafting the Statutes of IUHS to allow for a Union with two or more sections, on the general lines of the Unions of Biological Sciences or of Geodesy and Geophysics. Such a Committee would naturally consult with those interested in the Philosophy of Sciences, and if my suggestion is adopted I should be glad to be informed. ICSU would gladly help to bring your committee into touch with those interested in the philosophy of the Sciences.

Yours sincerely,

Muralt

A. von MURALT
President, ICSU

UNESCO

ICSU

and UNION (Prelims)

of Hist. Sci

# CONSEIL INTERNATIONAL DES UNIONS SCIENTIFIQUES.

## STATUTS.

TEXTE FRANÇAIS ET ANGLAIS.

JUILLET, 1931.

# CONSEIL INTERNATIONAL DES UNIONS SCIENTIFIQUES.

## STATUTS.

### Objets du Conseil International

1. Le Conseil International a pour but :

(*a*) D'établir des liaisons d'une part entre les organisations nationales adhérentes, et d'autre part entre les diverses Unions internationales ;

(*b*) D'orienter l'activité scientifique internationale dans les domaines où il n'existe pas d'associations compétentes ;

(*c*) D'entrer, par l'intermédiaire des organisations nationales adhérentes, en relation avec les Gouvernements des pays adhérents pour recommander des mesures favorables au développement scientifique de ces pays.

### Siège.

2. Le siège légal du Conseil International est fixé à Bruxelles, où se tiendront normalement les Assemblées générales, et où seront conservées les archives.

Les dons et legs seront reçus et gérés suivant la législation belge.

### Constitution et Administration du Conseil.

3. Le Conseil International des Unions Scientifiques se compose d'une organisation scientifique et nationale de chaque pays adhérent* au Conseil, et des Unions scientifiques internationales.† Par "organismes adhérents" on entendra dans la suite les organisations nationales adhérentes et les Unions internationales.

L'Assemblée générale du Conseil se compose des délégués des organisations scientifiques et nationales, des délégués des Unions scientifiques internationales, et des membres du Comité Exécutif.

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* Annexe I.

† Annexe II.

4. Un pays peut adhérer au Conseil International, soit par son Académie nationale, soit par son Conseil national de recherches, soit par d'autres institutions ou groupement d'institutions nationales similaires, soit, à défaut de ceux-ci, par son Gouvernement.

Dans le mot " pays " sont compris les Dominions, les protectorats diplomatiques, ainsi que les territoires ayant une activité scientifique indépendante.

5. Pour adhérer au Conseil International une Union doit communiquer ses Statuts au Conseil, et ces Statuts doivent :—

(i) indiquer les buts de l'Union,

(ii) mentionner que le contrôle de l'activité de l'Union est exercé par une Assemblée générale de ses membres,

(iii) indiquer le barème des cotisations payées par les organisations nationales,

(iv) faire connaître les régles relatives aux votes.

6. Toute proposition de création d'une Union et toute demande d'adhésion d'une Union doivent être communiquées aux divers organismes adhérents six mois au moins avant la réunion de l'Assemblée générale.

L'approbation de deux tiers des voix des organismes adhérents representés est nécessaire.

7. Les travaux du Conseil sont dirigés par l'Assemblée générale formée de l'ensemble des Délégués accrédités à cette fin par les organismes adhérents et des membres du Comité exécutif.

L'Assemblée désigne parmi les membres des organismes adhérents un Président, deux Vice-Présidents, et un Secrétaire général. Le Président conserve ses fonctions jusqu'à la fin de la réunion de l'Assemblée générale ordinaire suivante ; il ne peut être réélu immédiatement.

8. Il est constitué un Comité exécutif qui gère les affaires du Conseil dans l'intervalle de deux Assemblées générales.

Ce Comité comprend :

(i) le Président,

(ii) les Vice-Présidents, le Secrétaire général et deux membres élus directement par l'Assemblée générale ;

(iii) deux délégués de chacune des Unions internationales rattachées au Conseil et désignés par cette Union.

Le Président, les Vice-Présidents, et le Secrétaire général du Conseil exercent les mêmes fonctions dans le Comité exécutif. Les membres visés à la ligne (ii) conservent leurs fonctions de membres du Comité exécutif jusqu'à la fin de la seconde réunion de l'Assemblée générale ordinaire, mais ils ne peuvent être réélus immédiatement, sauf le Secrétaire général qui est de suite rééligible.

9. Le Comité exécutif peut pourvoir lui-même aux vacances qui surviennent dans son sein parmi les membres élus par l'Assemblée générale. Toute personne désignée dans ces conditions demeure en fonction jusqu'à la fin de l'Assemblée générale suivante.

Les vacances produites parmi les délégués des Unions sont comblées par les Unions elles-mêmes.

10. Le Secrétaire général expédie la correspondance et assure la gestion des ressources, ainsi que la préparation et la distribution des publications décidées par l'Assemblée générale du Conseil.

### Attributions du Comité exécutif.

11. Dans l'intervalle de deux Assemblées générales du Conseil, le Comité exécutif peut soumettre des propositions à l'approbation des organismes adhérents ; il est tenu de le faire lorsqu'il en est requis par un tiers des voix des organismes adhérents.

12. Le Comité exécutif accepte les Statuts des Unions remplissant les conditions indiquées au paragraphe 5, avec possibilité d'appel à la prochaine Assemblée générale.

13. Le Comité exécutif peut nommer des Commissions spéciales pour l'étude de toute question de la compétence du Conseil International ; leurs membres ne sont pas nécessairement choisis parmi les délégués près le Conseil. Ces Commissions spéciales peuvent, à leur tour, s'adjoindre, par cooptation, de nouveaux membres à la majorité des deux tiers des voix de ceux qui les composent.

14. Le Comité exécutif doit présenter un rapport annuel aux organismes adhérents au Conseil.

Ces rapports sont aussi envoyés aux délégués à l'Assemblée générale précédente.

### Assemblées générales.

15. Le Conseil International se réunit en principe tous les trois ans en Assemblée générale ordinaire. Si le lieu de ces réunions n'a pas été arrêté par l'Assemblée générale précédente elles se tiendront comme il

a été indiqué au paragraphe 2, à moins que l'Assemblée n'ait délégué au Comité Exécutif le soin de le fixer. Dans ce cas le Comité Executif donnera communication du lieu et de l'époque six mois à l'avance aux divers organismes adhérents.

16. Dans des cas spéciaux, le Président peut, avec le consentement du Comité exécutif, convoquer une Assemblée générale extraordinaire ; il est tenu de le faire à la demande d'un tiers des voix des organismes adhérents.

17. Les délégués près l'Assemblée générale sont nommés par les organismes adhérents au Conseil.

18. Le Président peut, de sa propre initiative, inviter tout homme de science à assister, à titre consultatif, aux séances de l'Assemblée générale ordinaire.

Les membres des Commissions spéciales mentionnées au paragraphe 13, ont le droit d'assister, dans les mêmes conditions, aux séances de l'Assemblée générale où sont traitées les questions rentrant dans leurs attributions.

19. L'ordre du jour d'une session est fixé par le Comité exécutif et communiqué aux organismes adhérents au moins six mois avant l'ouverture de cette session. Toute question ne figurant pas à l'ordre du jour n'est prise en considération qu'avec l'assentiment préalable des deux tiers au moins des voix des organismes adhérents représentés à l'Assemblée générale du Conseil.

## Budget et Droit de Vote.

20 Dans les Assemblées générales du Conseil les résolutions concernant les questions d'ordre scientifique sont prises à la majorité des voix de tous les délégués présents, et des membres du Comité executif.

21. Pour les questions d'ordre administratif et pour les questions mixtes, le vote a lieu par organisation nationale adhérente, à raison d'une voix pour chacune, et par Union scientifique internationale à raison de trois voix pour chacune. Les résolutions sont prises à la majorité des voix.

S'il y a doute sur la catégorie dans laquelle doit être rangée une question á discuter, le Président décide.

Dans les Commissions, les décisions sont prises à la majorité des voix des membres qui les composent.

En toute circonstance, s'il y a égalité de voix, celle du Président est prépondérante.

Pour les questions administratives figurant à l'ordre du jour, un organisme adhérent qui n'est pas représenté peut envoyer par écrit son vote au Président. Pour être valable, ce vote doit être reçu avant le dépouillement du scrutin.

22. Les pays et les Unions apportent chacun leur contribution au Budget du Conseil.

La cotisation annuelle de chaque pays adhérent est de 100 francs or.

Dans chaque pays, l'autorité qui adhère au Conseil est responsable du paiement de la cotisation de ce pays.

La part de chaque Union est fixée à 1·5 % de son revenu au maximum.

23. Le Comité exécutif prépare un budget de prévision pour chaque année de la période comprise entre deux sessions. Une Commission financière, nommée par l'Assemblée générale du Conseil, est chargée de l'étude de ce budget et de la vérification des comptes de l'exercice précédent. Elle établit sur ces deux questions des rapports distincts qui sont soumis à l'Assemblée générale.

A la suite de cet examen financier, le Conseil fixe la part de chaque Union pour les trois ans suivants.

24. Les ressources provenant de dons sont utilisées par le Conseil International en tenant compte des désirs exprimés par les donateurs.

Tout organisme qui se retire du Conseil abandonne de ce fait ses droits à l'actif de l'Association.

25. Ces Statuts entreront en vigueur après avoir reçu l'approbation de l'Assemblée générale de 1931. Aucun changement ne pourra être apporté aux termes de ces Statuts sans l'approbation des deux tiers des voix des organismes adhérents.

26. Le présent texte français servira exclusivement pour l'interprétation à donner aux Statuts.

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NOTE.—*Ces Statuts ont été votés par l'Assemblée générale réunie à Bruxelles le* 11 *juillet*, 1931.

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## ANNEXE I.

### Organisations Nationales Adhérentes.

| *Pays.* | *Organisation Nationale.* |
|---|---|
| Afrique du Sud .. | Department of Mines and Industries, Pretoria. |
| Argentine .. .. | Gouvernement. |
| Australie .. .. | National Research Council, Sydney. |
| Belgique .. .. | Académie Royale de Belgique, Bruxelles. |
| Brésil .. .. | Serviço Geologico e Mineralogico, Rio de Janeiro. |
| Bulgarie .. .. | Gouvernement. |
| Canada .. .. | National Research Council, Ottawa. |
| Chili .. .. .. | Gouvernement. |
| État de la Cité du Vatican | Pontifica Accademia delle Scienze i Nuovi Lincei, Rome. |
| Cuba .. .. . | Academia de Ciencias Medicas, Fisicas y Naturales, La Havane. |
| Danemark .. .. | Kongelige Danske Videnskabernes Selskab, Copenhague. |
| Egypte .. .. | Gouvernement. |
| Espagne .. .. | Real Academia de Ciencias Exactas, Madrid. |
| Etats Unis .. .. | National Research Council, Washington. |
| Finlande .. .. | Susmalainen Tiédeakatemia, Helsinki. |
| France .. .. | Académie des Sciences, Paris. |
| Grande Bretagne .. | Royal Society, London. |
| Grèce .. .. | Académie d'Athènes, Athènes. |
| Hongrie .. .. | Magyar Tudományos Akadémia, Budapest. |
| Inde .. .. | Gouvernement (provisoirement). |
| Indes Néerlandaises | Natuurvetenschappelijke Raad van Nederlandsch Indië, Batavia, Java. |
| Indochine .. .. | Conseil de Recherches scientifiques, Hanoi. |
| Japon .. .. | National Research Council, Tokyo. |
| Lettonie .. .. | Société Chimique de Lettonie, Riga. |
| Maroc .. .. | Gouvernement. |
| Mexique .. .. | Direccion de Estudios y Climatologicos, Tacubaya, D.F. |
| Monaco .. .. | Gouvernement. |
| Norvège .. .. | Det Norske Videnskaps Akademi, Oslo. |

| *Pays.* | *Organisation Nationale.* |
|---|---|
| Nouvelle Zélande.. | New Zealand Institute, Wellington. |
| Pays Bas .. .. | Koninklijke Akademie van Wetenschappen, Amsterdam. |
| Perou .. .. | Servicio geografico del Ejercito, Chorillos. |
| Pologne .. .. | Polska Akademja Umiejetnosci, Cracovie. |
| Portugal .. .. | Gouvernement. |
| Roumanie .. .. | Académie Roumanie, Bucuresti. |
| Siam .. .. .. | Royal Survey Department, Bangkok. |
| Suède .. .. | Kungl. Vetenskapsakademien, Stockholm. |
| Suisse.. .. .. | Schweizerische Naturforschende Gesellschaft, Zürich. |
| Tchecoslovaquie .. | Conseil National de Recherches, Prague. |
| Tunisie .. .. | Gouvernement. |
| Uruguay .. .. | Instituto Geografico, Montevideo. |
| Yougoslavie .. | Académie royale de Serbie, Belgrade. |

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## ANNEXE II.

### Unions Scientifiques Internationales.

Union Astronomique internationale de l'Astronomie.
Union internationale de Géodésie et Géophysique.
Union internationale de Chimie.
Union internationale de Mathematique.
Union Radio-Scientifique internationale.
Union internationale de Physique.
Union internationale de Géographie.
Union internationale des Sciences biologiques.

# INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS.

## STATUTES.

### Objects of International Council.

1. The purpose of the International Council is :—

(i) To co-ordinate the national adhering organisations, and also the various international Unions ;

(ii) To direct international scientific activity in subjects which do not fall within the purview of any existing international associations ;

(iii) To enter, through the national adhering organisations, into relation with the Governments of the countries adhering to the Council in order to promote scientific investigation in these countries.

### Domicile.

2. The legal domicile of the International Council shall be at Brussels, where the General Assemblies will normally be held and the archives will be kept.

Donations and legacies will be received and administered according to Belgian law.

### Constitution and Administration of the Council.

3. The International Council of Scientific Unions consists of a national scientific organisation from each country which has adhered to the Council,* and of the international Unions.†

* Appendix I.

† Appendix II.

The term "adhering organisations" includes both national adhering organisations and international Unions.

The General Assembly of the Council consists of delegates from national scientific organisations, delegates from the international Unions, and the Members of the Executive Committee.

4. A country may join the International Council either through its principal Academy, or through its National Research Council, or through some other national institution or association of institutions, or, in the absence of these, through its Government.

The term "country" is to be understood as including Dominions, diplomatic Protectorates, and any dependency in which independent scientific activity has been developed.

5. A Union desiring to join the International Council will communicate its Statutes to the Council. Such Statutes will:—

(i) indicate the objects of the Union;

(ii) provide for the direction of the work of the Union by a General Assembly of its members;

(iii) state the basis of calculation of the dues received from national organisations;

(iv) set forth the rules governing voting.

6. Any proposal to form a new Union and any application from a Union to join the Council will be communicated to all organisations adhering to the International Council not less than six months before the meeting of the General Assembly at which the proposal is to be considered.

A favourable majority of two-thirds of the votes of adhering organisations represented and voting is necessary for its adoption.

7. The work of the Council is directed by the General Assembly consisting of delegates appointed by the adhering organisations, and of the members of the Executive Committee.

The Assembly shall appoint from members of the adhering organisations a President, two Vice-Presidents and a General Secretary.

The President shall hold office until the end of the next ordinary General Assembly, and shall not be eligible for re-election immediately.

8. There shall be an Executive Committee which shall direct the affairs of the Council between two General Assemblies.

This Committee consists of :—

(i) The President.

(ii) The Vice-Presidents, the General Secretary, and two members elected by the General Assembly.

(iii) Two delegates from each of the Unions connected with the Council, who shall be nominated by the Union.

The President, the Vice-Presidents and Secretary General of the Council shall exercise the same functions in the Executive Committee. The members enumerated in (ii) shall hold office until the end of the second Ordinary General Assembly, and shall not be eligible for re-election immediately, except that this shall not apply to the General Secretary, who may be re-elected.

9. The Executive Committee may fill up by co-optation any vacancy occurring in its body among the members elected by the General Assembly. Any person so appointed shall hold office until the end of the next General Assembly.

Vacancies occurring among the delegates of the Unions are filled by the Unions concerned.

10. The General Secretary shall be responsible for the conduct of the correspondence, the administration of funds, and the preparation and distribution of the publications authorised by the General Assembly of the Council.

### Powers and Functions of the Executive Committee.

11. The Executive Committee may, in the interval between two meetings of the General Assembly of the Council, submit proposals to the organisations adhering to the Council for their approval. It shall do so when requested by one-third of the adhering organisations.

12. The Executive Committee may accept in the name of the Council the Statutes of the Unions fulfilling the conditions laid down in Statute 5, and subject to appeal to the next General Assembly.

13. The Executive Committee may nominate special Committees for the discussion of any question falling within the purview of the International Council. The members of such Committees need not necessarily have been

delegates at one of the General Assemblies. These special Committees may themselves co-opt other members by a majority of two-thirds.

14. The Executive Committee shall present an Annual Report to each adhering organisation. Such reports shall also be sent to each delegate who was present at the previous meeting of the General Assembly of the Council.

### Meetings of the General Assembly.

15. An ordinary meeting of the General Assembly of the International Council shall, as a rule, be held every three years. If the place of such a meeting has not been fixed by the General Assembly at its previous meeting, the place shall be as stated in Statute 2, unless the Assembly has authorised the Executive Committee to fix it. In this case the Executive Committee shall communicate the place and date to the adhering organisations at least six months before the date of the meeting.

16. For special reasons the President may, with the consent of the Executive Committee, summon an extraordinary meeting of the General Assembly. He is obliged to do so at the request of one-third of the votes of the adhering organisations.

17. The delegates taking part in the meetings of the General Assembly of the International Council shall be appointed by the organisations adhering to International Council.

18. The President may invite any scientific man to an ordinary meeting of the General Assembly. Such invited guests may take part in the discussions, but shall have no power of voting. Members of any of the special Committees mentioned in Article 13 shall have the right, under the same conditions, to attend those meetings of the General Assembly which deal with the subjects referred to the Committee.

19. The agenda of business to be transacted at a meeting shall be determined by the Executive Committee, and communicated to the adhering organisations at least six months before the first day of the meeting. No question which has not been placed on the agenda shall be discussed, unless a proposal to that effect be approved by not less than two-thirds of the total votes of the organisations represented at the General Assembly of the International Council.

## Finance and Voting Power.

20. At the General Assembly of the International Council votes upon scientific questions shall be decided by the majority of votes cast by the delegates present.

21. In questions of an administrative character, and all questions not purely scientific, the vote shall be taken by adhering national organisations, each having a single vote, and by international Unions, each having three votes. Such questions shall be decided by the majority of votes cast. In case of doubt as to the category to which a question belongs, the Chairman of the meeting shall decide. Votes taken in Committees shall be counted individually and not by countries. When there is an equal division of votes, the Chairman shall in all cases have a second or casting vote.

In questions of an administrative character, any adhering organisation which is not represented by a delegate may forward its vote to the President by post, and such votes shall be valid if received before the votes are counted.

22. Countries and Unions shall contribute their share to the Budget of the Council.

The annual contribution due from each country is 100 gold francs.

In each country the organisation adhering to the International Council shall be responsible for the payment of the contribution.

The contribution from each Union shall not exceed 1·5 per cent. of its revenue.

23. The Executive Committee shall prepare an estimate of the budget for each of the years intervening between two General Assemblies. A Finance Committee, nominated for the purpose by the General Assembly of the Central Council, shall examine this estimate, together with the accounts for the preceding years. This Committee shall submit separate reports on the two questions to the General Assembly, which, having considered these reports, shall fix the contribution from each Union for the succeeding period of three years.

24. Funds derived from donations shall be used by the International Council in accordance with the wishes expressed by the donors.

If any adhering organisation withdraws from the International Council, it resigns at the same time its rights to a share in the assets of the Council.

### Modifications in Statutes.

25. These Statutes shall come into force as soon as they have received the approval of the General Assembly of 1931. No change shall be made in these Statutes except with the approval of two-thirds of the votes of the adhering organisations.

26. The French text (of which the above is a translation) shall be considered to be the authoritative text.

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Note.—*These Statutes were approved by the General Assembly which met at Brussels, 11th July,* 1931.

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## APPENDIX I.

### National Organisations.

| *Country.* | *National Organisation.* |
|---|---|
| Argentine .. .. | Government. |
| Australia .. .. | National Research Council, Sydney. |
| Belgium .. .. | Académie Royale de Belgique, Bruxelles. |
| Brazil .. .. | Serviço Geologico e Mineralogico, Rio de Janeiro. |
| Bulgaria .. .. | Government. |
| Canada .. .. | National Research Council, Ottawa. |
| Chili .. .. .. | Government. |
| City of the Vatican | Pontifica Accademia delle Scienze i Nuovi Lincei, Rome. |
| Cuba .. .. .. | Academia de Ciencias Medicas, Fisicas y Naturales, Havana. |
| Czechoslovakia .. | Conseil National de Recherches, Prague. |
| Denmark .. .. | Kongelige Danske Videnskabernes Selskab, Copenhagen. |
| Dutch Indies .. | Natuurwetenschappelijke Raad van Nederlandsch Indië, Batavia, Java. |
| Egypt .. .. | Government. |
| Finland .. .. | Susmalainen Tiédeakatemia, Helsinki. |
| France .. .. | Académie des Sciences, Paris. |

| *Country.* | *National Organisation.* |
|---|---|
| Great Britain .. | Royal Society, London. |
| Greece .. .. | Académie d'Athènes, Athens. |
| Holland .. .. | Koninklijke Akademie van Wetenschappen, Amsterdam. |
| Hungary .. .. | Magyar Tudományos Akadémia, Budapest. |
| India .. .. .. | Government (temporarily). |
| Indo-China .. .. | Conseil de Recherches scientifiques, Hanoi. |
| Japan .. .. | National Research Council, Tokyo. |
| Latvia .. .. | Société Chimique de Lettonie, Riga. |
| Mexico .. .. | Direccion de Estudios y Climatologicos, Tacubaya, D.F. |
| Monaco .. .. | Government. |
| Morocco .. .. | Government. |
| New Zealand .. | New Zealand Institute, Wellington. |
| Norway .. .. | Det Norske Videnskaps Akademi, Oslo. |
| Peru .. .. .. | Servicio Geografico del Ejercito, Chorrillos. |
| Poland .. .. | Polska Akademja Umiejetnosci, Cracow. |
| Portugal .. .. | Government. |
| Rumania .. .. | Académie Roumanie, Bucuresti. |
| Siam .. .. .. | Royal Survey Department, Bangkok. |
| South Africa .. | Department of Mines and Industries, Pretoria. |
| Spain .. .. .. | Real Académia de Ciencias Exactas, Madrid. |
| Sweden .. .. | Kungl. Vetenskapsakademien, Stockholm. |
| Switzerland .. | Schweizerische Naturforschende Geschellschaft, Zürich. |
| Tunis .. .. .. | Government. |
| United States .. | National Research Council, Washington. |
| Uruguay .. .. | Instituto Geografico, Montevideo. |
| Yugoslavia .. .. | Académie royale de Serbie, Belgrade. |

## APPENDIX II.

### International Scientific Unions.

International Union of Astronomy.
International Union of Geodesy and Geophysics.
International Union of Chemistry.
International Union of Mathematics.
International Scientific Radio Union.
International Union of Physics.
International Union of Geography.
International Union of Biological Sciences.

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# INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS.

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## STATUTES.

ENGLISH AND FRENCH TEXT.

JULY, 1931.

# CONSEIL INTERNATIONAL DES UNIONS SCIENTIFIQUES

## STATUTS

### I. Objets du Conseil International

1. Le Conseil International a pour but:

(*a*) D'établir des liaisons d'une part entre les organisations nationales adhérentes, et d'autre part entre les diverses Unions internationales.

(*b*) D'orienter l'activité scientifique internationale dans les domaines où il n'existe pas d'associations compétentes.

(*c*) D'entrer, par l'intermédiaire des organisations nationales adhérentes, en relation avec les Gouvernements des pays adhérents pour recommander des mesures favorables au développement scientifique de ces pays.

### II. Siège

2. Le siège légal du Conseil International est fixé à Bruxelles, où se tiendront normalement les Assemblées générales, et où seront conservées les archives.

Les dons et legs seront reçus et gérés suivant la législation belge.

### III. Constitution et Administration du Conseil

3. Le Conseil International des Unions Scientifiques se compose d'une organisation scientifique et nationale de chaque pays adhérent* au Conseil, et des Unions scientifiques internationales.† Par "organismes adhérents" on entendra dans la suite les organisations nationales adhérentes et les Unions internationales.

L'Assemblée générale du Conseil se compose des délégués des organisations scientifiques et nationales, des délégués des Unions scientifiques internationales, et des membres du Comité exécutif.

4. Un pays peut adhérer au Conseil International, soit par son Académie nationale, soit par son Conseil national de recherches, soit par d'autres

* Annexe I. † Annexe II.

institutions ou groupement d'institutions nationales similaires, soit, à défaut de ceux-ci, par son Gouvernement.

Dans le mot "pays" sont compris les Dominions, les protectorats diplomatiques, ainsi que les territoires ayant une activité scientifique indépendante.

5. Pour adhérer au Conseil International une Union doit communiquer ses Statuts au Conseil, et ces Statuts doivent:

(i) Indiquer les buts de l'Union.

(ii) Mentionner que le contrôle de l'activité de l'Union est exercé par une Assemblée générale de ses membres.

(iii) Indiquer le barème des cotisations payées par les organisations nationales.

(iv) Faire connaître les règles relatives aux votes.

6. Toute proposition de création d'une Union et toute demande d'adhésion d'une Union doivent être communiquées aux membres du Comité exécutif.

L'approbation de deux tiers des voix des membres est nécessaire.

7. Les travaux du Conseil sont dirigés par l'Assemblée générale formée de l'ensemble des Délégués accrédités à cette fin par les organismes adhérents et des membres du Comité exécutif.

L'Assemblée désigne parmi les membres des organismes adhérents un Président, deux Vice-Présidents, et un Secrétaire général. Le Président conserve ses fonctions jusqu'à la fin de la réunion de l'Assemblée générale ordinaire suivante; il ne peut être réélu immédiatement.

8. Il est constitué un Comité exécutif qui gère les affaires du Conseil dans l'intervalle de deux Assemblées générales.

Ce Comité comprend:

(i) Le Président.

(ii) Les Vice-Présidents, le Secrétaire général et deux membres élus directement par l'Assemblée générale.

(iii) Deux délégués de chacune des Unions internationales rattachées au Conseil et désignés par cette Union.

(iv) Le Président sortant, pendant les trois ans qui suivent sa démission.

Le Président, les Vice-Présidents, et le Secrétaire général du Conseil exercent les mêmes fonctions dans le Comité exécutif. Les membres visés à la ligne (ii) conservent leurs fonctions de membres du Comité exécutif

jusqu'à la fin de la seconde réunion de l'Assemblée générale ordinaire, mais ils ne peuvent être réélus immédiatement, sauf le Secrétaire général qui est de suite rééligible.

9. Le Comité exécutif peut pourvoir lui-même aux vacances qui surviennent dans son sein parmi les membres élus par l'Assemblée générale. Toute personne désignée dans ces conditions demeure en fonction jusqu'à la fin de l'Assemblée générale suivante.

Les vacances produites parmi les délégués des Unions sont comblées par les Unions elles-mêmes.

10. Le Secrétaire général expédie la correspondance et assure la gestion des ressources, ainsi que la préparation et la distribution des publications décidées par l'Assemblée générale du Conseil.

## IV. Attributions du Comité exécutif

11. Dans l'intervalle de deux Assemblées générales du Conseil, le Comité exécutif peut soumettre des propositions à l'approbation des organismes adhérents; il est tenu de le faire lorsqu'il en est requis par un tiers des voix des organismes adhérents.

12. Le Comité exécutif accepte les Statuts des Unions remplissant les conditions indiquées au paragraphe 5, avec possibilité d'appel à la prochaine Assemblée générale.

13. Le Comité exécutif peut nommer des Commissions spéciales pour l'étude de toute question de la compétence du Conseil International; leurs membres ne sont pas nécessairement choisis parmi les délégués près le Conseil. Ces Commissions spéciales peuvent, à leur tour, s'adjoindre, par cooptation, de nouveaux membres à la majorité des deux tiers des voix de ceux qui les composent.

Le Comité exécutif peut prier les Unions de nommer des membres de commission mixtes pour l'étude de toute question de la compétence des Unions.

14. Le Comité exécutif doit présenter un rapport annuel aux organismes adhérents au Conseil.

## V. Assemblées générales

15. Le Conseil International se réunit en principe tous les trois ans en Assemblée générale ordinaire. Le Comité exécutif donnera communication du lieu et de l'époque six mois à l'avance aux divers organismes adhérents.

16. Dans des cas spéciaux, le Président peut, avec le consentement du Comité exécutif, convoquer une Assemblée générale extraordinaire; il est tenu de le faire à la demande d'un tiers des voix des organismes adhérents.

17. Les délégués près l'Assemblée générale sont nommés par les organismes adhérents au Conseil.

18. Le Président peut, de sa propre initiative, inviter tout homme de science à assister, à titre consultatif, aux séances de l'Assemblée générale ordinaire.

Les membres des Commissions spéciales et des Commissions mixtes mentionnées au paragraphe 13, ont le droit d'assister, dans les mêmes conditions, aux séances de l'Assemblée générale où sont traitées les questions rentrant dans leurs attributions.

19. L'ordre du jour d'une session est fixé par le Comité exécutif et communiqué aux organismes adhérents au moins trois mois avant l'ouverture de cette session. Toute question ne figurant pas à l'ordre du jour n'est prise en considération qu'avec l'assentiment préalable des deux tiers au moins des voix des organismes adhérents représentés à l'Assemblée générale du Conseil.

## VI. Budget et Droit de Vote

20. Dans les Assemblées générales du Conseil les résolutions concernant les questions d'ordre scientifique sont prises à la majorité des voix de tous les délégués présents, et des membres du Comité exécutif.

21. Pour les questions d'ordre administratif et pour les questions mixtes, le vote a lieu par organisation nationale adhérente, à raison d'une voix pour chacune, et par Union scientifique internationale à raison de trois voix pour chacune. Les résolutions sont prises à la majorité des voix.

S'il y a doute sur la catégorie dans laquelle doit être rangée une question á discuter, le Président décide.

Dans les Commissions, les décisions sont prises à la majorité des voix des membres qui les composent.

En toute circonstance, s'il y a égalité de voix, celle du Président est prépondérante.

Pour les questions administratives figurant à l'ordre du jour, un organisme adhérent qui n'est pas représenté peut envoyer par écrit son vote au Président. Pour être valable, ce vote doit être reçu avant le dépouillement du scrutin.

22. Les pays et les Unions apportent chacun leur contribution au Budget du Conseil.

La cotisation annuelle de chaque pays adhérent est de 500 francs or.

Dans chaque pays, l'autorité qui adhère au Conseil est responsable du paiement de la cotisation de ce pays.

La part de chaque Union est fixée à 1·5 % de son revenu au maximum.

23. Le Comité exécutif prépare un budget de prévision pour chaque année de la période comprise entre deux sessions. Une Commission financière, nommée par l'Assemblée générale du Conseil, est chargée de l'étude de ce budget et de la vérification des comptes de l'exercice précédent. Elle établit sur ces deux questions des rapports distincts qui sont soumis à l'Assemblée générale.

A la suite de cet examen financier, le Conseil fixe la part de chaque Union pour les trois ans suivants.

24. Les ressources provenant de dons sont utilisées par le Conseil International en tenant compte des désirs exprimés par les donateurs.

Tout organisme qui se retire du Conseil abandonne de ce fait ses droits à l'actif de l'Association.

## VII. Modification aux Statuts

25. Ces Statuts entreront en vigueur après avoir reçu l'approbation de l'Assemblée générale de 1931. Aucun changement ne pourra être apporté aux termes de ces Statuts sans l'approbation des deux tiers des voix des organismes adhérents.

26. Le présent texte français servira exclusivement pour l'interprétation à donner aux Statuts.

## ANNEXE I

### Organisations Nationales Adhérentes

| *Pays* | *Organisation Nationale* |
|---|---|
| Afrique du Sud | Council of Scientific and Industrial Research, Pretoria. |
| Argentine | Gouvernement. |
| Australie | National Research Council, Sydney. |
| Belgique | Académie Royale de Belgique, Bruxelles. |
| Brésil | Serviço Geologico e Mineralogico, Rio de Janeiro. |
| Bulgarie | Gouvernement. |
| Canada | National Research Council, Ottawa. |

| *Pays* | *Organisation Nationale* |
|---|---|
| Chili | Gouvernement. |
| China | Academia Sinica, Nanking. |
| État de la Cité du Vatican | Pontifica Accademia delle Scienze i Nuovi Lincei, Rome. |
| Cuba | Academia de Ciencias Medicas, Fisicas y Naturales, La Havane. |
| Danemark | Kongelige Danske Videnskabernes Selskab, Copenhague. |
| Egypte | Gouvernement. |
| Etats Unis | National Research Council, Washington. |
| Finlande | Suomalainen Tiédeakatemia, Helsinki. |
| France | Académie des Sciences, Paris. |
| Grande Bretagne | Royal Society, London. |
| Grèce | Académie d'Athènes, Athènes. |
| Hongrie | Magyar Tudományos Akadémia, Budapest. |
| Inde | Gouvernement |
| Indes Néerlandaises | Natuurvetenschappelijke Raad van Nederlandsch Indië, Batavia, Java. |
| Italie | Il Consiglio Nazionale di Ricerche, Roma. |
| Japon | National Research Council, Tokyo. |
| Maroc | Gouvernement. |
| Mexique | Direccion de Estudios y Climatologicos, Tacubaya, D.F. |
| Norvège | Det Norske Videnskaps Akademi, Oslo. |
| Nouvelle Zélande | The Royal Society of New Zealand, Wellington. |
| Pays Bas | Koninklijke Akademie van Wetenschappen, Amsterdam. |
| Perou | Instituto Geografico Militar, Lima. |
| Philippines | National Research Council, Manila. |
| Pologne | Polska Akademja Umiejetnosci, Cracovie. |
| Portugal | Gouvernement. |
| Roumanie | Académie Roumanie, Bucuresti. |
| Suède | Kungl. Vetenskapsakademien, Stockholm. |
| Suisse | Société Helvétique des Sciences Naturelles, Académie Suisse des Sciences, Genève. |
| Tchecoslovaquie | Conseil National de Recherches, Prague. |
| Tunisie | Gouvernement. |
| Uruguay | Instituto Geografico, Montevideo. |
| Yougoslavie | Académie de Serbie, Belgrade. |

## ANNEXE II

### Unions Scientifiques Internationales

Union Astronomique internationale.
Union internationale de Géodésie et Géophysique.
Union internationale de Chimie.
Union Radio-Scientifique internationale.
Union internationale de Physique pure et appliquée.
Union internationale de Géographie.
Union internationale des Sciences biologiques.

# STATUTES

## I. Objects of the International Council

1. The purpose of the International Council is:

(*a*) To co-ordinate the national adhering organisations, and also the various international Unions.

(*b*) To direct international scientific activity in subjects which do not fall within the purview of any existing international associations.

(*c*) To enter, through the national adhering organisations, into relation with the Governments of the countries adhering to the Council in order to promote scientific investigation in these countries.

## II. Domicile

2. The legal domicile of the International Council shall be at Brussels, where the General Assemblies will normally be held and the archives will be kept.

Donations and legacies will be received and administered according to Belgian law.

## III. Constitution and Administration of the Council

3. The International Council of Scientific Unions consists of a national scientific organisation from each country which has adhered to the Council,* and of the international Unions.†

The term "adhering organisations" includes both national adhering organisations and international Unions.

The General Assembly of the Council consists of delegates from national scientific organisations, delegates from the international Unions, and the Members of the Executive Committee.

4. A country may join the International Council either through its principal Academy, or through its National Research Council, or through some other national institution or association of institutions, or, in the absence of these, through its Government.

* Appendix I. † Appendix II.

The term "country" is to be understood as including Dominions, diplomatic Protectorates, and any dependency in which independent scientific activity has been developed.

5. A Union desiring to join the International Council will communicate its Statutes to the Council. Such Statutes will:

(i) Indicate the objects of the Union.

(ii) Provide for the direction of the work of the Union by a General Assembly of its members.

(iii) State the basis of calculation of the dues received from national organisations.

(iv) Set forth the rules governing voting.

6. Any proposal to form a new Union and any application from a Union to join the Council will be communicated to the members of the Executive Committee.

A favourable majority of two-thirds of the votes of the members is necessary for its adoption.

7. The work of the Council is directed by the General Assembly consisting of delegates appointed by the adhering organisations, and of the members of the Executive Committee.

The Assembly shall appoint from members of the adhering organisations a President, two Vice-Presidents and a General Secretary.

The President shall hold office until the end of the next ordinary General Assembly, and shall not be eligible for re-election immediately.

8. There shall be an Executive Committee which shall direct the affairs of the Council between two General Assemblies.

This Committee consists of:

(i) The President.

(ii) The Vice-Presidents, the General Secretary, and two members elected by the General Assembly.

(iii) Two delegates from each of the Unions connected with the Council, who shall be nominated by the Union.

(iv) The retiring President, for three years after retirement.

The President, the Vice-Presidents and Secretary General of the Council shall exercise the same functions in the Executive Committee. The members enumerated in (ii) shall hold office until the end of the second Ordinary General Assembly, and shall not be eligible for re-election immediately,

except that this shall not apply to the General Secretary, who may be re-elected.

9. The Executive Committee may fill up by co-optation any vacancy occurring in its body among the members elected by the General Assembly. Any person so appointed shall hold office until the end of the next General Assembly.

Vacancies occurring among the delegates of the Unions are filled by the Unions concerned.

10. The General Secretary shall be responsible for the conduct of the correspondence, the administration of funds, and the preparation and distribution of the publications authorised by the General Assembly of the Council.

## IV. Powers and Functions of the Executive Committee

11. The Executive Committee may, in the interval between two meetings of the General Assembly of the Council, submit proposals to the organisations adhering to the Council for their approval. It shall do so when requested by one-third of the adhering organisations.

12. The Executive Committee may accept in the name of the Council the Statutes of the Unions fulfilling the conditions laid down in Statute 5, and subject to appeal to the next General Assembly.

13. The Executive Committee may nominate special Committees for the discussion of any question falling within the purview of the International Council. The members of such Committees need not necessarily have been delegates at one of the General Assemblies. These special Committees may themselves co-opt other members by a majority of two-thirds.

The Executive Committee may ask Unions to nominate members of joint commissions for the study of any question in the sphere of their respective activities.

14. The Executive Committee shall present an Annual Report to each adhering organisation.

## V. Meetings of the General Assembly

15. An ordinary meeting of the General Assembly of the International Council shall, as a rule, be held every three years. The Executive Committee shall communicate the place and date to the adhering organisations at least six months before the date of the meeting.

16. For special reasons the President may, with the consent of the Executive Committee, summon an extraordinary meeting of the General Assembly. He is obliged to do so at the request of one-third of the votes of the adhering organisations.

17. The delegates taking part in the meetings of the General Assembly of the International Council shall be appointed by the organisations adhering to International Council.

18. The President may invite any scientific man to an ordinary meeting of the General Assembly. Such invited guests may take part in the discussions, but shall have no power of voting. Members of any of the special Committees and of the joint commissions mentioned in Article 13 shall have the right, under the same conditions, to attend those meetings of the General Assembly which deal with the subjects referred to the Committee.

19. The agenda of business to be transacted at a meeting shall be determined by the Executive Committee, and communicated to the adhering organisations at least three months before the first day of the meeting. No question which has not been placed on the agenda shall be discussed, unless a proposal to that effect be approved by not less than two-thirds of the total votes of the organisations represented at the General Assembly of the International Council.

## VI. Finance and Voting Power

20. At the General Assembly of the International Council votes upon scientific questions shall be decided by the majority of votes cast by the delegates present.

21. In questions of an administrative character, and all questions not purely scientific, the vote shall be taken by adhering national organisations, each having a single vote, and by international Unions, each having three votes. Such questions shall be decided by the majority of votes cast. In case of doubt as to the category to which a question belongs, the Chairman of the meeting shall decide. Votes taken in Committees shall be counted individually and not by countries. When there is an equal division of votes, the Chairman shall in all cases have a second or casting vote.

In questions of an administrative character, any adhering organisation which is not represented by a delegate may forward its vote to the President by post, and such votes shall be valid if received before the votes are counted.

22. Countries and Unions shall contribute their share to the Budget of the Council.

The annual contribution due from each country is 500 gold francs.

In each country the organisation adhering to the International Council shall be responsible for the payment of the contribution.

The contribution from each Union shall not exceed 1·5 % of its revenue.

23. The Executive Committee shall prepare an estimate of the budget for each of the years intervening between two General Assemblies. A Finance Committee, nominated for the purpose by the General Assembly of the Central Council, shall examine this estimate, together with the accounts for the preceding years. This Committee shall submit separate reports on the two questions to the General Assembly, which, having considered these reports, shall fix the contribution from each Union for the succeeding period of three years.

24. Funds derived from donations shall be used by the International Council in accordance with the wishes expressed by the donors.

If any adhering organisation withdraws from the International Council, it resigns at the same time its rights to a share in the assets of the Council.

## VII. Modifications in Statutes

25. These Statutes shall come into force as soon as they have received the approval of the General Assembly of 1931. No change shall be made in these Statutes except with the approval of two-thirds of the votes of the adhering organisations.

26. The French text (of which the above is a translation) shall be considered to be the authoritative text.

## APPENDIX I

### National Organisations

| *Country* | *National Organisation* |
|---|---|
| Argentine | Government. |
| Australia | National Research Council, Sydney. |
| Belgium | Académie Royale de Belgique, Bruxelles. |
| Brazil | Serviço Geologico e Mineralogico, Rio de Janeiro. |
| Bulgaria | Government. |
| Canada | National Research Council, Ottawa. |
| Chili | Government |
| China | Academia Sinica, Nanking. |

| *Country* | *National Organisation* |
|---|---|
| City of the Vatican | Pontifica Accademia delle Scienze i Nuovi Lincei, Rome. |
| Cuba | Academia de Ciencias Medicas, Fisicas y Naturales, Havana. |
| Czechoslovakia | Conseil National de Recherches, Prague. |
| Denmark | Kongelige Danske Videnskabernes Selskab, Copenhagen. |
| Dutch Indies | Natuurwetenschappelijke Raad van Nederlandsch Indië, Batavia, Java. |
| Egypt | Government. |
| Finland | Suomalainen Tiédeakatemia, Helsinki. |
| France | Académie des Sciences, Paris. |
| Great Britain | Royal Society, London. |
| Greece | Académie d'Athènes, Athens. |
| Holland | Koninklijke Akademie van Wetenschappen, Amsterdam. |
| Hungary | Magyar Tudományos Akadémia, Budapest. |
| India | Government. |
| Italy | Il Consiglio Nazionale di Ricerche, Rome. |
| Japan | National Research Council, Tokyo. |
| Mexico | Direccion de Estudios y Climatologicos, Tacubaya, D.F. |
| Morocco | Government. |
| New Zealand | The Royal Society of New Zealand, Wellington. |
| Norway | Det Norske Videnskaps Akademi, Oslo. |
| Peru | Instituto Geografico Militar, Lima. |
| Philippines | National Research Council, Manila. |
| Poland | Polska Akademja Umiejetnosci, Cracow. |
| Portugal | Government. |
| Rumania | Académie Roumanie, Bucarest. |
| South Africa | Council of Scientific and Industrial Research, Pretoria. |
| Sweden | Kungl. Vetenskapsakademien, Stockholm. |
| Switzerland | Société Helvétique des Sciences Naturelles, Académie Suisse des Sciences, Geneva. |
| Tunis | Government. |
| United States | National Research Council, Washington. |
| Uruguay | Instituto Geografico, Montevideo. |
| Yugoslavia | Académie de Serbie, Belgrade. |

## APPENDIX II

### International Scientific Unions

International Union of Astronomy.
International Union of Geodesy and Geophysics.
International Union of Chemistry.
International Scientific Radio Union.
International Union of Pure and Applied Physics.
International Union of Geography.
International Union of Biological Sciences.

UNITED NATIONS EDUCATIONAL
SCIENTIFIC AND CULTURAL
ORGANISATION

# SCIENCE AND UNESCO

## INTERNATIONAL SCIENTIFIC COOPERATION

*Tasks and Functions of the Secretariat's Division of Natural Sciences*

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**UNITED NATIONS EDUCATIONAL SCIENTIFIC AND CULTURAL ORGANISATION**

*PREPARATORY COMMISSION*

NATURAL SCIENCES COMMITTEE

# TASKS AND FUNCTIONS OF THE SECRETARIAT'S DIVISION OF NATURAL SCIENCES

## PART I

## HISTORICAL INTRODUCTION AND GENERAL PRINCIPLES

*(Reference numbers in brackets refer to the list at the end of the paper. A list of abbreviations used will be found after the list of references.)*

The field of the Natural Sciences, Pure and Applied, has been recognised by general consent as falling within the scope of that functional agency of the United Nations Organisation which has to deal with cultural interchanges, whether of an intellectual or technological character, between the nations of the world. This agency has received the name of the United Nations Educational, Scientific and Cultural Organisation. The purpose of the present paper is to examine briefly the inspiring tasks which lie before the Division of Natural Sciences within the permanent organisation of UNESCO. In order to do this it will be necessary to consider under what arrangements international interchanges in the natural sciences have already gone on in times past, and how the international relations of science can best be strengthened in the immediate future.

The first part of this document, therefore, will deal with historical development and general principles; the second part will describe plans in detail.

### INTERNATIONAL SCIENTIFIC UNIONS

In the past, in times of peace, scientists themselves organised periodical (usually triennial) *International Congresses* for each science (*see* 1); most of these began in the 'seventies and 'eighties of the last century (e.g., Geodesy 1883, Physiology 1889). Then for certain branches of science (though not for all) there were successful *Inter-*

*national Unions* (2), or permanent bureaux, which were an attempt to deal with the problems of day to day cooperation. The unions were federalised in an *International Council of Scientific Unions* (3), and this International Council was eventually associated with the League of Nations International Institute of Intellectual Cooperation.

It is worth while to look a little more closely at the genesis of the Unions and their federal Council. One of the earliest activities of this kind was the International Chart of the Heavens, started in 1824. In some sciences such as Geodetics and Seismology, the need for constant contact was so strongly felt that international bodies were formed as early as about 1860. The International Bureau of Weights and Measures began operations in 1875. From 1898 onwards an International Association of Academies came into being, but it had not been able to accomplish very much before World War I, though its existence led to the foundation in England of the British Academy as a body complementary to the Royal Society on the side of the humanities. After the war, therefore, an International Research Council was substituted for it, and in 1919 this generated the International Unions for the various sciences.

The measure of their success was very varying. Those for Astronomy, Geodesy and Geophysics, Chemistry, and Radio Physics (the study of the ionosphere) were definitely successful. The activities of those for Geography and for the Biological Sciences were on a much smaller scale. In Mathematics the Union was formed but later disbanded, and that of Pure and Applied Physics has been relatively inactive. In Geology, the Medical Sciences, and Psychology, the Unions never got beyond the stage of proposals. For some sciences, such as Physiology and Biochemistry, a Union seems never even to have been proposed. There can be little doubt that the chief limitation to the success of the Unions was, apart from individualist tendencies in some sciences, the lack of adequate secretariat (and to this point we shall return), though there were also many political difficulties. Delegates from the former Central Powers were not admitted till 1926. Some of the earlier statutes were not satisfactory, e.g., the lack of any limit to the tenure of office of Presidents of some of the Unions, but many improvements were made in 1931, when the name of the organisation was changed to International Council of Scientific Unions. This body does today represent the highest spontaneously-created scientific organisation in the world, and given generous assistance by the United Nations, could accomplish far more than formerly.

## SCIENCE COOPERATION OFFICES

During World War II all these international agencies went into a state of suspended animation (4). On the other hand, under the exigencies of war, the United Nations set up in each other's capitals

*Science Cooperation Offices* to deal with the emergency exchange of scientific and technical information bearing on military affairs. Most of these offices (such as the British Commonwealth Scientific Office in Washington (5), The United States Scientific Mission in London (under the Office of Scientific Research and Development), the French Scientific Mission in London and Montreal, the Australian Scientific Office in London, etc.), in general much more efficiently run than anything known to international science in peace-time, dealt to the extent of some 85 per cent. with war science. But in one case (the British Scientific Office in Chungking) a condition more similar to what might pertain in peace-time grew up, only about a third of the work being concerned with war science. These science cooperation offices differed from pre-war international scientific cooperation mainly in that they had adequate funds, secretariat and mechanical aids with really reliable means of communication; and were not confined to any one science, but had *carte blanche* to do anything which might assist in better scientific cooperation between the countries which they linked. They were therefore rather a new departure, and pointed the way for the future. Let us look at the two whose functions come closest to those which UNESCO should perform. They were: (*a*) the British Scientific Office in Chungking, and (*b*) the U.S. Interdepartmental Committee of Cultural and Scientific Cooperation with the American Republics.

The Sino-British Science Cooperation Office was started at the end of 1942 to give all possible aid to the Chinese scientists isolated by the Japanese blockade, except for the air route from India and the road across Sinkiang from Russia. Originally intended to deal only with peace science, it came also to deal with war science, for which it was connected with the Ministry of Production in London, as well as with the Science Division of the British Council. By the end of the war, its activities, as has been said, were concerned 33 per cent. with war science, 33 per cent. with industrial and agricultural matters, and 33 per cent. with pure science (6). Though still financed by the British Council, it will henceforward be connected also with the Department of Scientific and Industrial Research.

Since the aim of this document is to be as concrete as possible, it is necessary to describe exactly some of the things which this office was able to do. Its functions may be divided into four:—

(*a*) Maintenance of contact between governmental and other organisations concerned with science in China and the West.
(*b*) Supply of scientific information and equipment to China.
(*c*) Output of scientific information from China to the Western countries.
(*d*) General advisory assistance to British and Chinese authorities in scientific and technical matters.

Under the second and third of these heads, the office during 1942-46:—

(*a*) Flew into China some 30 tons of scientific apparatus for about 400 Chinese laboratories. This figure, while small in comparison with the military supplies going in, was large in terms of the scientific value of equipment, individual items of which weigh relatively little.

(*b*) Flew into China some 7,000 scientific and technical books.

(*c*) Personally visited, through its representatives, about 300 Chinese institutions of science, technology and learning.

(*d*) Provided about 200 current British journals and 6 microfilm copies of each for the circulation service of the International Microfilm Committee in Chungking.

(*e*) Sent out about 140 original papers by Chinese scientists for publication in Western Scientific journals, and 100 runs of current Chinese publications for Western libraries, as well as thousands of Chinese books.

(*f*) Conducted negotiations concerning, e.g.:—

(i) Cutting of thin rock-sections for Chinese geologists by the Indian Geological Survey.

(ii) Exchange of research materials of all kinds between China, India, and the West, i.e., cultures of bacteria and moulds, botanical and agricultural specimens, etc.

(iii) Printing Chinese maps by the Indian Cartographic Office.

(iv) Providing the Chinese Surgeon-General's Office with a list of edible and poisonous plants in North Burma and the Shan States.

(v) Selecting five Visiting Professors and forty Travelling Fellows from China to England each year.

(*g*) Obtained information for the Chinese on hundreds of specific matters, from aerodynamics to amino-acids, from isotopic masses to insecticides.

In addition to all this work the office was able to advise the civilian and military technical departments of the Chinese Government from time to time.

The work of the office complemented in a fortunate way that of the technical experts sent to China by the Cultural Division of the American State Department. These experts, of whom some 35 visited China during the war, and whose work was, in general, markedly successful, were attached to the relevant Chinese Ministries and worked entirely in the field. Such a system of procedure lacked a central clearing-house through which requests for scientific information and aid could be co-ordinated. The British Office, which throughout maintained close contact with the American experts, was able to fill this need.

Another good example of the kind of activities suitable for the

Natural Sciences Division of UNESCO is the work of the (U.S.A.) Interdepartmental Committee on Cultural and Scientific Cooperation with the American Republics, of which the chairman is the endocrinologist, Dr. R. L. Zwemer (*see* 7). Started in 1939 the committee, which is associated with the Cultural Cooperation Division of the State Department, has now broadened its scope to include countries other than those in South America. Among the activities of this excellent organisation have been assistance to various Latin-American countries in:—

(i) Rubber production and technology.
(ii) Development of vital statistics.
(iii) Civil aviation flight training.
(iv) Aviation standardisation.
(v) Tidal, magnetic, seismological, and geodetic observations.
(vi) Hydrographic surveys.
(vii) Educational improvement.
(viii) Medicine and public health.
(ix) Improvement of fisheries.
(x) Maternal and child welfare investigations.
(xi) Improvement of library science.
(xii) Anthropology, including the compilation of an exhaustive regional handbook of the history, archæology, and culture of Central and South American Indians and their indigenous civilizations.

It will be seen that while some of this work would come in the field of the International Health Organisation and the International Civil Aviation Authority, a great deal of it points the way to future international action on the part of UNESCO. The countries concerned have been Haiti, Equador, Colombia, Cuba, Peru, Venezuela, Nicaragua, Mexico, Uruguay, Panama, Brazil, Chile, Dominica, and Paraguay.

Mention was made above of the British Commonwealth Scientific office in Washington. Since it is now to be continued on a peacetime basis, the work of this office, which has been a model of international cooperation, may be described a little further (8).

The British Central Scientific Office was established in Washington in 1941 to continue the work of a Technical Mission which had arranged for the interchange of scientific and technical information between the U.S.A. and the U.K. Not long afterwards Australia and New Zealand established scientific liaison offices in Washington, and when three years later Canada and South Africa joined in, the whole was re-named the British Commonwealth Scientific Office. Recently an Indian scientific liaison office has been added, and much work is undertaken on behalf of the British West Indian Colonies, Palestine and Southern Rhodesia. Participating scientists generally have the

status of Attaché at their respective Legations. The main functions of BCSO may be summarised as follows:—

(*a*) To act as a centre for official scientific visitors from the home countries, and to help them with contacts and introductions, provide travel and hotel facilities, clearances for visits to laboratories, etc.

(*b*) To maintain cordial relations with the various scientific and technical bureaux of the United States Government, as well as with research associations, universities, and other institutions.

(*c*) To obtain, by means of requests made by the scientific officers to their American colleagues, prompt and comprehensive answers to questions asked by Government departments in the home countries.

(*d*) To stimulate and maintain the flow of scientific and technical reports from U.S.A. laboratories to Government departments in the home countries, and to see that the corresponding reports from British Commonwealth laboratories reach the proper recipients in the U.S.A.

(*e*) To report new developments and changes in policy and organisation on scientific matters in the U.S.A.

(*f*) To purchase books, journals, specifications, chemicals, scientific apparatus and biological materials for official scientists of the various countries supporting the office.

(*g*) To act as advisers to agencies of the Commonwealth countries in the U.S.A. on service, industrial, and other aspects of science.

(*h*) To arrange for British-American collaboration on research projects whenever this may appear appropriate.

Summarising, therefore, we see that the International Scientific Unions were, and are, *limited as to subject-matter;* the bilateral Science Cooperation Offices were, and are, *limited as to national scope.* The Unions connected (or would have been in a position to do so if they had had the facilities) work going on in all countries within a defined field, such as that of Physics. The Offices did in fact organise interchange over the whole field of the sciences, but it was only bilateral, as between two individual nations, or at any rate, restricted to a particular group. As has often been said, what we need today is fundamentally a system which will combine the methods which have spontaneously grown up for assuring international scientific relations in time of peace, with those which the nations have had to work out under the stress of war. None of the machinery ought to be scrapped. The problem is to weld it into a satisfactory functioning system.

Hence the conception of an International Science Cooperation Service, set forth by one of the Secretariat as the result of his four years' experience as Director of the British Scientific Office in Chungking, in a series of memoranda (9, 10, 11) which originated in the first

instance from conversations and correspondence with H.E. Dr. T. V. Sung in December, 1943. Now that a Division of Natural Sciences exists within UNESCO, its activities would, in effect, be those formerly pictured for an International (United Nations) Science Cooperation Service.

## AN INTERNATIONAL SCIENCE COOPERATION SERVICE

First of all, what is the necessity for such an international science cooperation service?

In general, it may be said that there is a universal desire among scientists to see better international scientific contacts in the coming years. The dependence of all modern world civilisation on applied science must find its expression in the sphere of international relations. This desire is more strongly expressed, however, the further one goes away from the great scientific and industrial centres of Europe and the United States, and in the United Kingdom it is much more noticeable among scientists under fifty than among those above that age. Some of the older generation, though theoretically in favour of international scientific cooperation, are distrustful of any machinery for doing it. They believe, for example, that given free mailing facilities and free transit by sea and air once again, scientists in all countries will be able to cooperate so well as to render any organisation unnecessary. This has now ceased to be the majority view.

The fundamental error of believers in what we may call *laissez-faire*, however, is that they look at the scene too exclusively from the European-American point of view, that is to say, they think of oscillating between Paris, Brussels, London, New York, Washington, Montreal, and the like. They do not realise that the picture of world science looks very different when seen from Roumania, Peru, Java, Iran, or China*. For historical reasons, since modern science grew up in the civilisation of Western Europe, there is a "*bright zone*" covering North America and most of Europe, where all the sciences are relatively advanced, and industrialisation is highly developed. It is particularly the scientists and technologists in the far larger regions of the world outside the "bright zone" who need the helping hand of international science. Moreover, it must be remembered that even large sections of what was the "bright zone", such as Italy, Austria and Germany, are now in a state of almost complete abeyance as regards scientific work owing to lack of financial support, damage by war, and shortage of trained staff. South-Eastern Europe, too, had never

* Cf. the letter of Dr. Naji al Asil (Iraq) to the Chairman, dated 19.11.45 (Prep. Com./6); the declaration of the Egyptian delegation to UNESCO (Prep. Com./22, E(1); Prep. Com./41); and the speeches of M. Luis Perez (Cuba) (Prep. Com. 4th session, PV 2, p. 9), and of Lt.-Col. Hodgson (Australia) (-do-, p. 10).

attained a level which justified its inclusion as part of the "bright zone".

This must not in the least be taken to imply that the international scientific activities of UNESCO would be, from the standpoint of the most advanced nations, purely philanthropic. Such a conception would be laughable. Among the five hundred million inhabitants of China and Japan, there is not a high proportion of organic chemists, but Chen gave ephedrine and Takamine adrenalin to the Western world. India gave the Bardhan-Sengupta synthesis, fundamental in the realm of the steroids. Was not the country which produced Ramanujan and Raman scientifically backward as a whole? Then, descending from the highest mathematics to humble agriculture, it has been calculated that the soya bean, which emanated from China, far more than recompensed the Western nations financially for all the money which they had devoted to education and scientific assistance in that country. Similarly Canada and Australia are interested in the potatoes of the Andes and the grasses of Chinghai; Mexico provided the insect parasite which saved Australia from the prickly pear. Many important discoveries have emerged from countries which are, as a whole, less advanced scientifically, e.g., the work on sex hormones in Esthonia, on soil bacteria in Finland, on protein denaturation in China, and on neuro-anatomy and histology in Spain.

The parochial theory of the *laissez-faire* school is that in science everyone knows everyone else, and can therefore easily get in touch when any problem arises which calls for it. But this is simply not the case in the greater part of the world. A Venezuelan economic entomologist may have a problem very similar to that of a Chinese economic entomologist, but the difficulties of their coming into touch are enormous. A Roumanian organic chemist may need a few grams of a substance only being produced in India or Canada, but if he only knows his own language it will not be so easy to get it. The Australian workers on alunite needed for years the publications of the Chinese National Academy on the same subject, but were never able to get them until an exchange was arranged through the British Scientific Office in Chungking. Again, according to theory, the actual publications (we need say nothing, for the moment, of confidential matters) of the United States Department of Agriculture, or of the United Kingdom Department of Scientific and Industrial Research, are supposed to reach automatically all those investigators in every country who need them. But this is palpably not the case. And yet no individual country could afford to maintain "selling machinery" which would ensure the efficient distribution of public knowledge, especially since most of the publications are for free gift.

Allied to what may be called this *Periphery Principle* of concentrating the help of UNESCO where it is most needed, i.e., to the

scientific men isolated around the periphery of the "bright zone", is the complementary principle of not interfering too much within the "bright zone". It would obviously be absurd for any international funds to be spent in communicating between people in the United Kingdom and the United States, for example, who are quite well able to communicate with each other*. UNESCO should rather do those things in international scientific cooperation which are not being done, and cannot be done, by any other channels. Acceptance of this principle at once reassures all those scientists within the "bright zone" who fear that some bureaucratic organisation might try to come between them and the colleagues with whom they are familiar across the Atlantic.

One might say that one of the major aims of the Natural Sciences Division of UNESCO should be *facilitation*. Before engaging in any new international activity, investigation must be made to see whether there is not already an organisation at work trying to do what is necessary. In seven cases out of ten it will be found that there is, but that it has never been able to operate satisfactorily for lack of funds and secretariat. In this case, if on examination it proves to be truly international, and acceptable to the specialists whom it concerns throughout the world, it should be so strengthened financially as to enable it to function really well, and associated with other similar bodies in a loose federation under UNESCO auspices. One might state it as a general rule that nothing should be done at the higher or more generalised administrative level which can be done at lower, more specialised, technological levels.

The problem before UNESCO then is to steer clear of two extremes. The spontaneously arising scientific organisations before World War II often made the mistake of thinking that the battle was won when the organisation was once written down on paper, and eminent scientists in different countries had accepted high positions in it. There thus grew up what might be called "invisible secretariats" existing only on paper, and capable of doing little real work. A single scientist would frequently devote only his spare time to his work as secretary, and the majority of proposals or requests would have to be turned down because there was nobody to handle them. On the other hand, if great care is not taken to select the right personnel, international scientific exchanges may perish under undue bureaucratism. The former danger may be avoided if adequate funds for office management are assured, and the latter is less likely to arise if scientists themselves take part in the work of the secretariat.

It may be added that an international service of scientific cooperation has been called for recently by many writers and organisations

* Though there is general dissatisfaction throughout the learned world with the present systems of abstracting and publication.

(12-19). It was also endorsed by the meeting of U.K. and Dominions Scientific Liaison Representatives at Washington in August, 1944 (20). The Draft of a Bill to establish a National Science Foundation, prepared by the Sub-committee on War Mobilisation of the Military Affairs Committee of the U.S. Senate (21) of February, 1945, includes under Title VIII provisions to give the Foundation authority to "collaborate with similar organisations in other countries in sponsoring and carrying through research programmes and projects requiring cooperation by foreign scientists and technologists; and to act as a clearing-house for exchange of technical and scientific information with other countries" and with relevant international organisations.

We may now embody the ideas expressed in the above paragraphs in a series of quite specific Aims. What should be undertaken by the Division of Natural Sciences of UNESCO? We may make a distinction between Temporary Aims and Permanent Aims, thus :—

A. Temporary

(I) Assist the restoration of scientific facilities in the war-damaged countries.

B. Permanent

(I) Promote international scientific cooperation in all its aspects, by facilitating the work of existing international scientific organisations, by initiating new ones if necessary, and by setting up regional science cooperation offices throughout the world (cf. Constitution, Art. I, sect. 2(*c*)).

(II) Organise and assist the better exchange of scientific information and research services between scientists and their organisations in the different countries.

(III) Assist the free flow of essential research apparatus, chemicals, and equipment across national boundaries, as also the exchange of scientific specimens; collections of animals and plants, mineralogical samples, roots, seeds, and the like.

(IV) Assist the free flow of scientific books, periodicals, microfilms, cinema films, manuscripts for publication, translations, abstracts, radio talks, etc., across national boundaries; and especially between world regions of widely different linguistic pattern, e.g., those of the ideographic and alphabetic languages.

(V) Assist the free flow of scientists coming and going across national boundaries, whether for periods of study and research, or for congresses, conferences, and the like.

(VI) Promote international collaboration in scientific research, by aiding the work of already existing groups, initiating new forms of cooperation, instituting international observatories

and laboratories, supporting model projects of symbolic as well as concrete significance, and facilitating the international activities of the various National Academies of Science.

(VII) Assist in maintaining contact between government organisations concerned with science, pure and applied, when necessary; and advise governmental and diplomatic personnel on scientific matters, when desired.

(VIII) Co-operate with the work of the Economic and Social Council of UNO, and of the Trusteeship Council of UNO.

(IX) Cooperate with the work of all other United Nations organisations and agencies, such as the United Nations Food and Agricultural Organisation, the United Nations Atomic Development Authority (when set up), the International Labour Office, the International Health Organisation, the United Nations Relief and Rehabilitation Administration, the International Civil Aviation Organisation, the International Resources Office (if formed), etc., etc., in scientific questions.

(X) Assist and correlate the work of the smaller or more specialised international scientific bodies already existing, both inter- and non-governmental, such as the International Bureau of Weights and Measures, the International Time Bureau, the International Standards Coordinating Association, the International Commission on Zoological Nomenclature, the International Anti-Locust Research Centre, the International Council for the Exploration of the Sea, etc., etc.

(XI) Co-operate with the United Nations Information Service and the Division of Press and Publicity in UNESCO in informing the public in all countries concerning the bearing of scientific discoveries on international relations; and urge the improvement and extension of the teaching of science in all schools throughout the world.

## PART II

## PROPOSALS IN CONCRETE DETAIL

We shall begin with a recapitulation of the scientific functions of UNESCO, amplified with the sub-section headings of the ensuing text.

### THE SCIENTIFIC FUNCTIONS OF UNESCO

#### A. Temporary

The Division of Natural Sciences of UNESCO should:—

(I) Assist the restoration of scientific facilities in the war-damaged countries.

Urgent Scientific Rehabilitation.
Reparations in the Form of Scientific Equipment.
Scientific Use of Surplus War Material.

#### B. Permanent

The Division of Natural Sciences of UNESCO should:—

(I) Promote international scientific cooperation in all its aspects, by facilitating the work of existing international scientific organisations, by initiating new ones if necessary, and by setting up regional science cooperation offices throughout the world (cf. Constitution, Art. I, Sect. 2 (*c*)).

UNESCO Regional Offices or Science Cooperation Stations.
The Scientific Unions.
The Engineering, Medical and Agricultural Sciences.
UNESCO'S Central Scientific Secretariat.

(II) Organise and assist the better exchange of scientific information and research services between scientists and their organisations in the different countries.

Movement of Scientific Journals and Books.
Circulation of Government Scientific Publications.
Rationalisation of Scientific Publication.
Photolithographic Reproduction of Runs of Scientific Journals.
Abstracting Problems.
Central Reprint Stockpile.
The Problem of Scientific Microfilms.

Collection and Dissemination of Scientific Data in Card-Index, Diagrammatic, and other Form.
Use of Special Apparatus and Facilities.
Support of Type Cultures.
Biological Standardisation.
The Exploration of the Sea.

(III) Assist the free flow of essential research apparatus, chemicals and equipment across national boundaries, as also the exchange of scientific specimens; collections of animals and plants, mineralogical samples, roots, seeds, and the like.
Catalogues and Customs Duties.
Assistance in Material Exchanges.
Standardisation of Scientific Equipment.
Scientific Apparatus Information Bureau.

(IV) Assist the free flow of scientific books, periodicals, microfilms, cinema films, manuscripts for publication, translations, abstracts, radio talks, etc., across the national boundaries; and especially between world regions of widely different linguistic pattern, e.g., those of the ideographic and alphabetic languages.
A Scientific Post Office.
The Language Question.
An Auxiliary International Language for Science.
Scientific Nomenclature.
World Centre of Scientific Cinema Films.
Encouragement of Scientific Broadcasting.

(V) Assist the free flow of scientists coming and going across national boundaries, whether for periods of study and research or for congresses, conferences and the like.
Scientific Travelling; Financial Assistance.
Scientific Travelling; A "Carte d'Identité".
"Foyers des Savants".
An International Scientific Appointments Agency.
Scientific Expeditions.
Multisearch Groups.

(VI) Promote international collaboration in scientific research, by aiding the work of already existing groups, initiating new forms of cooperation, instituting international observatories and laboratories, supporting model projects of symbolic as well as concrete significance, and facilitating the international activities of the various National Academies of Science.

The World Network of Investigators.
Observatories and Laboratories under International Auspices.
The Zonal Conception.
International Stockrooms.
Financing of International Laboratories and similar projects.
The History of Science.
Universal Register of Scientific Institutions and Personnel.
International Professorships.
The National Academies.

(VII) Assist in maintaining contact between government organisations concerned with science, pure and applied, when necessary; and advise governmental and diplomatic personnel on scientific matters, when desired.
Importance of Multilateral Contact.
Relations with Bilateral Cultural Goodwill Organisations.
Travelling Scholarships, Fellowships and Professorships.
Relations with Scientific Members of National Diplomatic Services.
Relations with Science Cooperation Services of Nations or Groups of Nations.

(VIII) Co-operate with the work of the Economic and Social Council of UNO, and of the Trusteeship Council of UNO.
Scientific Knowledge and World Economic Development.

(IX) Co-operate with the work of all other United Nations organisations and agencies, such as the United Nations Food and Agriculture Organisation, the United Nations Atomic Development Authority (when set up), the International Labour Office, the International Health Organisation, the International Civil Aviation Organisation, the International Resources Office (if formed), etc., etc., in scientific questions.
Definition of Activities of UNO Agencies.
Possible UNO Agencies not yet set up.

(X) Assist and correlate the work of the smaller or more specialised international scientific bodies already existing, both inter- and non-governmental, such as the International

Bureau of Weights and Measures, the International Time Bureau, the International Standards Coordinating Association, the International Commission on Zoological Nomenclature, the International Anti-Locust Research Centre, the International Council for the Exploration of the Sea, etc., etc.

Importance of Smaller International Organisations already functioning.

(XI) Cooperate with the United Nations Information Service and the Division of Press and Publicity in UNESCO in informing the public in all countries concerning the bearing of scientific discoveries on international relations; and urge the improvement and extension of the teaching of science in all schools throughout the world.

Public Information and Science Teaching.
A Science News Service.
Science Museums.
Travelling Science Exhibitions.

## A. TEMPORARY

(I)

### *Assist the restoration of scientific facilities in the war-damaged countries.*

This is the most urgent, as well as perhaps the most difficult task before the Natural Sciences Division of UNESCO. Although its urgency would seem to give it a higher priority than any other activity, it may well prove that the concrete measures necessary will not be possible until UNESCO has set up some at least of the proposed field stations. Once UNESCO'S experts in the various sciences are in the field it will be possible to gather precise information as to the actual apparatus required. These concrete needs can then be brought to the notice of bodies or foundations which may have funds available for re-equipping devastated scientific laboratories. UNESCO may itself have such funds. In any case, it should always be possible to come to the aid of individual requests for small inexpensive or highly specialised pieces of apparatus. Such requests would reach the centre through the field cooperation stations.

### URGENT SCIENTIFIC REHABILITATION

At an earlier stage an agreement was made between UNESCO and UNRRA and a joint technical sub-committee exists (Prep. Com./20 and 23).

Unfortunately, it seems that little progress has as yet been made,

even with the establishment of exactly what are the concrete needs of the various laboratories on the Continent of Europe. Detailed lists have apparently not been forthcoming for examination by the joint sub-committee. However, a joint Anglo-American Mission (sent by the Board of Trade and the Department of Commerce respectively), consisting of two experts on scientific equipment from each country, has recently been touring eleven European countries (France, Italy, Greece, Austria, Czechoslovakia, Belgium, Holland, Denmark, Norway, Sweden and Poland). The information which these experts have accumulated will be of the greatest value in planning the scale of operations of the scientific instrument industry in the U.K. and the U.S.A. There seems no reason why these concrete lists should not before long be available to UNESCO, through the Foreign Office and the Department of State. It will then be possible to consider action appropriate to the facts on the table.

It appears that in Europe UNRRA has appropriated funds for the restoration of agricultural and veterinary laboratories, but not for the industrial ones, and not for Universities. It remains to be seen what the best methods will be for getting the apparatus to those who need it. In China, on the other hand, UNRRA is said to have appropriated at the end of 1945 an allocation of U.S. $4,000,000 for the re-equipment of universities, including their laboratories. During the war itself some rehabilitation has been going on, as the British Scientific Mission constituted itself an emergency supply channel and had a quantity of apparatus flown in to keep the wheels of Chinese science turning (see above). The funds for this work were provided by the British Council, and it may well be that organisations of this type may be willing to continue giving aid in rehabilitation, at least as far as pure science is concerned. UNESCO should, at any rate, possess the most complete available information and could thus assist the purely national organisations in such work. Particular attention will have to be paid to the inflation problem in certain countries, which prevents them from importing badly-needed scientific equipment.

Estimates of the cost of re-equipping the devastated laboratories of Europe have already been made (22). Assuming total destruction, the cost is thought to be in the neighbourhood of £100,000,000. This is probably an over-estimate, but if we include the damage known to have been done to the Universities and Research Institutes of Asia, it is probable that the need does not fall far short of this figure. The Institutes of Physics, Chemistry and Engineering of Academia Sinica alone, recently visited in Shanghai by one of the Secretariat, are estimated to need $NC 600,000,000 for rehabilitation (i.e., just under £100,000): and his impression was that this was an underestimate. Yet it is reported that during 1946 the U.S.A. will have an exportable

surplus of only £5,000,000 worth of equipment. Combined exportable surpluses of U.S.A. and U.K. in 1947 might reach the £10,000,000 mark. It may take ten years to restore the broken laboratories of the world to their pre-war condition, even allowing for no progress or improvement.

Allocation of equipment also presents a problem. At present anyone who has money to pay can place orders for equipment in the U.K. and the U.S.A. Countries which have suffered least during the war and which therefore have reserve currency may therefore get most of the available apparatus. It may be felt that this is rather unfair. It has been suggested that UNESCO should invite all countries needing equipment to participate in some sort of voluntary rationing scheme, whereby an equitable distribution of apparatus could be arranged in accordance with the needs and possibilities of each country. The Secretariat supports this suggestion.

## REPARATIONS IN THE FORM OF SCIENTIFIC EQUIPMENT

While the re-equipment of devastated laboratories cannot be held up until the problems of reparations have been fully settled, careful consideration should be given to the possibility of reparations being made in the form of scientific apparatus and chemicals. After World War I the laboratories of the University of Louvain were largely restocked with German-made apparatus, especially optical apparatus, by way of repayment. The case for the Chinese Universities *vis-à-vis* the Japanese Government after World War II is at least equally strong.

The concept of reparations should not be interpreted only in a material sense; the dissemination of technical knowledge from the ex-Axis countries should also be undertaken. This would involve close collaboration with the occupation authorities and with the special organisations which exist for the taking-over of scientific and technical information from the ex-Axis countries.

In the pursuance of these aims it has been urged by the Czechoslovak delegation to UNESCO (Prep. Com./ 32) that UNESCO should prepare a systematic account of the fate of cultural and scientific material in all devastated countries, with a view to replacing it or assuring its return from the ex-Axis countries. In so far as this concerns the Natural Sciences Division of UNESCO, it is more or less identical with the Secretariat's statement (see above) of the necessity of obtaining concrete information as to the scientific apparatus needed in each laboratory.

Another form in which reparations would be desirable might be certain exhibits and displays from museums; these could then form part of the travelling exhibitions suggested below.

## SCIENTIFIC USE OF SURPLUS WAR MATERIAL

There is reason to believe that very large stocks of all kinds of material which would be turned to scientific use, at least for teaching purposes, such as lenses, ammeters, radio valves, etc., etc., are at present, when condemned as useless from the point of view of the armed forces of the different countries, being wasted or even destroyed. A real effort should be made to save this material and to transfer it for the use of the more scientifically backward countries. This objective should have a very high priority in time as soon as UNESCO'S permanent organisation is established, as before long there may be little or none of this material left in a serviceable condition.

## B. PERMANENT

(I)

*Promote international scientific cooperation in all its aspects, by facilitating the work of existing international scientific organisations, by initiating new ones if necessary, and by setting up regional science cooperation offices throughout the world.*

This general aim covers all the rest, but it implies the "*carte blanche* principle" already referred to in connection with the wartime scientific offices. UNESCO would not be restricted to any one group of sciences. It should also be thought of in connection with the "periphery principle" already mentioned. That is to say, a large part of the work of UNESCO'S science division would lie in helping science and technology in those regions of the world outside the most advanced "bright zone", i.e., where scientists are relatively isolated.

## UNESCO REGIONAL OFFICES OR SCIENCE COOPERATION STATIONS

There is only one way in which this can be effectively done. It is, in the opinion of the Secretariat, essential that UNESCO should have a number of *Regional Offices* or *Science Cooperation Stations*, scattered throughout the world. Only by direct contact in the field can the needs of scientific men become known, and adequate communication assured between them. About ten such Regional Centres would be the ideal, probably somewhat as follows: (*a*) East Asia, (*b*) Australia and Oceania*, (*c*) South-East Asia, (*d*) India, (*e*) Middle East, including North Africa, (*f*) Africa south of the Sahara, (*g*) East Europe, (*h*) North America, (*i*) Central America and the Caribbean Region, (*j*) South America. This plan assumes that the headquarters will be in Paris, and this would act also as the Regional Centre for

* Cf the Resolutions of the Pacific Science Conference, 1946 (62).

West Europe. If ten Regional Centres cannot be set up, those most urgently needed are probably (*a*), (*c*) and (*d*), (*e*), (*i*), (*j*). UNESCO Field Stations have been specifically called for by the Delegations of the U.S.A. and of France to the Natural Science Committee of UNESCO, June, 1946.

A word may be said about the functioning and staffing of the regional offices. It would probably be advisable to locate the regional office in the most important intellectual and technological centre of the largest of the nations or countries which compose the region in question. Correspondents could then be appointed for the other nations or countries within the region; these would have to keep in close touch by letter and by personal visits with the regional centre. Judging by the experience of the British Scientific Office in Chungking, which consisted, all told, of 6 British, 1 Indian and 10 Chinese scientists, it would not be necessary to have in any regional centre more than three or four scientific men from the most advanced scientific countries sent out from headquarters. It is, in fact, preferable to associate with these a well-chosen group drawn from local scientific circles, since this at one and the same time solves the grave difficulties of language and communication and also makes the local countries feel that they are playing a big part, as indeed they are, in the machinery of scientific interchange. It also assures that the UNESCO group is not thought of as a "foreign intrusion" on the soil of any given country. Thus a Chinese scientist, if he joined the central UNESCO Secretariat, might remain in Paris, or be sent as one of the headquarters members to the South American regional office, for example; but he might also join the China regional office as one of the non-headquarters members, in which position his linguistic capacities would render him of great value. The same thing applies, *mutatis mutandis*, to the Latin-American or Arabic-speaking countries.

The question of the freedom of action of UNESCO regional offices will no doubt arise. Every participating nation will organise a National Commission representative of all its science, education and culture, for the purpose of handling matters relating to UNESCO'S work. While it will clearly be essential that all questions of general importance or wide relevance should pass through the local National Commission (Constitution, Art. VII); and while Sect. 3 of Art. I of our Constitution must not be infringed, it is nevertheless extremely important that the staff of the regional office should not be debarred from direct and informal contact with the actual scientists and technologists of the country in question. In countries where the prestige of science is still low and the influence of local politicians with little or no understanding of science is strong, there will be grave danger that UNESCO will never contact the genuine struggling scientists, but only those who have known how to make themselves politically

agreeable to the government of the day, though their actual scientific attainments may be a good deal less than first-class. If direct contact with the men in the field and at the bench is debarred, the staff of UNESCO wherever situated, will be rendered helpless by bureaucratic red tape and diplomatic protocol.* There is not the least danger that if the staff of UNESCO is not shielded from direct contact with scientific workers, their time will be wasted by cranks. The writer's experience is that if you put a few scientists together for a short time from any country in the world, it will speedily become apparent who is bogus and who is on the right lines.

A suggestion is under consideration that the Regional Offices of UNESCO should be housed under the same roof as the Regional Offices of the United Nations Organisations for Health, Civil Aviation, Food and Agriculture, etc. Such an arrangement would greatly contribute to the efficiency of all technical experts employed in the service of the United Nations, allowing for close and constant consultation.

The objection that the Regional Offices or Science Cooperation Stations could not have scientists on the staff representing all possible branches of science has no substance. The business of the scientific liaison officer is not necessarily to know the answer but to know where the answer can most probably be obtained.

## THE SCIENTIFIC UNIONS

No less important than any of the foregoing is the provision of help to the International Scientific Unions and their federal Council (2). Before World War II they had already come to an arrangement (which, owing to the war, was never fully implemented) with the International Institute of Intellectual Cooperation (IIIC) whereby they constituted its scientific advisory body (23). For various reasons it took more than a decade before IIIC became active in the scientific field, but from 1937 onwards a series of excellent symposium meetings was arranged, IIIC taking charge of the financing, and ICSU selecting the subject of discussion and the persons invited. The subjects were as follows: Phytohormones (Paris, 1937); Atomic Weights of Gases (Neuchatel, 1938); New Theories in Physics (Warsaw, 1938); Magnetism (Strasbourg, 1939); Measurement of Ionising Radiations (Groningen, 1939); Nomenclature of Genetics (London, 1939); Fundamentals of Mathematics (Zurich); Probability Calculations (Geneva); and Preservation of Scientific Manuscripts (Prag). Papers were circulated beforehand, and the full reports printed and published afterwards. It will be seen that (owing to the very restricted budget of IIIC) no symposia were convened outside Europe, though

* This point is also taken by the Education Division (UNESCO Prep. Com./Educ./1).

negotiations were attempted towards the holding of a symposium in Manila. Such activities could be continued under UNESCO auspices, though now that the symposium, as opposed to the more old-fashioned general congress, has become so well-established a feature of international scientific life, it will probably be sufficient for UNESCO to set aside funds for meeting expenses of symposia (including travelling expenses) which their initiators in the various departments of science cannot themselves meet.

The association just described between IIIC and ICSU was a tentative one, and IIIC was never in a position to meet what was by far the greatest need of the Unions and ICSU, namely, an adequate secretariat. This should now be done by UNESCO in the most generous way possible.* The presence, in adjoining offices, of the work of UNESCO and of ICSU and the individual Unions, would lead to a new start on an altogether higher level promising very fuitful collaboration, and constituting, indeed, a perfect example of that "facilitation" which is one of the keynotes of UNESCO'S aim.

Among the many functions which the Unions have carried out has been the unification and normalisation of scientific terminology. They constitute in effect the machinery called for, for this purpose, by the Mexican Delegation to UNESCO'S Nat. Sci. Comm., June, 1946.

Most of the work of the Unions, however, has been the allocation of special research problems to international teams or "Commissions" and the maintenance of constant contact between them. Some Commissions are Joint Commissions of more than one Union. Some Unions have set up organisations which have become permanent and indispensable, such as the International Time Bureau (see Aim X).

As regards the details of assistance to the International Scientific Unions, it must be foreseen that most of their Secretaries and Presidents will be living in cities other than Paris. The Secretary of the International Union of the Biological Sciences, for instance, is located at Groningen. In these cases UNESCO should finance an Assistant Secretary to look after the business of their central office and also a personal Secretary-typist to aid the two chief officers wherever they may be.

It is hardly believable that various national regulations concerning exchange of currency are one of the great hindrances to the functioning of the Scientific Unions. Yet the Secretary-General of ICSU tells us so himself in a public meeting (22). Here UNESCO could be of

* Recommended also by CAME (5.2.46); the Danish Delegation to UNESCO (16.11.45). See Prep. Com./38, 3(C); and the U.S.A. delegation to UNESCO (14.11.45); see Prep. Com./22.A4(1); and Memo of Canadian A.Sc.W. 7.4.46. See also Art. XI of the Constitution. Requested by I.C.S.U., Resolution of Exec. Committee 4.12.45.

immediate help, for it will have diplomatic immunity and will be working in many different countries, so that cross payments can be made a matter of book-keeping. This clearing-house rôle was clearly envisaged in the proposals of the French Delegation to UNESCO'S Nat. Sci. Comm., June, 1946. The Unions would like UNESCO to support some of the permanent undertakings such as the International Time Bureau, thus leaving them free to develop fresh projects which need at first only small sums. It must always be remembered, however, that the function of UNESCO is not to be a new and larger Foundation like those of Rockefeller, Carnegie, Beit or Nuffield. UNESCO should never support individual researches, but only international research teams or groups, though work of international interest outside the "bright zone" should receive careful consideration.

A draft agreement has already been drawn up by the Secretariat with the President of ICSU, Professor H. R. Kruyt (Holland), and the Secretary-General, Professor F. J. M. Stratton (U.K.). The first post-war meeting of the General Assembly of ICSU accepted a definite version of this draft agreement in July, and warmly acclaimed the programme of close cooperation between UNESCO and ICSU.

Finally, UNESCO should not only help in every possible way the existing International Scientific Unions, but also stimulate the formation of such Unions in the sciences where they do not already exist. The revival of the International Mathematical Union is greatly to be desired, and discussion is going on concerning the formation of an International Union of Applied Mechanics. It may be also that there should be International Unions of Microbiology and Genetics as well as the International Union of Biological Sciences (Botany and Zoology).

The International Council of Scientific Unions, moreover, is not the only international organisation which may desire to have its central office housed adjacent to or with UNESCO and sharing common secretarial services. There are various committees of preparation for International Scientific Congresses in sciences where no Union as yet exists, and there is the newly-formed World Federation of (Associations of) Scientific Workers. There are, moreover, the entire fields of Engineering and Medicine, in which numerous international activities go on, and which should be assisted in the same way.

## THE ENGINEERING, MEDICAL AND AGRICULTURAL SCIENCES

In these various forms of applied science, the position of international organisation is not so satisfactory as it is in the pure sciences, since although there are international bodies, there is nothing corresponding to the International Council of Scientific Unions federating them.

In the engineering sciences the great professional Institutes of civil, mechanical and electrical engineers in each country are not associated internationally, and a recent attempt (connected with the International Technical Congress) to organise this has met with difficulties. On the other hand, there is the very fully international World Power Conference, which unites fuel, power and chemical engineers; the International Telecommunications Union, and a number of others. It would seem that the proper procedure will be for UNESCO itself to generate an Advisory Council in the Engineering Sciences by inviting each of the well-established international organisations to send a delegate to a representative conference.

The same procedure will be appropriate in the medical field, where there are a large number of congresses and some permanent organisations, but no already existing inter-connecting link. Investigation shows that this is extremely necessary. There would thus be also a UNESCO Advisory Council in the Medical Sciences, on which IHO would be represented.

The position is perhaps worst of all in the agricultural sciences, but here it is relieved by the existence of FAO. One of the few international organisations of scientific character is the International Society of Soil Science, but also this has been going through internal difficulties. There are also several International Forestry organisations interested in research matters. Further investigation of the situation will probably point to the necessity of establishing also a UNESCO Advisory Council in the Agricultural Sciences.

## UNESCO'S CENTRAL SCIENTIFIC SECRETARIAT

From what has already been said, and from what follows, it can be seen that very great and responsible tasks lie before the central scientific secretariat of UNESCO. The staffing of the central office, therefore, takes its place among other problems of a similar nature, characteristic of our time, raising the difficult question of how to combine science and administration. For years past progressive-minded scientists in every country have been calling for more science in government, more science in international relations, more science in industry and economic life; but nobody has yet explained how scientists are going to play their full part in this administration and organisation while retaining the professional respect of their colleagues and their status as scientists.

The position in the educational and cultural sections of UNESCO is not so difficult, for the work of organisation in an office is not so different from that which educationalists, humanists, and sociologists normally carry out. But the natural scientist derives such authority as he has from his research work at the laboratory bench or in the field—when he is cut off too long from these sources he ceases to be a

scientist. The scientific work of UNESCO will not be successful unless its secretariat comprises men who can go to visit any laboratory in the world and talk with scientists, no matter how outstanding, on a level of equality and mutual respect.

Although no full solution of this great problem is in sight, there are a number of useful points which may be made.

(*a*) A permanent nucleus of scientific men of high quality will be indispensable. This means that a few such men must be prevailed upon to sacrifice their scientific careers in the interest of international scientific cooperation and world understanding.

(*b*) This permanent nucleus may be aided by colleagues and assistants of several different types. Thus good research men of proved achievement may be seconded to the organisation for periods of not exceeding three years, either direct as members of the secretariat, or as national scientific attachés working part-time with the secretariat. A man might well put in a sabbatical year with UNESCO.

(*c*) Besides this type of scientist, there are others who may be made use of. There are young men of brilliant minds who turn out on test not to have the particular combination of qualities which make a successful research worker. In former days such men were generally attracted to teaching duties, though quite often they do not possess the flair of the university teacher either. UNESCO could offer such men, if of sufficient administrative ability, a very fruitful field of work.

(*d*) A sprinkling of elderly men past the retiring age may be found very useful also. Their ripe experience, in a variety of different countries, for example, might be most valuable.

(*e*) The best way, however, to keep the scientific standards of the secretariat up to the highest level will probably be to select a number of men of the highest distinction but still comparatively young and active, say in the late forties and early fifties, and to invite them to join the secretariat as Special Counsellors. Such men would be expected to spend two or three weeks each year at the UNESCO headquarters, reading papers, advising the members of the secretariat on matters in their special field, and lending their high authority to the initiation of this or that project. A suitable honorarium would be given to such consultants and their hospitality in Paris would be provided for.

By such means it should be possible to build up a central scientific secretariat which will have the respect of the scientific world.

As regards the plan of organisation of the scientific group, it might be something as follows. Under the Head of the Division, a Director or Senior Counsellor, there would be:—

(*a*) A Counsellor for Pure Science. This sub-section would have

to do with such organisations as the International Scientific Unions, the Congresses, the international laboratories, etc.

(*b*) A Counsellor for the Engineering Sciences.

(*c*) A Counsellor for the Medical Sciences.

(*d*) A Counsellor for the Agricultural Sciences.

(*e*) A Counsellor for the Regional Offices. Each Regional Office should ideally be staffed by not less than three Scientific Officers and one Principal Scientific Officer. If less than four persons are available it will be impossible adequately to cover the whole field of the natural sciences.

(*f*) An Administrative Counsellor. Apart from responsibility for personnel and registry of documents, he should be assisted by a series of First Assistants, each one being oriented towards the other Divisions of UNESCO, e.g., one dealing with all matters of scientific cinema and radio, one dealing with scientific museums and libraries, one dealing with science and education, etc., etc.

(*g*) An indefinite number of Special (non-resident) Counsellors, as described above.

For some time to come there should be nothing rigid about such a plan, as many desirable modifications will doubtless arise in the course of practice.

In external relations, draft agreements similar to that already prepared and accepted by the International Council of Scientific Unions will be advisable in the case of all international scientific organisations which have their own diplomatic conventions. Agreements with other agencies of the United Nations, such as Food and Agriculture, Health, Civil Aviation, etc., which will be interested in scientific or technical work, should provide for Joint Committees and even joint working teams.

(II)

*Organise and assist the better exchange of scientific information and research services between scientists and their organisations in the different countries.*

What follows here should be read in conjunction with the Report of the Division of Libraries and Museums.

## MOVEMENT OF SCIENTIFIC JOURNALS AND BOOKS

The barriers to the free movement of scientific literature are one of the most serious features of the present period. Large areas of closed currency have the greatest difficulty in getting books and journals from outside those areas since the exchange control prevents ready availability of foreign purchasing power to scientific and learned

institutions. Every scientist who visits the Secretariat's staff in London coming from other countries has the same story to tell. Library facilities are more and more confined to the scientific journals, if any, locally produced.

This exceedingly unhealthy state of affairs is made still worse by the inflation of the currency in certain countries which prevents the purchase of foreign scientific books and periodicals. China is the greatest example of this, and Hungary the most outstanding European one. In these cases donations in some form or other are probably the only solution pending better times.

UNESCO's function as a clearing-house, however, may help the position very much indeed, as has already been envisaged with regard to the dues and payments of the International Scientific Unions (see above). UNESCO could issue through its National Cooperating Commission in each country Coupons or Tickets each of a certain denomination (e.g., $U.S. 1.00, or U.K. 10s. or 100 French francs) for the specific purpose of Publications Exchange. These could then be sent direct from consumer (in India, for example) to producer (e.g., in the U.S.A.), and the latter would be repaid by UNESCO in the currency of his own country.

Minor, but still important, barriers to the free flow of scientific literature are the purchase taxes on scientific books and journals in some countries, and customs duties in others. A systematic and well-informed effort to ameliorate the bad effect of these taxes on knowledge would be entirely in line with UNESCO's *raison d'être*, and would, no doubt, involve representations to the governments of member states.

## CIRCULATION OF GOVERNMENT SCIENTIFIC PUBLICATIONS

While in the future there may be many opportunities for the exchange of confidential technical information between various countries, there is an enormous field of work to be done in seeing that the information actually published by government scientific organisations reaches those who need it, both near and far.

As has been said in Part I of this document the scientific publications of most national governments are for free gift, and not even the wealthiest nation can afford to maintain dissemination machinery adequate to assure that all the various technical bulletins and scientific papers reach those in all other countries who are in need of them. It is also pointed out (Prep. Com./ Libraries and Museums/ 6) that many governmental organisations maintain large stocks of back issues which they would be only too glad to hand over to an organisation which would amount to a World Clearing-House of scientific and technical publications.

## RATIONALISATION OF SCIENTIFIC PUBLICATION

The greatest problem here, however, is the rationalisation of the publication of original papers in the standard scientific journals. The "paper" is the unit; "notes" and "letters" are papers in embryo, "reviews" and some "monographs" are digests of, and general conclusions from, a particular mass of papers. Wide dissatisfaction is felt with the present system, which is a mere natural growth from the publication methods of the eighteenth century. It has been expressed not only by individual scientists but in certain official papers (e.g. Czechoslovak Govt., 11.2.46). The Association of Special Libraries and Bureaux (ASLIB) and the Association of Scientific Workers (AScW) have recently been actively thinking out this question in the U.K., and the Report of the Division of Libraries and Museums parallel to the present Report has a reference to their work (*see* 24, 25, 26, 27). UNESCO should take a leading part in these deliberations, which aim to rationalise the present system without undue disturbance of the flow of the scientific publication.

One scheme proposes the establishment of a joint scientific publishing office in each country which would issue all scientific papers in the form of *reprints*, the selecting and editing being done as at present and the various existing journals retaining their identity. This proposal attempts to avoid the situation existing today, in which an individual scientist has to subscribe to many journals although those on the fringes of his interests will only contain few papers of interest to him. Under the "All-Reprint" system, these few would be sent to him automatically, and he could always glance at the others, if he wished, in the ordinary libraries. Since each country would continue to be responsible for the financing of those journals which already exist, UNESCO would perhaps only be called upon to aid the financing of the capital cost of the change-over (*see also* Prep. Com./ 29).

In the meantime, however, UNESCO could perhaps take under its wing (giving financial assistance) certain scientific journals of a well-defined international character, such as *Enzymologia*, which is now resuming publication. An *International Journal of Crystal Physics* is being planned. *Cytologia*, *Protoplasma*, *Biomorphosis*, *Scientia*, and *Scientiae Genetica* would also have to be considered.

In the long run nothing short of a full international congress representing all branches of science as well as the academies and the publishing trade would be competent to take the decisions necessary. UNESCO ought to make arrangements for such a world congress as soon as conditions permit. In the meantime the best preparation for it will be the collection of data (perhaps by a carefully drawn-up questionnaire) about the existing situation as to journal publications in all the different branches of science. This will be greatly facilitated by the close association between UNESCO and the International

Scientific Unions in ICSU, which we expect to be implemented as soon as UNESCO's permanent organisation begins work.

## PHOTOGRAPHIC REPRODUCTION OF RUNS OF SCIENTIFIC JOURNALS

In this connection remarkably few people realise the seriousness of the position regarding back numbers of the important scientific journals. These are fully necessary for scientific research today. Some papers, such as those of Willard Gibbs on thermodynamics, are as vital now as on the day they were printed. Other old papers hold keys needed still; thus McMunn's work on the pigment histohæmatin (cytochrome) laid the foundation of our modern knowledge of the respiration of the living cell—but it was done as far back as 1885. Complete sets of such journals as the (British) *Journal of the Chemical Society*, or the (American) *Journal of Experimental Zoology*, are very scarce; of the former perhaps not more than six sets exist in England today. Yet hundreds of sets are needed both to restore devastated European and Asiatic libraries and to equip the new libraries which will in due course arise. Hence UNESCO should begin by arranging for the lithographic reproduction of back runs of all important periodicals, similar to that which the U.S.A. Custodian of Enemy Property has applied to the classical Beilstein dictionary of organic chemistry, and to certain German journals (28). Should this prove too expensive, microfilm could be resorted to.

This brings us to the special problem of all the scientific periodicals published during the war years. Libraries in Allied countries do not have the publications of the ex-Axis countries, and extremely few of the originals exist owing to destruction by bombing both of stocks and libraries. The converse is equally true, and though the stocks of the originals are larger they are not adequate to meet the eventual demand. Reproduction of all these war-year issues is therefore urgently needed.

## ABSTRACTING PROBLEMS

If conditions should be favourable UNESCO could proceed to more thorough-going rationalisation of the present system of abstracting of scientific publications (see the Czechoslovak Delegation's proposal, Prep. Com./ 35). For example, there seems no need for two separate sets of English-language biological and physiological abstracts, one appearing in the U.K. and the other in the U.S.A. Great duplication of effort could be avoided if all the abstracting machinery were centralised in an international organisation, which might issue the abstracts in the three or four main world languages simultaneously. This matter is very urgent since some of the best abstract journals were German, and are now in circumstances which make their revival impossible for a long time to come (*see* 29).

## CENTRAL REPRINT STOCKPILE

The system of exchanging of reprints, universally used among scientists and most valuable in itself, is grossly incomplete and unsatisfactory. It needs to be supplemented by other means, especially microfilms, double-contact-prints, photostats, etc. For example, when a scientist dies, the stocks of his reprints, usually unsaleable, are often thrown away by his family, though hundreds of other scientists, scattered over the world, are in need of them. Commercially, the supply cannot contact the demand, and in any case, the reprints are for free distribution. If there were under UNESCO some central stockpile where reprints could accumulate, the work of scientists throughout the world would be much assisted. If the work of the International Scientific Unions is centralised at UNESCO headquarters they could each take charge of the appropriate division of the central reprint stockpile.

This suggestion closely approaches that of a World Clearing-House for learned publications (see UNESCO/ Prep. Com./ Libr. Mus. and Sp. Proj./ 4 and 6).

## THE PROBLEM OF SCIENTIFIC MICROFILMS

With regard to the subject of microfilms we may claim to speak with some experience, one of the Secretariat having operated, as head of the British Scientific Mission in China, a supply service of microfilmed scientific journals, sent by the British Council to China and distributed there through an *ad hoc* joint American-British-Chinese organisation. The China microfilm programme was a success as far as research workers were concerned, who only needed to read one or two papers in any given issue of a journal, and it was a method of great importance where freight space was as limited as it was over the "Hump", but the strain of reading microfilm was found to be serious. It must be admitted that under war-time conditions the reading machines made in China were not very good, and one may assume that those which will shortly be available throughout the world at moderate cost will remove much of the strain from microfilm perusal.

Nevertheless, the principle should be adopted that microfilm is not an adequate substitute for the actual full-size copies of the journal. Nor is it suitable for books, unless in the case of rare or unique copies. Nor is it suitable for material which elementary students are going to use. What it *will* do is to serve the research worker as a temporary measure in the absence of the journal itself, to dissemminate unprinted manuscripts or memoranda, where packet weight is an important consideration, to make records for archives, and above all, to take the place in more compact form, of the *reprint* collections which are habitually made by all scientific workers.

The Belgian delegation to UNESCO (Prep. Com., 27) has sub-

mitted a plan for the formation of an International Microfilm Documentation Organisation under UNESCO. Reservations made in the preceding paragraphs do not in any way speak against this proposal, but it remains to be seen whether there do not already exist organisations attempting this work, and whether it would not be better for UNESCO to subsidise, encourage, and co-ordinate them.

So far as the scientific world is concerned, remarkable nascent structures do already exist. Thus in France there is the Service de Documentation (see Wyart, 30) of the Centre National de la Recherche Scientifique (corresponding fairly closely to the U.K. Department of Scientific and Industrial Research). The 3,000 current journals received by this Service are handled in two ways. In the first place, there is produced a monthly *Bulletin Analytique* (now in its seventh year of publication), which gives short factual descriptions of every paper. This does for the French-speaking scientific world what *Chemical Abstracts* and *Biological Abstracts* do for the English-speaking world, so far as bibliography is concerned. The journals are, secondly, systematically microfilmed; at the present time some 400 metres a day are turned out. The chief limiting factor is the developing process; if cinema industry equipment could be purchased the output would reach 20,000 metres a day. Any request for a microfilm copy of any given scientific paper is now fulfilled in approximately ten days; the aim is to reduce this waiting period to 48 hours. A small fee is charged. At present the service emits some 8,300 microfilmed articles a month (in all languages, of course).

In the U.K. the Association of Special Libraries and Information Bureaux (ASLIB) has provided a similar service (31). In the U.S.A. the Library of Congress, the Department of Agriculture, and other great libraries, also furnish microfilm copies of papers against a small payment. One great library, however, asks for no payment, i.e., the famous Army Medical, or Surgeon-General's Library at Washington; at present it emits some 7,000 microfilmed articles a month.

The necessity of payment has been a great barrier to the wider use of microfilm copies instead of reprints by scientific workers. While it is easy for persons resident within France or the U.S.A. respectively, for example, to enclose a few stamps with their request, this presents great difficulties to those in other countries. Nobody is willing to fill up exchange control forms in triplicate in order to be permitted to export a few cents. Hence UNESCO could at once render a great service to the world of science by providing scientists everywhere with microfilmed papers free and recompensing the microfilming institutions according to the current rate. This would, moreover, amount to the subvention of the institutions, which should also be further assisted as and when necessary, with capital sums for purchase and installation of large-scale equipment.

Such a plan might lead in time to the cessation of demands for payment for documentary reproduction by libraries and other microfilming or photoprinting centres. A library is, after all, not a commercial concern which has to show a profit, and if UNESCO subventions could guarantee it from suffering financial loss on its microfilm and photocopy services, the time- and energy-consuming procedure of paying for each item separately might be avoided. This is said, however, without prejudice to the principle of a "nuisance charge", which may in some circumstances be necessary to protect documentation centres from frivolous or excessive requests. The matter is one for adjustment according to the local conditions.

The above proposals are in line with action on microfilms called for by the American AScW (letter to UNESCO, Jan., 1946).

As for UNESCO's Regional Centres, if and when set up, each one should be equipped with the microfilm-making machines, and if there were no important library in the region able to turn out microfilmed articles on request, the Centre might do so. The Centre would also be the logical channel for the reception and transmission of requests for microfilmed papers.

## COLLECTION AND DISSEMINATION OF SCIENTIFIC DATA IN CARD-INDEX, DIAGRAMMATIC, AND OTHER FORM.

So far we have spoken of the regular scientific journals, the abstract journals, the reprints, and the microfilms. Besides all these, however, new aids are growing up, such as the interchange of diagrams drawn to standard size. The Association of Hospital Physicists has such a system as between the different radio-therapy centres (32), and certain Anglo-American groups have prepared a card catalogue of X-ray diffraction data of chemical substances (33). Another instance which comes to mind is the excellent card-indexes prepared by the Forest Products Division of the Australian CSIR (Council of Scientific and Industrial Research) for use in the field; in this way the various timber-trees can be identified, and a pin-and-hole device permits of the ready selection of all timbers with a given desired strength or other property.

Whenever such aids are noted by UNESCO such financial assistance as will enable them to be more widely known and available throughout the world should be given without delay.

## USE OF SPECIAL APPARATUS AND FACILITIES

In the field of research services, great help could be rendered by arranging for the wider use of special apparatus only available at certain places. It will be a long time before every centre has an

electron-microscope, a cyclotron, equipment for cutting thin rock sections, or an ultra-centrifuge. In all such work, UNESCO would very often only need to put scientists in different countries in touch with each other; the later development of the work could be done by direct contact. UNESCO could thus act as a recommending agency, assuring, for example, the Geological Survey of a certain country A, that Dr. X of another country, B, who wants certain experiments or observations done for him, is a highly reputable man of good standing.

## SUPPORT OF TYPE CULTURES

Another vital matter on which urgent help is required in the biological sciences is the international support of the various collections of Type Cultures (see 34). These have grown up nationally, but perform an international service. The National Collection of (Bacterial) Type Cultures in London (MRC) is famous, but the Chinese also maintain such a service in Nanking. Type Collections of fungi are maintained at Princes Risborough and at Baarn (Holland), of yeasts at Delft (Holland, and Nanking (China), of algæ at London, Prague, Geneva and Basel. Important collections of genetical cultures (e.g. *Drosophila*, cotton, maize, etc.) are growing up, but often under extremely precarious conditions. These would be "gene conservatories" or depositories of mutants (see 65). All are in urgent need of funds. It would not be in any way out of line of UNESCO'S functions to take over some of their financial support, which would simply involve contributions to the existing bodies which maintain them, and they might well become at the same time branches of an International Commission of Type Cultures. This should be connected either with the International Union of Biological Sciences or with new International Unions of Microbiology and Genetics. Under such arrangements a World Union Catalogue of Strains Maintained should be prepared as soon as possible.

## BIOLOGICAL STANDARDISATION

A question cognate to the foregoing is the biological standardisation of sera, vitamins, hormones, drugs, etc. This has long been well taken care of by the Permanent Commission on Biological Standardisation of the League of Nations Health Organisation, which aided the maintenance of relevant laboratories in Copenhagen and in London (35). It is to be expected that the upkeep of this Commission and its work will fall, in the main, upon the newly-reconstituted International Health Organisation, but as a great deal of research as well as routine work is involved, it would be reasonable for the laboratories of the PCBS to be associated with UNESCO as well as IHO. Tentative steps towards this end have already been taken.

## THE EXPLORATION OF THE SEA

Just as the PCBS laboratories should be associated with UNESCO as well as with IHO, so those carrying out work for the International Council for the Exploration of the Sea (see below) should be associated with UNESCO as well as with FAO. Up to the present there has been no worldwide organisation concerned with fisheries and oceanographic research. There is an ICES for the North Sea and a parallel organisation for North American waters, as well as one (now dormant) for the Mediterranean. South American and Asiatic waters have never been covered. There is therefore a considerable work of new organisation to be done in this direction.

(III)

*Assist the free flow of essential research apparatus, chemicals and equipment across national boundaries, as also the exchange of scientific specimens; collections of animals and plants, mineralogical samples, roots, seeds, and the like.*

This is the long-term equivalent of the three immediately preceding aims. As a matter of principle, UNESCO should go on record as being in favour of the greatest freedom of research in all countries. (Proposal of the Mexican Delegation to the Nat. Sci. Comm. of UNESCO, June, 1946.)

## CATALOGUES AND CUSTOMS DUTIES

UNESCO should see that the catalogues of firms of all nations producing scientific equipment are widely distributed throughout the world. Once normal trading conditions are restored this should not present much difficulty, but a helping hand might be very useful from time to time, especially in the matter of customs duties and procedures. UNESCO could press, for instance, for increased facilities for movements of apparatus. It would also do everything possible to encourage the production of scientific apparatus by local initiative from materials locally available. The Committee on Scientific Equipment of CAME has already emphasised these points.

The Mexican Delegation to the Nat. Sci. Comm. of UNESCO goes further than this and calls for the abolition of all customs duties by all countries on the import and export of scientific apparatus and books in all categories. UNESCO should associate itself with this bold and far-seeing demand. The only difficulty is that the indigenous scientific instrument industries in some countries may require protection if they are to be built up as the best interests of such countries may dictate that they should be.

## ASSISTANCE IN MATERIAL EXCHANGES

Assistance in the exchange of scientific specimens is so obvious an activity that it needs no further comment. But a certain amount of "facilitation" is needed in many places (36, 37). At present it may be easier to send an expedition to a given country A to collect its fauna and flora, than to obtain duplicates from museums already in that country.

In this connection, a UNESCO "courier service" might grow up. Transferences of living specimens across national boundaries involves the work of the various national plant and animal quarantine services, and would be facilitated by personnel carrying UNESCO credentials and co-operating with these services.

## STANDARDISATION OF SCIENTIFIC EQUIPMENT

Probably the greatest problem which comes under this head is the standardisation or normalisation of scientific apparatus. Attention to this was urged by the Mexican Delegation to the Nat. Sci. Comm. of UNESCO, June, 1946. At a meeting at SVS in February, 1946 (22), it was stated that when the emergency translation of English scientific text-books for the use of French students had been considered after the end of World War II, it was found to be virtually impossible because of the difference of approach and of traditional design of apparatus. A system of universal units and designs is urgently necessary.

No doubt the greatest stumbling-block here is the fact that in some countries scientific workers are accustomed to use the metric system throughout the whole of their scientific education, while in other countries the non-metric system still prevails. Physical equipment graduated in pound-inch units is therefore unsuitable for many purposes. The British and American screw-threads differ, as also do the British and American electrical frequency cycles for which equipment is designed. Some effort towards standardisation is long overdue. Another reason for excessive cost of production of scientific apparatus is the large number of redundant types. At the same meeting it was stated that while approximately 1,000 Wheatstone bridges were sold annually in the U.K. before the war, these were manufactured by no fewer than 100 different firms. All such problems could be tackled by UNESCO in conjunction with the United Nations Standards Co-ordinating Commission (or the International Standards Coordinating Association, as it is likely shortly to become). The Secretariat has already made contact with the executive bureau of UNSCC.

## SCIENTIFIC APPARATUS INFORMATION BUREAU

In the meantime UNESCO should set up an Information Bureau serving as a link between the users of scientific equipment and the

manufacturers. Enquiries of the most diverse kind reached the Science Commission of CAME from all parts of the world, ranging from simple enquiries from overseas buyers whose difficulties arose merely from unfamiliarity with current products to highly-specialised enquiries concerning the latest developments in instruments and techniques in all branches of science. UNESCO'S Apparatus Information Bureau could offer impartial and unbiased advice on the many problems which arise in connection with scientific instruments and techniques. The Bureau could also prepare a world-index of instrument-manufacturers.

This work is, indeed, already quite advanced. The Secretariat of UNESCO has inherited from the Science Commission of CAME a group of investigators who have already made great advances in the kind of compilation required.

One of the achievements of this group has been to begin the conflation of scientific instrument catalogues, and the register so prepared already contains 20,000 items. From this it is possible to obtain figures showing exactly how much it costs to equip various kinds of laboratories with their basic requirements. Since these figures have never been produced before it may be of interest to give a few here (all in £ sterling):—

| | Elementary School | Secondary School | University, Technical College, or Research Institute |
|---|---|---|---|
| Biology (Botany, Zoology and Entomology only) ... ... | 20 | 250 | 2,000 |
| Chemistry ... ... ... ... | 20 | 250 | 10,000 |
| Physics (including Radio Physics) | 20 | 900 | 12,000 |
| Geology (main branches only) ... | — | — | 4,000 |
| Engineering (main branches only) | — | — | 20,000 |
| Agriculture (including farm implements) ... ... ... ... | — | — | 10,000 |
| Veterinary Science ... ... ... | — | — | 6,000 |
| Medicine (all principal branches)... | — | — | 20,000 |

The grand total for a university comprising all these departments is of the order £100,000.

(IV)

*Assist the free flow of scientific books, periodicals, microfilms, cinema films, manuscripts for publication, translations, abstracts, radio-talks, etc., across national boundaries, and especially between world regions of widely different linguistic pattern, e.g., those of the ideographic and alphabetic languages.*

As a matter of principle, UNESCO should go on record as being in favour of the utmost liberty of publication of scientific results in all countries, all consideration of commercial or military nature notwith-

standing (Proposal of the Mexican Delegation to the Nat. Sci. Comm. of UNESCO, June, 1946; cf. the unanimous Resolution of the General Assembly of the International Council of Scientific Unions, July, 1946).

## A SCIENTIFIC POST OFFICE

The more fully mail communications return to normal the less the "post office" character of science cooperation offices will be, but it is clear that there will for a long time to come be much to be done under this general heading. At the present time, presumably owing to exchange restrictions, no British scientific journals are reaching either France or Italy. UNESCO should do something urgently about this; it should exert due influence against tendencies to publish scientific results in lesser-known languages such as Flemish, Finnish, or Gaelic without any summary in a widely-known language; it should arrange for translations on a considerable scale; and it should ensure the prompt acquaintance by isolated scientists of the most up-to-date publications in their field. Moreover, the presence of representatives of the Unions at the headquarters of UNESCO will aid considerably the work of transmission of scientific information specially asked for.

Even in normal times, however, the post office aspect of such an agency as UNESCO is not to be despised. In all ages certain groups of scholars have acted as clearing-houses for science and learning, and the worse the political chaos of the age, the more important this has been. In the Middle Ages the monastic houses and the Jewish and Arabic translators in Spain fulfilled such functions, or the Sung Confucians in China, or, in the seventeenth century, the tireless Comenius (Bishop Komensky). Exiled from his native Czech land, Komensky kept together through years of wanderings not only his church, the *Unitas Fratrum*, but also the band of adherents of the "new, or experimental" philosophy, whose later great achievement was the foundation of the Royal Society, suggested by Komensky himself. And when the Royal Society was founded, what a post office did Oldenburg, its first Foreign Secretary, keep! He it was who opened the series of letters from the microscopist, Leeuwenhoek, in which for the first time the New World lying beyond the limits of ordinary vision was described. A scientific post office, indeed, requires the qualities of a "department of insufficient addresses", for its aim should be to ensure that every communication reaches its proper destination, a destination that the author himself may only vaguely know.

## THE LANGUAGE QUESTION

In the formulation of this clause reference was made to the great necessity of overcoming the barrier between the ideographic and alphabetic language areas. It need hardly be said that a similar effort

to surmount that between the Russian Cyrillic script and the West European Roman is at least as necessary.

UNESCO might begin by a real effort to arrive at some uniform system of transliteration and romanisation of proper names and special terms, both Cyrillic and Ideographic. For the former we recommend some such plan as the Damiani system based on the Serbo-Croat relationship; for the latter we recommend adherence to a modified Wade system.

Then again all scientific papers should be required to have a summary in an "international" language. It was recommended at the UNESCO Natural Science Committee meetings, June, 1946, after hearing the proposals of the Mexican Delegation, that the "official" languages of UNO (i.e., English, French, Spanish, Russian and Chinese) should, with the addition of German, be considered as those appropriate for scientific publication; but that in every case a summary in one or other of the two "working" languages of UNO (i.e., French or English) be appended. The Secretariat is strongly in favour of this.

The question will no doubt arise whether UNESCO should maintain special bureaux of translators for scientific material. It might well prove to be more convenient to support on UNESCO funds a considerable number of competent translators attached to the bureaux of the existing abstracting organisations, and to see that Russian and Chinese journals were much more regularly abstracted than they are now. Scientific circles often express a great desire for this. The converse process, translations of abstracts into Russian and Chinese, would also seem to be a proper call upon UNESCO funds.

The "Index Translationum" carried on by the Institute of Intellectual Cooperation should also be re-started and given a more complete scientific coverage. It should, moreover, be extended to the Asiatic languages. Multilingual scientific dictionaries would also be a suitable project.

## AN AUXILIARY INTERNATIONAL LANGUAGE FOR SCIENCE

At some later date thought and experiment will have to be given, in conjunction with other international organisations, and with the other divisions of UNESCO, to the problem of a world-language for scientific inter-communication. It might be feasible some day to publish one set of abstracts only, in Basic or Interglossa, for example. This is forcibly urged by Dr. Rjen Hung-Chang (38).

## SCIENTIFIC NOMENCLATURE

This question has always been to the fore in international scientific gatherings, and standardisation of nomenclature has long been a feature of the work of the various International Scientific Unions. UNESCO would wish to support all their work in this direction, as

also that of such bodies as the Chinese Government's National Institute of Compilation and Translation, which publishes authorised lists of Chinese equivalents for scientific and technical terms. Zoological names are in charge of a special body, the International Commission on Zoological Nomenclature (see below).

It may well be that a greater effort than heretofore is desirable for the standardisation of all kinds of scientific and technical terms in all countries (e.g., proposal by the Chinese Delegation to UNESCO, 13.11.45 and 6.2.46).

### WORLD CENTRE OF SCIENTIFIC CINEMA FILMS

An analogous activity, and one of great importance, would be the preparation, not only of a world catalogue of scientific cinema films; but of sub-titles and sound-tracks for them in each of the main languages of the world. This has also been proposed by the Belgian Delegation to UNESCO (Prep. Com./ 28). Thus, for example, the excellent Chinese documentary on the 2,000-year-old deep-drilled brine and natural gas wells of Szechuan would be prepared for showing to English, Russian or Spanish-speaking audiences; while the famous British film on Harvey's discovery of the circulation of the blood would be available in Chinese, Burmese, Hindustani, etc.

A world catalogue of scientific cinema films would, of course, have to separate them into several distinct categories, e.g.:—

(*a*) Films at the research level interesting mainly to certain groups of specialists.

(*b*) Films suitable for university teaching and for scientists of specialities other than that of the film.

(*c*) Films suitable for school teaching at various levels.

(*d*) Films of popular science nature for universal showing.

### ENCOURAGEMENT OF SCIENTIFIC BROADCASTING

The importance of popular education in science by means of radio broadcasting needs perhaps little emphasis today in the more advanced countries, but should be encouraged outside the "bright zone". UNESCO should arrange for or assist, periodical conferences such as that held at Cambridge on this subject in May, 1946 (39).

## (V)

## *Assist the free flow of scientists coming and going across national boundaries, whether for periods of study or research, or for congresses, conferences, and the like.*

### SCIENTIFIC TRAVELLING; FINANCIAL ASSISTANCE

Assistance in travelling has been given outstanding emphasis by many scientists, such as Sir David Rivett (Australia) and Dr. Cou-

moulos (Greece); by CAME itself (5.2.46); by the American AScW (40), and by the Mexican Delegation to UNESCO'S Nat. Sci. Comm., June, 1946.

Here UNESCO would have to work in close contact with the continuation committees of the great International Congresses, e.g., those of Physics, Zoology, and Geology, usually triennial; and the smaller special conferences which have grown up in special subjects, e.g., the Annual Conference on Differentiation and Growth. The more complete the return to normal after World War II in matters of travel, passports and the like, the less need there will be for UNESCO to exert any special influence in assisting the movements of scientists. But even if this return successfully takes place there will be room for a long time to come for financial assistance to competent scientists to travel, especially the younger ones, those from the smaller countries, and delegates proceeding to and from ICSU and ISU conferences. In the course of this work UNESCO would become a central clearing-house of information about congresses and conferences in all countries. This does not at present exist.

It must be emphasised that what is under discussion here is the provision of financial assistance to scientific men to travel to and from conferences and symposia, or upon relatively short special missions and the like. It is *not* implied that UNESCO should set up a series of Travelling Fellowships and Studentships. On a world scale this would require an enormous capital sum. Of course, if the United Nations are prepared to pay, UNESCO must be entirely ready to organise and administer. The subject will be referred to again more fully below in connection with the activities of the bilateral cultural goodwill organisations.

## SCIENTIFIC TRAVELLING; A "CARTE D'IDENTITÉ"

Financial assistance, however, is not the only amelioration which UNESCO could bring to scientific travelling. The comment of a distinguished British scientist is of interest. He says: "Even before the war travel was often unnecessarily difficult, especially if one was carrying specimens, lantern slides, manuscripts and the like. Ideally I should like to see something like a diplomatic visa for scientists. Another distinguished British scientist, Prof. A. V. Hill, has suggested that governments might subsidise air-lines by giving them so many thousand passenger-miles earmarked for scientists travelling on recognised scientific business, the travel vouchers to be issued through the Royal Society, the National Academy at Washington, or some similar responsible body in each country.

This idea of a *carte d'identité* for scientists engaged on journeys in line of duty is by no means as far-fetched as it seems at first sight. Many

well-informed voices (e.g., Prof. P. M. S. Blackett in a speech, May, 1946) are warning us that a curtain of secrecy is coming down on all scientific effort, and this will effect the travelling of scientists. The advent of atomic energy seems likely to make censorship and customs officials more nervous than ever. It is a striking thought that for five years past or more it has been impossible to send from one country to another by ordinary mail a paper on mathematical logic, since no one in censorship offices would understand a word of it, and hence could not dare to let it pass, in spite of the completely harmless character of the subject. The international traditions of science are in peril of suffocation over large fields such as nuclear physics and bacteriology. More and more it may be feared that scientific men will have to face delay, interference, confiscation of papers, notes, or specimens, and perhaps imprisonment, on crossing national frontiers. Concrete cases of this are coming to the Secretariat's notice every day. Is it not possible, therefore, that UNESCO might issue a special visa, accepted by all countries, indicating that the bearer was a perfectly *bona fide* scientist travelling on scientific business?

## "FOYERS DES SAVANTS"

Another excellent proposal is that a *foyer des savants* analogous to the very successful Society of Visiting Scientists in London, and the similar club in Brussels, should be set up, and partly financed by UNESCO, in a number of important cities. It might be a good plan to arrange for one in association with each of the Regional Centres of UNESCO throughout the world, but it would not be necessary that all the SVS clubs should be in the same places as the Regional Centres. Such clubs might well be set up nationally (privately or governmentally), but should be helped or sponsored by UNESCO.

## AN INTERNATIONAL SCIENTIFIC APPOINTMENTS AGENCY

Finally, UNESCO could help in the world circulation of scientific men by acting as a kind of appointment agency. The Siamese Government, for example, or the Chilean nitrate administration, could advertise through UNESCO posts to be filled. Colonial authorities might find this method a very useful one.

## SCIENTIFIC EXPEDITIONS

Allied to the rest of this section is the helping hand which UNESCO could give in the preparation of all kinds of scientific

expeditions in zoology, astronomy, etc. It should also act as a central clearing-house of information to avoid overlapping. No one wants repetitions of the classical case when a British and an American expedition met quite accidentally to collect insects on a small Pacific island, collected independently, and then went home and published the results independently. Conversely, as in eclipse expeditions, international co-ordination is essential, and the IAU does just this.

Then again there are particularly interesting parts of the world which are unable themselves to finance the investigation of their natural products. Western Australia, for example, though a third of the whole continent in size, and with a unique flora and fauna, is a relatively poor State. Federal and State Governments can only finance research on problems of immediate practical import. UNESCO could help either by financing the necessary investigations, or by bringing the need to the notice of the existing world financing Foundations. (In this connection, cf. the project put forward by Brazil for an International Research Institute in Hylea, below.)

## MULTISEARCH GROUPS

An interesting proposal has been made by Dr. F. W. Went, the distinguished plant physiologist. He points out (41) that in many fields of biology such as Genetics, Cytology, Physiology and Morphology, which should be independent of local conditions (as Zoology, Botany, Ecology, etc., can never be), great difficulties have arisen precisely on account of these. Local differences in available experimental facilities, animal or plant material used, climatic conditions, etc., have played a major part in establishing and maintaining fruitless controversies. In the biological sciences close to medicine, this fact has been the cause of much delay in medical progress. Dr. Went suggests, therefore, the organisation of temporary research groups in specific topics. Some of the more important investigators of a certain controversial subject would be brought together for a period of some months in one laboratory, during which time each would demonstrate the experiments on which he bases his own conclusions, and also work with the methods and materials of some of his opponents. As examples, 12 investigators hold 14 different theories of bud inhibition, each man concentrating on a different aspect and using a different experimental plant, and there are no less than 10 mutually contradictory theories of translocation of carbohydrates in plants. The expenses of such research gatherings and the arrangements for them could properly be undertaken by UNESCO. Dr. Went suggests that such groups, which should preferably consist of not less than 5 and not more than 20 investigators, might be called "Multisearch" groups.

(VI)

*Promote international collaboration in scientific research, by aiding the work of already existing groups, initiating new forms of cooperation, instituting international observatories and laboratories, supporting model projects of symbolic as well as concrete significance, and facilitating the international activities of the various National Academies of Science.*

## THE WORLD NETWORK OF INVESTIGATORS

This subject has a bearing on the *laisser-faire* theory referred to at the beginning. Let us suppose that a Polish scientist discovers another of those organic substances, the capacity to taste which is either present or absent in different human beings, dependent on a gene inherited according to Mendelian ratio which may be associated with other desirable or undesirable genes. He wishes to know the frequency of occurrence of this gene in various human populations, e.g., among the Chinese or the Peruvian Indians. According to the *laisser-faire* theory, he is sure to have scientific friends from China to Peru with whom he can at once put himself in contact through the ordinary mails. But this is, of course, nonsense; he has probably never met either a Chinese or a Peruvian, or if he did so at some International Congress he has long ago lost his address. The Secretary of the International Congress of Genetics, with the best will in the world, has not the staff with which to help him. But UNESCO could rapidly give him all the contacts he needs.

There are, moreover, apart from these types of aid, a number of problems which cannot be investigated by one group of workers in one place, but only by the cooperation and simultaneous work of a net of workers spread over the surface of the globe. Dr. H. J. Bhabha (India) has instanced the question of the high altitude periodic and accidental fluctuation of cosmic ray intensity. A cognate investigation is that of the properties of the ionosphere. Dr. H. Boyko (Palestine) writes on the need for an international network of plant sociological (ecological) stations (42). It will be desirable to strengthen the International Scientific Unions so that such enterprises can be financed or assisted by UNESCO through them.

## OBSERVATORIES AND LABORATORIES UNDER INTERNATIONAL AUSPICES

When the preceding paragraph was written it had not been envisaged that there would be a demand for fully international scientific institutions. But this was voiced surprisingly strongly by the United

States, French, Brazilian and Mexican Delegations to the Natural Sciences Committee of UNESCO National Delegates.

The proposals submitted may be summarised as follows:—

| | |
|---|---|
| Astronomical Observatories, one or more | U.S.A., and a unanimous resolution of the IAU at Copenhagen, 1946. |
| Laboratories of Nutritional Science ... | U.S.A., Brazil, France. |
| Meteorological Research Centres ... | U.S.A. |
| Institute of Applied Mathematics (electronic and other calculating machines) | France. |
| Institutes of Health (Parasitology, Immunology, etc.) ... ... ... | Mexico, France, Brazil. |
| An Institute for Regional Resources Survey of Hylea ... ... ... | Brazil. |

A few words of explanation must be added to the above table. The case for one or more International Observatories (as expounded by the British Astronomer-Royal, 43) is extremely strong. The older observatories of the world are largely in unsuitable locations. The cost of equipping new observatories for observations with the most modern equipment is now more than can be borne by any one country. The best locations, e.g., Patagonia or Arabia, would not be able to provide either funds or astronomers. If one or more international observatories were available, astronomers from all over the world, if duly qualified, would be able to work there without any feeling of being guests and possibly incommoding their hosts. In the IAU (International Astronomical Union) we have one of the oldest and most successful of the Unions, quite capable of taking charge of new enterprises such as would be contemplated. Whether the sites for the new Observatories would be entirely new, or whether (as one suggestion has it) certain nascent observatories, such as the French one in Haute Provence, would be turned over to IAU as fully international, would be for future consideration by specialists. There is also a suggestion (see below) that Pantellaria might form a suitable site.

Laboratories of Nutritional Science would be extremely desirable in certain regions such as Central Africa and the northern part of South America, where nutritional problems sweep across a number of national boundaries. International Nutrition Laboratories would suitably be under the auspices of FAO as well as UNESCO. There will be a difficulty as to their technological control, however, as physiologists and biochemists have never been active in IUBS (Inter-

national Union of the Biological Sciences). Many countries, however, now have flourishing Nutrition Societies, and steps have been taken towards federating these on the international level as a new Union.

An international computing laboratory or Institute of Applied Mathematics is also an excellent proposal. Modern calculating machines have now reached such a pitch of costliness as to render their erection impossible in any small country and difficult even in the wealthiest. The argument, therefore, is the same as that for the Astronomical Observatories.

The Institute for Regional Resources Survey of Hylea, proposed by the Brazilian Delegation, is a suggestion of great interest. The vast region of equatorial America, which Humboldt and others have called "Hylea", covers 4¼ million square miles, including the great plain stretching from the Andes to the Atlantic, part of the upper Orinoco, the three Guianas, Lower Tocantins, the sea coast of the province of Para, and part of the north-west of the province of Maranhao; the whole making up nearly a third of the total area of South America. Hylea contains the largest drainage basin in the world, and the richest forest reserves. Every kind of scientific work, botanical, zoological, chemical, geological, meteorological, anthropological, nutritional, and medical, is needed to open up this vast reservoir and to raise the standard of life for its inhabitants. This task goes beyond the possibilities of any one country, and involves Brazil, Bolivia, Peru, Colombia, Ecuador, Venezuela, France, Britain and Holland. Headquarters for an International Hylea Commission might be found at the Goeldi Museum established in 1900 at Belem do Para, and now in danger, in spite of some excellent museum collections, of being closed down for lack of funds.

Another suggestion akin to the foregoing, has come from the International Committee for Bird Preservation (which should probably be associated with IUBS). The proposal has been made (and a petition concerning it has already been presented to the British Foreign Office by the President of the Royal Society and others) that the islands of Heligoland in the North Sea and Pantellaria in the Mediterranean, should be internationalised as territory for UNESCO bird observatories. If this were done it would be reasonable to place also on these islands Marine Biological Stations. The Station on Pantellaria could be a branch of the famous Marine Biological Station at Naples. Possibly also there would be room on Pantellaria for one of the international astronomical observatories proposed.

The foregoing remarks have mostly referred to new plans for international laboratories. It must not be forgotten, however, that institutions of somewhat this kind have already existed. Thus the Marine Biological Station at Naples was originally founded with German funds on ground given by the Italian Government, and it was always

supported by grants made from the U.K., the U.S.A., France, and other countries, entitling each of them to one or more "tables" in the laboratories. The grants were given mostly by learned societies. The present position is uncertain, but it might prove in all respects advantageous if the Naples Institute were to come under the ægis of IUBS and be financed partly by UNESCO. There have also been certain high-altitude physiological stations, such as that on the Jungfraujoch, which have had a certain international character. The same proposal might be made to them.

The proposals of the French Delegation to UNESCO'S Nat. Sci. Comm., June, 1946, contain the suggestion that certain of the Pasteur Institutes in various parts of the world might be affiliated to UNESCO.

## THE ZONAL CONCEPTION

In considering plans such as those described in the preceding section, the division of the earth into zonal regions with common problems should be borne in mind (cf. 44). For example, there is an arctic-antarctic frigid zone, a double temperate zone, a tropical wet zone, and a tropical arid zone. Instead, therefore, of establishing an Institute and Survey in the Amazon Basin solely oriented towards local problems, it might be desirable to establish there a centre of international work oriented towards all tropical humidity problems in general, life and nutrition in rain-forest areas, tropicalisation of equipment, etc.* A centre for arid tropical problems might be located at Bagdad, Khartoum or Alice Springs; a centre for arid temperate problems at Lanchow. Northern Canada or Greenland might provide a site for an arctic-antarctic centre.

## INTERNATIONAL STOCKROOMS

Apart from the large-scale projects proposed by the French delegation to UNESCO and described above, the delegation also brought forward a suggestion that there should be set up a Central International Repository or Stockroom of New Materials (i.e., new plastics, high polymer resins, silicone ("bouncing putty") substances, transparent materials such as "perspex", flexible glass, new artificial textile fibres, etc., etc.). Producers would be invited to deposit samples of the new materials at the Centre, and any scientist or technologist wanting a material with specific properties would be able to write in for information and specimens. The Centre would then put him in direct touch with the producers. This work would not be very difficult to begin.

An analogous proposal has been brought forward for a Central Depot of Pure Chemical Substances. Chemical substances of high purity are universally needed for experimental work. Scientific workers are often at a loss to know whether anyone has prepared a given

* Cf. Verdoorn (63).

substance in pure condition, and if so, whether any of it is available. Sometimes chemical substances occur in fairly pure state as by-products and are not needed by those who produce them. In general the contact between producers and consumers is very defective, all the more so because in the great majority of cases the substances are not available on the commercial market at all.

The Central Depot of Pure Chemical Substances would receive from all over the world specimens of substances prepared in the course of the ordinary work of thousands of chemists, as well as specimens of other substances which are commercially available. Accurate records would be kept of the originating laboratory, the method of preparation, and the names of the scientific workers concerned. A policy of issuance would have to be decided upon; thus requests for a few milligrams only for identification purposes could probably be granted free of charge, but larger amounts would perhaps necessitate the payment of a fee. As soon as the size of the collection warranted it a catalogue of substances would be issued. The Depot, which should be placed under the scientific control of the International Union of Chemistry (IUC) and other unions, would have great advantages in that it would seek to persuade chemists, when making a high purity preparation, to make sufficient for deposition in the central stockroom, and not merely just enough for their own immediate purpose. Moreover, the existence of a central stockroom would invite the deposition of the collection of substances often left behind at the death of an eminent chemist, and sometimes perhaps lost since none of the specimens concerned are in sufficient demand to enter the realm of chemical commerce. This service would be particularly valuable in the field of metals, high polymers, and the complex molecules of biochemistry such as carbohydrates and proteins.

## FINANCING OF INTERNATIONAL LABORATORIES AND SIMILAR PROJECTS

The proposals made in the preceding pages are indeed inspiring, but one proviso must be made. This is that the sums required (at least in the case of the larger enterprises) must *on no account* be visualised as forthcoming from the regular annual budget for the working of the Natural Sciences Division of UNESCO. It will certainly not be enough, and the allocation of any of it to the special enterprises such as have been described, would speedily swamp the regular recurrent budget. It is therefore essential that special appropriations must be made.

To some extent the burden rests with the specialists involved. It is for the astronomers to convince the people of the United Nations of the importance of their science, so that Congress or Parliament may

come forward with a substantial contribution to the building of an International Observatory. What UNESCO can do is to show that it stands ready to be the responsible administrative authority, to urge publicly that the proposals of the various scientists are eminently reasonable and desirable, and then, when the funds have materialised, to administer them subject to the technological control of the relevant specialists, such as, for example, the International Astronomical Union.

There are a number of privately endowed foundations financing research projects and surveys of international character. Within the authority vested in UNESCO, our organisation can cooperate with such organisations either as sub-trustees in the channelling of special funds or in making recommendation to them for allocations of such funds. It is also envisaged that certain internationally-minded people of wealth may leave funds for UNESCO to administer. In America some public-spirited scientists have donated by assignment to public foundations the patent rights of their discoveries and inventions. It is thus likewise probable that internationally-minded scientists may desire to assign the patent rights of their discoveries and inventions to UNESCO, particularly when such work might have been indirectly financed with UNESCO funds. This applies, for example, to biological and medical discoveries relating to the health and social welfare of mankind.

## THE HISTORY OF SCIENCE

Before leaving the discussion of international institutions which might properly be set up under the aegis of UNESCO and on funds which it would administer, a few words should be said about a subject of cardinal importance for the history of human culture, but which has as yet in few countries received the support which is its due. We refer to the History of Science. An International Institute for the History of Science would not be very expensive, certainly not as much so as any laboratory, and could be placed in some location which would enable it to take advantage of already existing libraries.

Such an institute might have the aim not only of establishing clearly the manner in which all the peoples of the earth have contributed to the progress of our knowledge of nature, but also of examining the interactions between different past cultures. One group of specialists could concentrate on Chinese-European relations, another on Arab-European relations. There already exists an International Academy of the History of Science, and its possible association with ICSU is now under study. Not a few scholars are available, but their work is crippled for lack of facilities. No subject deserves help more.

## UNIVERSAL REGISTER OF SCIENTIFIC INSTITUTIONS AND PERSONNEL

Not long ago in Cambridge, one of the Secretariat was deeply impressed by the attitude of a scientific colleague who had been working in a government team which was about to close down. On being asked whether he was sorry he replied that he was, as he felt that samples of new compounds, information, etc., had reached him very much more efficiently than would have been the case in the haphazard methods of peace-time. Yet this man was socially speaking conservative, and by no means predisposed in favour of organisation, for its own sake, on an *a priori* ideological basis. It is not too much to say, indeed, that hitherto science has proceeded on what might be called the "gossip" system. Scientists learn of new developments through the standard publications (which may or may not be easily available to them) or through the regular meetings of scientific societies (which they may, or may not, be able to afford to attend). Hence the remarkable time-lag which often occurs in scientific advances. The famous insecticide of World War II, DDT, was originally discovered in 1875. It is time that some steps were taken to render the dissemination of scientific information less haphazard than heretofore.

This would involve the preparation and maintenance, preferably in loose-leaf form, of an up-to-date register of scientific institutions of all kinds, and their members and their specialities, throughout the world, analogous to the publications *Minerva* and *Index Biologorum*, now quite out of date*. The Regional Offices of UNESCO would be in a good position to assist in this work; thus the Sino-British Science Cooperation office built up a register of thousands of Chinese scientists. In the U.K. and U.S.A. there are the National Registers.

## INTERNATIONAL PROFESSORSHIPS

Numerous proposals have been received, recommending the formation of one or more International Universities (e.g., Dr. Maxwell Garnett, Oxford, December, 1945; Baron G. Fuchs, April, 1946; Columbian Delegation to UNESCO, Prep. Com. /22, B2, (i); Maj.-Gen. Li Chen-Pin, Memo. of August, 1945). Sometimes an International Academy of Science is suggested (e.g., Dr. Tu Chang-Wang, 44a). It must be recognised that the formation of even one international university would be a very formidable task, and would require the sinking of large capital sums. Conditions might have been propitious for this if the United Nations had decided to internationalise any territory (such as Hong Kong or Hawaii) in connection with international civil aviation. But since this decision has not been taken the establishment of an International University would be, in the opinion of the Secretariat, too large and doubtful an undertaking at the

* Recommended also by CAME (5.2.46).

present stage*. A much better project on which UNESCO funds might be spent (if sufficient were available) would be the foundation of Chairs in a number of existing Universities tenable annually or bienn.ially by scholars of successively different nationalities, and variable in subject like those of the Collège de France. Two Universities at least have this system, notably the Université d'Alger and Stanford University in California.

## THE NATIONAL ACADEMIES

Close cooperation must be offered by UNESCO at all times to illustrious and ancient bodies such as the Royal Society, the French Academy of Sciences, the U.S. National Academy of Sciences, the Academia Sinica, the Academy of Sciences of Moscow, etc., etc.

The Mexican Delegation to UNESCO'S Nat. Sci. Comm. has suggested that UNESCO might encourage science by offering a number of prizes or laureateships on the model of the Nobel Foundation. This operation, if deemed to be suitable for UNESCO, might be carried out in association with, or by the intermediation of, the various National Academies, and might be oriented towards scientific contributions of the greatest social significance.

(VII)

*Assist in maintaining contact between government organisations concerned with science, pure and applied, when necessary, and advise governmental and diplomatic personnel on scientific matters, when desired.*

## IMPORTANCE OF MULTILATERAL CONTACT

Government organisations concerned with science in the U.K. and U.S.A., for example, can no doubt communicate with each other quite satisfactorily without the good offices of any international organisation. But is this equally the case between the Forestry Service of Bulgaria, let us say, and the Economic Entomology Bureau of Northern Brazil or Kuangtung? The diplomatic representation of the smaller Powers abroad can never be expected to be elaborate enough to handle all such technical enquiries. There is thus an enormous scope for a multilateral organisation such as UNESCO *which would know no limitation of language or geography*.

This raises the whole question of activities carried on by individual national governments in the field of international scientific relations. Mention has been made above of the International Scientific Unions and their Council, which have never been more than semi-governmental. The Science Cooperation Offices, on the other hand, were,

* Agreement with this view is found in Prep. Com./Educ. Comm./SR1.

and are, fully governmental. But there are two other types of international scientific intercourse which have not yet been discussed. One is the further extension into the scientific field of the *bilateral cultural goodwill organisations*, such as the British Council, the Cultural Division of the State Department, etc. The other is the appointment of *Scientific Attachés* and *Counsellors* in the principal Embassies, a measure which the continuing interchange of confidential information on war science will almost certainly necessitate.

## RELATIONS WITH BILATERAL CULTURAL GOODWILL ORGANISATIONS

The question of the relation between UNESCO and bodies such as the British Council will have to receive further study before it is fully clarified. But this at least may be said. The frame of reference of the cultural goodwill organisations may be considered to be primarily the projection of the culture of their own country, the explanation of their own way of life, to that country which receives their representatives and accepts books, periodicals, or other presentations. This kind of intercourse cannot, of course, go on entirely without reciprocity, and it was for this reason that the British Scientific Office in Chungking paid nearly as much attention to the westbound as to the eastbound traffic, but such activities involve a certain stretching of the frame of reference. UNESCO, therefore, could take a certain load off the cultural goodwill organisations by looking after many of the requests for information, and many of the scientific and technical interchanges, which originate in the various countries.

## TRAVELLING SCHOLARSHIPS, FELLOWSHIPS AND PROFESSORSHIPS

On the other hand, it seems likely that problems connected with the exchange of professors, scholars, research fellows, and technical apprentices, will continue to be mainly the responsibility of bilateral cultural goodwill bodies, since the exact number in any category which a given country can receive, or wishes to send out, at any one time, is probably better arranged bilaterally. Moreover, the establishment of a new system of exchanges on a world scale would demand from UNESCO an enormous capital sum, which it is perhaps too much to hope that UNO could provide. Individual countries could, of course, request UNESCO to help in choosing incoming or outgoing Fellows or Students. UNESCO with its Regional Centres could offer considerable help in such matters as and when occasion arose. Individual organisations in bright-zone countries may offer to UNESCO a number of bursaries or studentships, as has already been done by the American Chemical Society. UNESCO should at any rate know what the bilateral arrangements are. Students

and professors in countries which have not yet developed cultural goodwill organisations will certainly expect some action from UNESCO on this subject (as witness the resolution passed by the World Student Congress at Prag, November, 1945). Thus Denmark early approached UNESCO with offers of accommodation for training of a certain number of foreign post-graduate students (11.12.46 Prep. Com. /7; Prep. Com. /Tech. Sub-Com. /10, 17, 24) and since then has received, for example, 250 Polish medical and science students with their professors. In cases such as this UNESCO'S proper function would seem to be to circulate the information to the relevant educational and scientific bodies in all countries, asking all those who are interested to place themselves in direct contact with the source of the offer. There is yet another thing which could be done along these lines (see 45). Many, if not most, of the Universities of the world have science studentships or fellowships which are open to others as well as to their own graduates. But owing to the lack of knowledge of what is available these awards are usually made to a local man. If a world register of such positions were to be compiled it would lead to a much greater going and coming of young scientists. The Secretariat knows of a case in which a young Chinese in Chungking was given the Ubating Scholarship in the University of Toronto, but his funds did not permit him to travel there. This is just the sort of case where UNESCO should arrange for the travelling expenses.

In the discussion at the Natural Science Committee it was also emphasised that UNESCO's aid, whether consultative, examinatory, informational or financial, should not be limited to persons who come strictly in the category of professors, research workers, advanced students, undergraduates, etc., etc. Special attention must also be given to all kinds of technicians, glassblowers, laboratory assistants, foremen, apprentices, cooperative workshop leaders, and others having many different types of skills.

Throughout the foregoing it has been assumed that UNESCO's budget will not permit of the establishment of a large number of new travelling fellowships, studentships, etc., and that these will continue to be the care of national organisations acting bilaterally. There is, however, one field in which UNESCO probably ought to offer travelling fellowships and studentships; namely, from the "bright zone" *outwards*. The overwhelming majority of existing travelling fellowships are intended to bring young scientists into the "bright zone" for a period of years in research before they go back to the more isolated regions. Countries such as China which are extremely anxious to increase the numbers of their trained men, naturally swell the flow as much as they can. But apart from occasional special expeditions,

financed by museums in the "bright zone", there are few or no opportunities for young scientists trained in the great centres to work in the outer regions, among which are included most of the tropics and the southern hemisphere, with all their natural riches. Thus it has long been quite usual for young Australians to come to the U.K., but, as the Secretariat knows from personal experience, the request for young British astronomers to go for a period of work to Mount Stromlo, the excellently-situated observatory near Canberra, has never brought any response, because there are no funds available. Just the same applies to any one who would wish to go to study the fauna of Szechuan or the tribes of Central Asia. UNESCO might well, therefore, set aside a substantial sum, not to bring scientists *to* the great scientific centres of the world, but to give them a chance of getting *away* from them, as Darwin did when he sailed on the "Beagle".

## RELATIONS WITH SCIENTIFIC MEMBERS OF NATIONAL DIPLOMATIC SERVICES

There is little doubt that the incorporation of scientifically-trained men into the foreign service of the various countries as scientific attachés, whether on temporary or permanent assignment, is a tendency which will continue. Prof. A. V. Hill and Brigadier Lindemann were perhaps the first such appointments, in the British Embassy in Washington; then came the appointment of Professor Eric Ashby as Counsellor in the Australian Legation in Moscow, and of one of the present Secretariat with the same rank in the British Embassy in Chungking. The smaller countries, owing to the lack of scientific personnel, will probably not be able to set up many such posts for a long time to come. But there seems no reason why there should not be an overlap between such posts and the UNESCO Regional Offices. There seems no reason why a scientist should not occupy concurrently, for instance, the position of Venezuelan scientific *attaché* at Washington, and of an associate staff member of the UNESCO Regional Office for North America. He could not, of course, be a member of the regular secretariat itself (i.e., an international civil servant), but the Regional Offices of UNESCO should surely aim at a nucleus of permanent or semi-permanent secretariat members surrounded by a group of scientific men on similar or parallel work who might give part rather than the whole of their time to general international exchanges. Such men might well include some appointed by the cultural goodwill organisations (45*a*).

## RELATIONS WITH SCIENCE COOPERATION SERVICES OF NATIONS OR GROUPS OF NATIONS

Reference may be made here to certain bodies which may play a very important part in world science without being strictly speaking international. Thus it is likely that there will shortly be set up, after

the Royal Society Empire Scientific Conference this summer, a science cooperation service within the British Commonwealth with a central office in London, and permanent offices in other capitals, e.g., Delhi, Canberra, Ottawa, etc.

Similarly, the Technical Advisory Service of the Smaller War Plants Corporation, which played a most useful part in the United States during the late war, is believed to be now incorporated in the U.S. Department of Commerce (46). Again, in certain fields, such as that of Agriculture, there are important worldwide organisations not strictly international, such as the Imperial Bureaux of Agriculture (47). Liaison with all these organisations should present no difficulty. The headquarters and the regional offices of UNESCO would be in contact with their respective headquarters, and the regional offices of UNESCO would be in contact with whichever of their peripheral offices happened to be situated in the different regions.

## (VIII)

## *Cooperate with the work of the Economic and Social Council of UNO, and of the Trusteeship Council of UNO.*

### SCIENTIFIC KNOWLEDGE AND WORLD ECONOMIC DEVELOPMENT

This phase of the duty of the Division of Natural Sciences of UNESCO cannot be better put than in the words of Mr. Guy Gresford, of the Australian Scientific Liaison Office in London (48). One of the Economic and Social Council's most potent weapons, he says, "in securing expanding economy and social progress will be scientific and technological knowledge. In planning for the future it will need to refer, therefore, to scientific experts, not only to ascertain the present state of knowledge as it affects any particular project, but to attempt to forecast the progress likely to be made in the future before the plans can be actually carried into effect. For example, the Council may be considering the development of tropical areas in Latin America, and may think of recommending that the rubber production in this area should be greatly expanded, thereby increasing the proportions of the world's natural rubber industry. Judged by present conditions this might be perfectly sound from the economic point of view, but the scientist must be consulted to find out what the position is likely to be with synthetic rubber in ten years' time, when the new natural rubber plantations would be coming into full production. It would be unwise to develop the rubber-growing industry if there were a very good chance of the synthetic rubber industry producing a better rubber at cheaper cost. To decide this requires a nice balance of scientific knowledge, and the consultation of many experts, for it must be remembered that besides the advances which the chemist and engineer are making

in the field of synthetic rubber, the plant breeder and the agriculturist may all the time be improving and cheapening the natural product.

"As another example, the Council should hesitate to recommend the industrial development of a large area of, say, China, by the establishment of very large hydro-electric schemes, if during the time necessary to complete them, there were a good chance of the economic development of atomic energy in that area for industrial purposes. Here again it would be necessary to seek the scientists' advice."

Mr. Gresford goes on to say that UNO could not hope to keep a sufficient number of sufficiently qualified scientific and technical men constantly on hand to answer every conceivable question that may arise. But *ad hoc* committees may be formed from time to time, with facilities for travel and investigation before completing their reports. So long as no special Scientific Commission at the same level as the Economic and Social Council exists, the Science Division of UNESCO will be the proper, and indeed the only, channel through which such committees should be formed and report.

All this emphasises once more that UNESCO must be prepared to deal with the applied, as well as with the pure, sciences. Mr. N. A. McKenna, in a letter of November, 1944, has stated succinctly the four basic needs of the non-industrialised countries such as India and China, which the Economic and Social Council will be taking into consideration.

These are:—

(1) Increased production of food per man power per day.
(2) Improvement of road and rail communications.
(3) Improvement of health, particularly the attack on parasitic diseases and epidemics.
(4) Industrial development in general, but mainly in relation to the previous three requirements.

Mr. McKenna points out that the progress of research undertaken by some of the industrially backward countries sometimes tends to be too long-term. Thus the Indian agricultural research programme, though excellently planned, does not look like producing many concrete results under ten years. Yet an immediate application of existing knowledge is also needed.

Something, in fact, must be done to co-ordinate scientific knowledge and economic development. For example, much work was carried out during the war in the Middle East on soil stabilisation and road construction, which, by suitably planned research and trial, could be extended on a vast scale both in India and Australia. Economic development in one country could often with advantage be planned right from the start in a way integrated with economic development in another country; for example, the use of timber and timber products as a basis for chemical industry in Canada, and molasses and bagasse

as a basis for chemical industry in India, or bamboo waste and soya bean in China. The practical economic implications of scientific and technical development must be kept well to the fore, without in any way interfering with pure research.

UNESCO has a great advisory task before it in these fields. This is especially recognised in the proposals of the French Delegation to the Nat. Sci. Comm. of UNESCO, June, 1946.

(IX)

*Cooperate with the work of all other United Nations organisations and agencies, such as the United Nations Food and Agriculture Organisation, the United Nations Atomic Development Authority (when set up), the International Labour Office, the International Health Organisation, the United Nations Civil Aviation Commission, the International Resources Office (if formed), etc., etc., in scientific questions.*

This cooperation should grow up quite naturally of itself. It will especially be the case if the proposal already mentioned is adopted, namely, of housing the regional offices of UNESCO under the same roof with the regional offices of the other UNO organisations. This peripheral unity would offset the disadvantages of the plan to which UNO is now committed, of having UNO itself near New York, the ILO in Montreal, UNESCO in Paris, etc., etc.

## DEFINITION OF ACTIVITIES OF UNO AGENCIES

Arrangements for definition of zones and avoidance of overlap will have to be worked out with bodies such as FAO and UNADA. In the case of the United Nations Atomic Development Authority, in particular, it is stated in section 7 (*a*) of the Truman-Attlee-King communique of November, 1945 (by which policy is presumably still being guided) that UNADA should make provision for "extending between all nations the exchange of basic scientific information for peaceful ends." This seems to be the same function as that of UNESCO, but the intention was no doubt to refer only to the exchange of such information in nuclear physics as cannot, for security reasons, be released. The matter has been placed on the agenda of the first meeting of the Atomic Energy Authority.

Relations with ILO and WFTU may also be important. Thus the Board of Directors of the American Association for an International Office of Education called in November, 1945, for the "inclusion of basic human values in every plan for the development of applied science". See also UNESCO Prep. Comm./ Soc. Sci. Com./ 2.

Another valuable activity of UNESCO would be the correlation of international knowledge about natural resources. Notifications of the impending exhaustion of deposits of important substances such as phosphate or Greenland cryolite could be circulated, followed by the arrangement of conferences among those concerned.

## POSSIBLE UNO AGENCIES NOT YET SET UP

This aspect of international work has far-reaching implications. The Atlantic Charter pointed to inequalities in the distribution of raw materials and the access of the people to them as one of the causes of war. It is much to be hoped that an International Resources Office (IRO) will, as proposed in recent British Association publications, be set up as one of the functional organisations in UNO (49, 50, 51). This was first called for at the BA Conference on Science and World Order in September, 1941. "The conservation of material resources" it was said "with their full and coordinated, but not wasteful, use, are recognised needs. One necessary requirement to achieve these ends is the existence of a body capable of taking a comprehensive view of resources and their utilisation, and of indicating to the appropriate authorities the action most likely to turn them to best account. Such a body must necessarily have from the outset an international character, for without this there can be no check on un-coordinated national developments which, in the past, have led to economic crises and wars. In this sense it would have a parallel function to the International Labour Office."

The functions of an IRO were defined as follows:

(*a*) The collection and statistical analysis of data on natural resources (cf. the work of the World Power Conference hitherto).

(*b*) The dissemination of information on natural resources and techniques.

(*c*) The coordination of existing relevant organisations on an international basis.

(*d*) The promotion of new mining, industrial, and scientific research.

(*e*) The general supervision and coordination of standards, specifications and industrial codes.

(*f*) The general promotion of mining and industrial progress by means of congresses, exhibitions, prizes, etc.

To these functions the study of regional human geography should perhaps be added.

Subsequently the BA convened a Conference on Mineral Resources and the Atlantic Charter (50), the report of which contains a mass of information on the world position in exploitation of natural

resources. This Conference officially recommended "the establishment of an International Resources Organisation as a fact-finding and advisory body for Governments, as a contribution to world stability, and in the spirit of the Atlantic Charter" (July, 1942). Later still, a special Mineral Resources Committee of the BA considered the methods by which an IRO could obtain the necessary facts, and their report was published in August, 1943 (51).

UNESCO would necessarily maintain close contact with, and give every assistance to, such an IRO. In the absence of any other steps being taken to set up an IRO it would be a matter for serious consideration whether the initiative could not be taken by UNESCO itself.

Allied to an IRO and also needing UNESCO cooperation would presumably be the International Development Authority (52) called for at the Bretton Woods Conference.

(X)

*Assist and correlate the work of the smaller or more specialised international scientific bodies already existing, both inter- and non-governmental, such as the International Bureau of Weights and Measures, the International Time Bureau, the International Standards Coordinating Association, the International Commission on Zoological Nomenclature, the Anti-Locust Research Centre, the International Council for the Exploration of the Sea, etc., etc.*

## IMPORTANCE OF SMALLER INTERNATIONAL ORGANISATIONS ALREADY FUNCTIONING

As some may be unfamiliar, a word or two of explanation may be necessary. The International Bureau of Weights and Measures deals with the construction of metric standards of high accuracy, and was established as far back as 1875 (see 53). It is located in the Pavillon de Breteuil in the Forest of St. Cloud just outside Paris, and it has an excellent and highly specialised physical laboratory. It was never associated either with the League, or with any of the Scientific Unions, and its affairs are regulated by a special diplomatic convention which necessitates regular meetings of its Council. It also acts as something similar to a National Physical Laboratory for those countries which do not have one of their own. The United Nations Standards Coordinating Committee federates the organisation in each country corresponding to the British Standards Institution, which set forth the engineering, chemical and electrical standards to which manufacturers' products must conform. It will probably shortly return to its former name of International Standards Coordinating Association (54). The

International Commission on Zoological Nomenclature performs important work in standardising animal names (55). Together with the International Committee for Bird Preservation (56) and other bodies, it ought no doubt to be associated with the International Union of Biological Sciences. The Anti-Locust Research Centre (57) investigates the origin of locust plagues and conducts campaigns against them; it includes delegated experts from the U.K., U.S.A., U.S.S.R., France, India, Iran and Egypt. International Councils for the Exploration of the Sea have been formed, between interested countries, such as the U.K., Denmark, Sweden and Norway, for the investigation of the North Sea fisheries; or the U.S.A. and Canada for their own waters. The International Institute of Agriculture at Rome, which deals mainly with agricultural statistics, will probably be absorbed by FAO. The International Time Bureau (58), founded and maintained jointly by the International Unions of Astronomy and of Geophysics, receives time signals from twenty or more observatories scattered over the world, and correcting by them a battery of quartz and other clocks, issues regular emissions of world standard time.

In many, if not all, of these cases, scientific work of paramount importance has been struggling along for years on totally inadequate funds. Now is the time, under United Nations auspices, to place them without exception on a sound financial basis.

Moreover, it should be recognised that UNESCO could not only furnish aid to already existing international scientific institutions, but could stimulate the formation of such scientific institutions whose existence is seen to be necessary but which have so far not come into being. An obvious example is an International Commission on Botanical Nomenclature. It would be hard to find any botanist throughout the world who would not warmly endorse the creation of such a body, but it has just happened that hitherto no funds have been available and no self-sacrificing scientist has come forward prepared to undertake the thankless task of beginning such a work with inadequate backing. The first step would no doubt be to strengthen the existing Botanical Nomenclature Commission of IUBS.

Another valuable enterprise would be the collection and publication in readily available form of a set of emergency Food Manuals for all world regions.

(XI)

*Cooperate with the United Nations Information Service and the Division of Press and Publicity in UNESCO in informing the public in all countries concerning the bearing of scientific discoveries on international relations; and urge the improvement and extension of the teaching of science in all schools throughout the world.*

## PUBLIC INFORMATION AND SCIENCE TEACHING

This task explains itself. UNESCO should obviously do all it can to provide the peoples of the world with publications giving factual information about matters of wide import such as atomic energy, new advances in air transportation and telecommunications, biological engineering, etc., always with relevance to their social implications; and should encourage other agencies to do so. UNESCO should also press (as suggested by the Greek Delegation to UNESCO'S Nat. Sci. Comm., June, 1946) for the improvement and extension of science teaching to enable all boys and girls to understand the fundamentals of our technological civilisation. Literary culture without any scientific knowledge should be considered ignorance. The *liquidation of scientific illiteracy* is, in fact, necessary for the safety of the world.*

An excellent proposal has been made that UNESCO should sponsor a textbook or a series of textbooks for secondary schools, giving a picture of the world in one connected story. It would begin with cosmic development, earth history, the physical particles as the lowest organisational levels, etc., and go on through the whole of organic evolution to man, finally taking up pre-history and the earliest civilisations.

Cognate perhaps to the other questions under this head is the suggestion of assistance by UNESCO to organs of popular diffusion of scientific knowledge in the scientifically backward countries. Thus the excellent journal, *Science and Culture* (Calcutta), has never been able to appear in vernacular versions owing to lack of funds, and the *Ko Hsueh Shih Chieh* of the Science Society of China urgently needs support. Grants from UNESCO could here be of great help.

## A SCIENCE NEWS SERVICE

Allied to such conceptions is that of Dr. Arnold Raestad's International Centre of Scientific Information (59), and Prof. A. F. C. Pollard's International Information Council (60), and the newly-proposed British Institute of Scientific Information under the British Association (61). Such a centre would be continually receiving and digesting reports of scientific progress throughout the world, and producing data suitable for elaboration by the journalist, the radio speaker, the film producer, and the organiser of exhibitions. It would be a projection on a world scale of agencies such as the successful American Science News Service. Something of the kind might well grow up under UNESCO.

## SCIENCE MUSEUMS

Consideration should also be given to means of assisting the great

* Cf. the Brazilian proposal to the Education Committee of UNESCO (Prep. Com./Educ. Com./4); and Dr. Maxwell Garnett's remarks on the "Science for All" plan (64).

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## LIST OF ABBREVIATIONS

| | |
|---|---|
| AScW | Association of Scientific Workers |
| ASLIB | Association of Special Libraries and Bureaux |
| BA | British Academy |
| CAME | Conference of Allied Ministers of Education |
| CSIR | Council of Scientific and Industrial Research (Australia) |
| DSIR | Department of Scientific and Industrial Research (U.K.) |
| FAO | Food and Agricultural Organisation |
| IAU | International Astronomical Union |
| ICES | International Council for the Exploration of the Sea |
| ICSU | International Council of Scientific Unions |
| IHO | International Health Organisation |
| IIIC | International Institute of Intellectual Cooperation |
| ILO | International Labour Office |
| IRC | International Research Council |
| IRO | International Resources Office |
| ISCA | International Standards Coordinating Association |
| ISCS | International Science Cooperation Service |
| ISU | International Scientific Unions |
| ISSS | International Society of Soil Science |
| ISU | International Scientific Unions |
| IUBS | International Union of the Biological Sciences |
| IUC | International Union of Chemistry |
| MRC | Medical Research Council (U.K.) |
| PCBS | Permanent Commission on Biological Standardisation |
| RS | Royal Society |
| SCO | Science Cooperation Office |
| SCS | Science Cooperation Stations |
| SVS | Society of Visiting Scientists |
| UNADA | United Nations Atomic Development Authority. |
| UNESCO | United Nations Educational, Scientific and Cultural Organisation |
| UNFAO | United Nations Food and Agriculture Organisation |
| UNHO | United Nations Health Organisation |
| UNIS | United Nations Information Service |
| UNRRA | United Nations Relief and Rehabilitation Administration |
| UNSCC | United Nations Standards Coordinating Committee |
| WFTU | World Federation of Trade Unions. |

UNESCO/C/Admin.& Jur./S.C.Leg.& Ext.Rel/3
PARIS, le 1er décembre 1946

ORGANISATION DES NATIONS UNIES

POUR L'EDUCATION, LA SCIENCE ET LA CULTURE

CONFERENCE GENERALE

PREMIERE SESSION

COMMISSION ADMINISTRATIVE ET JURIDIQUE

SOUS-COMMISSION JURIDIQUE ET DES RELATIONS EXTERIEURES

I. ACCORD ENTRE L'ORGANISATION DES NATIONS UNIES POUR L'EDUCATION, LA SCIENCE ET LA CULTURE, ET LE CONSEIL INTERNATIONAL DES UNIONS SCIENTIFIQUES.

II. DIRECTIVES PROVISOIRES POUR L'ETABLISSEMENT DE RELATIONS ENTRE L'ORGANISATION DES NATIONS UNIES POUR L'EDUCATION, LA SCIENCE ET LA CULTURE ET DES ORGANISATIONS INTERNATIONALES NON GOUVERNEMENTALES.

# ACCORD ENTRE L'ORGANISATION DES NATIONS UNIES POUR L'EDUCATION, LA SCIENCE ET LA CULTURE ET LE CONSEIL INTERNATIONAL DES UNIONS SCIENTIFIQUES

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## ARTICLE I

### Reconnaissance mutuelle

a) L'Organisation des Nations Unies pour l'Education, la Science et la Culture reconnaît que les Unions scientifiques internationales constituent une forme naturelle et appropriée pour l'Organisation internationale de la Science, et que le Conseil international des Unions scientifiques est l'organisme compétent pour les représenter et coordonner leurs activités.

b) Le Conseil international des Unions scientifiques reconnaît l'Organisation des Nations Unies pour l'Education, la Science et la Culture comme l'organisation principale des Nations Unies dans le domaine des relations scientifiques internationales et déclare accepter les principes inspirant la convention créant l'Organisation des Nations Unies pour l'Education, la Science et la Culture.

## ARTICLE II

### Liberté de l'information scientifique

Le Conseil international des Unions scientifiques et l'Organisation des Nations Unies pour l'Education, la Science et la Culture favoriseront par tous les moyens possibles la plus grande liberté dans l'échange de renseignements scientifiques d'un pays à l'autre, conformément aux accords internationaux et à la législation intérieure de chaque Etat Membre, en vigueur dans ce domaine.

## ARTICLE III

### Consultation mutuelle

L'Organisation des Nations Unies pour l'Education, la Science et la Culture et le Conseil international des Unions scientifiques se consulteront de façon régulière sur toutes questions relevant de leurs intérêts communs.

A cet effet, une ou plusieurs personnes pourront être nommées par le Conseil international des Unions scientifiques, pour assurer la liaison avec l'Organisation des Nations Unies pour l'Education, la Science et la Culture et représenter le Conseil et les Unions au siège de l'Organisation.

De même, un représentant de l'Organisation des Nations Unies pour l'Education, la Science et la Culture pourra assurer la liaison au siège du Conseil international des Unions scientifiques.

## ARTICLE IV
## Représentation réciproque

a) Un représentant de l'Organisation des Nations Unies pour l'Education, la Science et la Culture sera invité à assister en tant qu'observateur, à toutes les sessions plénières du Conseil international des Unions scientifiques et aux séances de son Comité exécutif.

b) L'Organisation des Nations Unies pour l'Education, la Science et la Culture invitera le Conseil international des Unions scientifiques à être représentée par un observateur à sa Conférence générale.

c) L'Organisation des Nations Unies pour l'Education, la Science et la Culture peut, en outre, inviter le Conseil international des Unions scientifiques ou les Unions qui le constituent à être représentés, de façon adéquate, dans les Comités consultatifs établis par sa Conférence générale et s'occupant de questions relevant de la compétence du Conseil et des Unions.

## ARTICLE V
## Echange d'information

Sous réserve des mesures qui peuvent s'avérer nécessaires à la sauvegarde des documents confidentiels, l'Organisation des Nations Unies pour l'Education, la Science et la Culture et le Conseil international des Unions scientifiques échangeront tous les renseignements ou tous les documents portant sur les questions qui les intéressent l'un et l'autre.

## ARTICLE VI
## Facilités de déplacements

L'Organisation des Nations Unies pour l'Education, la Science et la Culture s'efforcera, soit directement, soit par l'intermédiaire des Etats Membres, de faciliter le passage des frontières au personnel

scientifique se rendant aux conférences ou aux réunions organisées sous les auspices des Unions ou de commissions mixtes nommées par les Unions.

## ARTICLE VII

### Invitation à entreprendre des tâches déterminées.

Lorsque cela apparaîtra désirable, l'Organisation des Nations Unies pour l'Education, la Science et la Culture pourra inviter le Conseil international des Unions scientifiques ou telle des Unions qui le composent, à entreprendre en son nom des tâches déterminées. S'il est nécessaire, une aide financière pourra être fournie.

## ARTICLE VIII

### Aide financière

En accord avec ses principes généraux et dans les limites du budget approuvé par sa Conférence Générale, le Conseil exécutif de l'Organisation des Nations Unies pour l'Education, la Science et la Culture examinera, à la demande du Conseil international des Unions scientifiques, la possibilité d'accorder l'aide financière nécessaire pour permettre à celui-ci de mener à bien son programme.

Pareille aide financière peut être envisagée dans les principaux cas suivants :

a) Contribution au financement de projets internationaux envisagés ou en cours d'exécution, à condition que la portée et le caractère international de ces projets justifient une telle aide.

En pareil cas la responsabilité scientifique et technique de ces projets resterait aux mains des Unions, mais l'Organisation des Nations Unies pour l'Education, la Science et la Culture serait représentée au sein du Comité ou de la Commission mixte responsable.

b) Aide au Conseil international des Unions scientifiques et aux Unions qui le composent en matière de bureaux, secrétariat, organisation de réunions, documentation, etc..

## ARTICLE IX

### Durée du présent accord

a) Sous réserve des stipulations du paragraphe c) ci-dessous, le présent Accord est conclu pour une période illimitée, mais chaque

signataire se réserve le droit de le dénoncer, en donnant un préavis de douze mois, à dater du premier janvier de chaque année. Dans le cas d'une telle dénonciation, les deux organisationse se mettront d'accord sur les conditions fixant la façon dont devra se terminer ou se poursuivre tout projet commun.

b) Le présent Accord entrera en vigueur, une fois qu'il aura été approuvé par l'organe compétent de chaque organisation, dès qu'il aura été signé par le Secrétaire Général du Conseil international des Unions scientifiques et par le Directeur Général de l'Organisation des Nations Unies pour l'Education, la Science et la Culture.

c) A la fin de chaque année et, pour la première fois en décembre 1947, cet Accord sera réexaminé à la lumière de l'expérience acquise. Les modifications qui auront été décidées d'un commun accord entreront immédiatement en vigueur, sous réserve de leur approbation ultérieure par l'organe compétent de chaque Organisation.

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Leg. & Ext.Rel/3
F.

# DIRECTIVES PROVISOIRES POUR L'ETABLISSEMENT DE RELATIONS ENTRE L'ORGANISATION DES NATIONS UNIES POUR L'EDUCATION, LA SCIENCE ET LA CULTURE ET DES ORGANISATIONS INTERNATIONALES NON GOUVERNEMENTALES.

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I. Toute organisation internationale qui n'a pas été créée par un accord intergouvernemental sera considérée comme une organisation internationale non-gouvernementale. Ainsi, ces directives s'appliquent aux organisations "semi-gouvernementales" qui, bien qu'elles comptent parmi leurs membres, des gouvernements, n'ont pas été créées par un accord intergouvernemental.

II. Dans sa coopération avec ces organisations, l'Organisation des Nations Unies pour l'Education, la Science et la Culture reconnaîtra et respectera pleinement leur indépendance et leur autonomie dans le domaine de leur compétence.

III. Organisations auxquelles s'appliquent ces directives.

Pour être admise à coopérer avec l'Organisation des Nations Unies pour l'Education, la Science et la Culture, une organisation doit :

a) être de structure vraiment internationale et jouir d'une réputation bien établie,

b) s'intéresser en premier lieu aux questions qui relèvent de la compétence de l'Organisation des Nations Unies pour l'Education, la Science et la Culture,

c) avoir des buts et des objectifs conformes aux principes généraux définis dans la Convention créant l'Organisation des Nations Unies pour l'Education, la Science et la Culture,

d) posséder un organe de direction ayant un cataère permanent et des représentants autorisés.

IV. Nature de la coopération.

Suivant le caractère de l'Organisation et selon l'intérêt qu'elle porte à l'Organisation des Nations Unies pour l'Education, la Science et la Culture, la coopération pourra être envisagée principalement sous les formes suivantes :

a) Représentation réciproque par des observateurs aux réunions des organes de direction des deux organisations.

b) Echanges de vues et conseils mutuels.

c) Participation aux travaux de comités consultatifs ou de commissions créées par l'Organisation des Nations Unies pour l'Education, la Science et la Culture.

d) Invitation à entreprendre des tâches déterminées au nom de l'Organisation des Nations Unies pour l'Education, la Science et la Culture.

e) Aide financière de l'Organisation des Nations Unies pour l'Education, la Science et la Culture pour la réalisation, par une organisation, de tâches déterminées susceptibles de contribuer au but et au programme de l'Organisation des Nations Unies pour l'Education, la Science et la Culture.

f) Octroi de facilités en matière de bureaux, secrétariat, organisation de réunions, documentation, etc.

g) Echange d'information et de matériel.

V. Nature des arrangements.

En accord avec les dispositions de l'Article XI de la Convention, les relations entre l'Organisation des Nations Unies pour l'Education, la Science et la Culture et une Organisation peuvent être établies :

a) par des accords formels,

b) par des arrangements de travail.

Des accords formels devront être conclus chaque fois que la coopération envisagée impliquera l'octroi d'une aide financière ou de facilités en matière de locaux et de secrétariat. Ces accords seront soumis, pour approbation, au Conseil exécutif. Avant leur conclusion, le Conseil Economique et Social sera informé de leur nature et de leur portée.

Les arrangements de travail seront établis par le Directeur Général.

Le Directeur Général présentera, à chaque session de la Conférence générale, un rapport sur les accords formels et sur les arrangements de travail qui sont en vigueur ou qui sont envisagés.

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UNESCO/ Misc/87/rev/1947
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PARIS, le 10 janvier 1947

Résumé du Procés-verbal de la Réunion du Conseil
de l'Académie Internationale d'Histoire des Sciences
tenue le mercredi 18 décembre 1946 à la Maison de l'Unesco

Etaient présents à la réunion:

Président : Professeur A. REYMOND

Vice-Président : Professeur P. SERGESCU.

Autres membres présents :

Madame Waley SINGER (représentant le Professeur Charles SINGER)

Prof. A. VETTER

Dr. A. VOLLGRAAF

Comme Observateurs :

Dr. J. NEEDHAM
Prof. A. CHAGAS
Prof. L. ROSENFELD
Dr. A. CORTESAO
Dr. A. ESTABLIER
Dr. I. ZHUKOVA

La séance est ouverte à 10 heures 30.

Prof. SERGESCU : Ceci est notre première réunion officielle depuis 7 ans. Je vous demanderai, au nom du Professeur Reymond, de commencer par rendre hommage à ceux de nos membres qui sont morts pendant la guerre. (Tout le monde se lève et garde une minute de silence).

Nous désirons travailler ensemble pour que notre Académie marche de mieux en mieux et qu'elle puisse rendre les services qu'on attend d'elle.

Dr. NEEDHAM : Nous désirons d'abord vous accueillir de façon très chaleureuse à la Maison de l'Unesco. Nous avons déjà tenu plusieurs réunions de diverses organisations internationales scientifiques à l'Unesco, et nous sommes très honorés par la présence, aujourd'hui, de la première réunion de l'Académie Internationale d'Histoire des Sciences qui ait eu lieu depuis la guerre. Je viens vous dire aussi que vous trouverez les plans de travail et le programme de l'Unesco dans le petit livre qui se trouve sur la table, et si vous avez encore besoin d'autres documents pour vous tenir au courant des travaux de l'Unesco, nous pouvons facilement vous les donner. Nous avons ici, parmi nous ce matin, M. Establier, le représentant à l'Unesco du Conseil International des Unions Scientifiques, et j'ai grand plaisir à vous dire que le 16 de ce mois, c'est-à-dire il y a deux jours, l'accord formel entre l'Unesco et le Conseil International des Unions Scientifiques a été signé. L'association prévue par l'Académie et l'Union de l'Histoire des Sciences avec le Conseil International des Unions Scientifiques pourra alors avoir une fondation solide.

En ce qui concerne les subventions, l'Unesco désire aider l'oeuvre des organisations internationales ou gouvernementales scientifiques par des subventions et par une aide aussi bien matérielle que morale. Ces subventions devraient couvrir surtout les frais de voyage et de déplacements des délégués qui viennent aux réunions. Nous voudrions donc aussitôt que possible, au mois de janvier ou de février, savoir quelles sont les dépenses prévues pour lesquelles on voudrait avoir des subventions de l'Unesco. Mais je dois ajouter que la Conférence générale qui vient de se terminer a voté un budget réduit : non pas 7 millions et demi de dollars or prévus, mais seulement 5 millions et demi. Il est donc probable que nous ne pourrons pas être, au cours de l'année 1947, aussi généreux envers des organisations internationales non gouvernementales que nous aurions voulu l'être.

Je viens aussi vous dire que si vous désirez tenir vos discussions seuls, c'est-à-dire sans les représentants du Conseil international des Unions Scientifiques, et les deux représentants de l'Unesco, le Dr. Cortesao et moi-même, il serait tout à fait simple que vous continuiez la discussion entre vous seuls. C'est seulement si vous désirez notre présence que nous serons ici. En tous les cas, je ne crois pas nécessaire pour moi d'assister à la réunion tout le temps, et avec votre permission, je vais aller à mon bureau après ces quelques paroles d'accueil à la Maison de l'Unesco. Vous pouvez dire maintenant si vous désirez que ceux qui n'appartiennent pas au Comité Exécutif de l'A.I.S.C. assistent à la réunion ou si vous préférez rester seuls.

Misc/87
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Prof. SERGESCU: Nous vous remercions de l'accueil reçu ici et nous serons très contents et très honorés de travailler avec vous pour mettre sur pied une oeuvre internationale, et vos connaissances dans ce domaine nous seront très utiles. Nous vous prions de rester avec nous et de nous aider.

M. Brunet est venu plusieurs fois ici pour prendre contact avec l'Unesco et pour voir comment on pourrait adapter les anciens statuts à la nouvelle organisation. Nous avons travaillé à cette tâche tout le samedi après-midi, et lundi j'ai eu le grand plaisir de travailler avec le Dr. Cortesao et le Dr. Establier pour examiner ce statut du point de vue technique, et M. Cortesao a bien voulu faire taper ce projet de statut que nous allons discuter aujourd'hui. Je regrette beaucoup que M. Brunet, étant malade, n'ait pu venir aujourd'hui. C'est lui qui a engagé tous les pourparlers, et nous allons recueillir les fruits de son travail. Nous avons encore à remercier Madame Singer, M. Vetter, et M. Vollgraaf qui sont venus ici prendre part à nos délibérations. Nous leur sommes très reconnaissants. Nous regrettons l'absence de notre secrétaire perpétuel, Aldo Mieli, qui est malade à Buenos-Aires. Nous lui envoyons nos voeux de santé les meilleurs.

Suit une discussion générale sur le projet de statut, dans laquelle M.M. Establier, Rosenfeld et Chagas ont pris part très activement. Ils ont été chaleureusement remerciés par les membres du Conseil. Il est finalement décidé que le projet de statut de l'Académie Internationale d'Histoire des Sciences sera séparé du projet de statut de l'Union Internationale d'Histoire des Sciences.

## Projet de Statut de l'Académie Internationale d'Histoire des Sciences

L'article 1 est approuvé

L'article 2 est approuvé.

L'article 3 est approuvé.

L'article 4 est approuvé.

L'article 5 est approuvé avec addition de l'alinéa suivant: "Dans le cas où le Secrétaire Perpétuel n'a pas sa résidence à Paris, il sera suppléé au Siège de l'Académie par un Secrétaire-Adjoint."

L'article 6 est amendé de la façon suivante :

"L'Académie Internationale d'Histoire des Sciences se réunit en sessions ordinaires tous les trois ans dans le lieu désigné au cours de la session précédente, d'entente avec l'Union Internationale d'Histoire des Sciences, sauf dans les cas de force majeure. A chaque session ordinaire, l'Académie procède, selon l'ordre indiqué, aux délibérations suivantes : élection du Président de l'Académie, élection de trois vice-présidents, élection de l'administrateur-trésorier. Les élections sont faites à la majorité des membres effectifs présents. Les nouveaux élus entrent en charge à la fin de la session.

Dans sa session triennale l'Académie s'occupe aussi de toutes les questions relatives à l'administration de l'Académie, à son budget, aux directives scientifiques et pratiques à suivre. Les années où n'ont pas lieu les sessions ordinaires triennales, l'Académie se réunit une fois à son siège à Paris ou dans les villes où ont lieu éventuellement des congrès internationaux des Sciences Historiques.

Dans des cas exceptionnels .... (la suite de l'article n'est pas modifiée).

L'article 7 est adopté.

L'article 8 est amendé de la façon suivante :

"Pour élargir sa sphère d'influence et afin de contribuer plus directement à l'activité des grands organismes internationaux, spécialement l'UNESCO et l'ICSU, il est créé, à partir du 1er janvier 1947, une Union Internationale d'Histoire des Sciences. Les buts de cette Union sont les suivants :

a) établir des rapprochements entre les historiens des Sciences et entre les institutions, les sociétés, rédactions des revues, etc ..... consacrées à cette discipline.

b) rassembler tous les documents qu'on croira nécessaires au développement de l'Histoire des Sciences.

c) prendre toutes les mesures qu'on croira nécessaires ou utiles pour le développement et pour l'organisation des études de l'Histoire des Sciences, notamment les congrès internationaux d'Histoire des Sciences (qui ont lieu à l'occasion des sessions triennales de l'Académie d'Histoire des Sciences).

d) organiser du point de vue matériel les réunions périodiques internationales et congrès d'Histoire des Sciences.

e) attribuer les fonds nécessaires au bon fonctionnement de l'Académie Internationale de l'Histoire des Sciences, laquelle fixe les traitements du secrétaire perpétuel, de l'administrateur-trésorier et du secrétaire-adjoint (qui remplit aussi les fonctions d'archiviste-bibliothécaire).

f) approuver le budget.

L'article 9 est amendé de la façon suivante :

"L'Union Internationale d'Histoire des Sciences comprend deux catégories de membres : a) les membres à titre personnel, c'est-à-dire tous les membres tant effectifs que correspondants de l'Académie Internationale d'Histoire des Sciences, b) les membres représentants, élus par les groupes nationaux d'Histoire des Sciences, à raison de deux par pays, pour une période de trois ans et qui sont rééligibles. Un membre à titre personnel peut être élu membre représentant".

L'article 10 est amendé de la façon suivante :

"L'Union Internationale d'Histoire des Sciences est dirigée par un Conseil composé d'un président, de deux vice-présidents, deux assesseurs, un secrétaire exécutif (chargé de rapports avec les grands organismes internationaux), élus par l'Assemblée générale de l'Union pour trois ans et éventuellement rééligibles. De plus, le secrétaire perpétuel et l'administrateur-trésorier de l'Académie Internationale d'Histoire des Sciences font partie de droit de ce conseil, avec les attributions de secrétaire général et d'administrateur-trésorier.

L'Union Internationale d'Histoire des Sciences se réunit en assemblée générale tous les trois ans au moins.

A l'Assemblée générale de l'Union ont droit à un vote :

1) chaque membre effectif de l'Académie ; 2) chaque groupe national; 3) chaque Section d'une discipline particulière.

Il est rédigé un nouvel article 11 libellé comme suit :

"L'Assemblée générale de l'Union Internationale d'Histoire des Sciences a les attributions suivantes :

1) élit les membres du Conseil de l'Union, ainsi que deux délégués pour la représenter au Comité exécutif du Conseil International des Unions scientifiques ; 2) édicte et amende les statuts et règlements concernant la conduite des affaires qui lui sont propres ; 3) approuve le budget de l'Union ; 4) fixe le lieu de réunion de la prochaine session".

L'article 12 est amendé de la façon suivante :

"On encouragera l'organisation dans chaque pays d'un groupe National d'Histoire des Sciences .... etc". La suite de l'article n'est pas modifiée.

## Projet de Statut de l'Union Internationale d'Histoire des Sciences

Article 1 - L'Union Internationale d'Histoire des Sciences a comme but de contribuer directement à l'activité de l'Unesco et de l'ICSU dans le domaine de l'Histoire des Sciences.

Article 2 - L'Union reconnaît l'Académie Internationale d'Histoire des Sciences comme organe d'orientation de son activité scientifique.

Article 3 - Pour réaliser son but, elle s'efforcera de :

a) établir des rapprochements entre les histoires des Sciences, et entre les institutions, les Sociétés, les rédactions des revues, etc... consacrés à cette discipline ; b) rassembler tous les documents qu'on croira nécessaires au développement de l'Histoire des Sciences ; c) prendre toutes les mesures qu'on croira nécessaires ou utiles pour le développement et pour l'organisation des études de l'Histoire des Sciences, notamment les Congrès internationaux d'Histoire des Sciences (qui ont lieu à l'occasion des sessions triennales de l'Académie de l'Histoire des Sciences ; d) organiser du point de vue matériel des réunions périodiques internationales, congrès d'Histoire des sciences ; e) attribuer les fonds nécessaires au bon fonctionnement de l'Académie Internationale d'Histoire des Sciences, laquelle fixe les traitements du Secrétaire Perpétuel, de l'Administrateur-Trésorier et du Secrétaire-adjoint (qui remplit aussi les fonctions d'Archiviste-bibliothécaire).

Article 4 - L'Union Internationale d'Histoire des Sciences comprend deux catégories de membres ; a) les membres à titre personnel, c'est-à-dire tous les membres, tant effectifs que correspondants de l'Académie Internationale d'Histoire des Sciences ; b) les membres représentants élus par les Groupes nationaux d'Histoire des Sciences à raison de deux par pays, pour une période de trois ans, et qui sont rééligibles. Un membre à titre personnel peut être élu membre représentant.

Article 5 - L'Union Internationale d'Histoire des Sciences est dirigée par un Conseil composé d'un Président, deux assesseurs, un Secrétaire exécutif (chargé des rapports avec les grands organismes internationaux), élus par l'Assemblée générale de l'Union pour trois ans, et éventuellement rééligibles ; de plus le Secrétaire perpétuel et l'Administrateur-Trésorier de l'Académie Internationale d'Histoire des Sciences font partie de droit de ce Conseil avec les attributions de Secrétaire Général et d'Administrateur-Trésorier.

L'Union Internationale d'Histoire des Sciences se réunit en Assemblée générale tous les trois ans au moins.

Ont droit à un vote : 1) chaque membre effectif de l'Académie; 2) chaque groupe national; 3) chaque section spéciale d'une discipline quelconque.

Article 6 - L'Assemblée générale de l'Union Internationale d'Histoire des Sciences a les attributions suivantes: 1) elle élit les membres du Conseil de l'Union, ainsi que deux délégués pour la représenter au Comité Exécutif du Conseil International des Unions scientifiques; 2) elle édicte et amende ses statuts et réglements concernant la conduite des affaires qui lui sont propres; 3) elle approuve le budget de l'Union; 4) elle fixe les lieux de réunion de la prochaine session.

Article 7 - L'Union peut accepter ou créer des Sections internationales d'une discipline quelconque. Ces sections s'organisent d'une manière autonome du point de vue de leur discipline. Chacune de ces Sections a droit à un membre dans le Conseil de l'Union.

Article 8 - On encouragera l'organisation dans chaque pays de groupes nationaux d'Histoire des Sciences, afin de faire entrer les savants de ce pays en rapport avec l'Union Internationale d'Histoire des Sciences. Les buts des groupes sont, dans chaque pays, ceux indiqués à l'article 3 pour l'Union (points a,b,c,d). L'organisation de ces groupes sera semblable dans ses lignes générales, dans tous les pays, et sera déterminée par le réglement spécial.

Article 9 - Chaque groupe national doit verser à l'Union Internationale d'Histoire des Sciences une cotisation annuelle. Tant que la situation financière internationale n'est pas rétablie, l'Assemblée Générale fixera la cotisation de chaque groupe d'après les disponibilités de son pays.

Suit une discussion générale :

Mme SINGER -On m'a priée de vous dire qu'en Angleterre

....

un Comité chargé de la formulation d'une constitution pour la Société anglaise de l'Histoire des Sciences se forme à présent, et attend le plaisir de travailler en collaboration avec l'Académie Internationale de l'Histoire des Sciences.

Dr. SERGESCU : Nous le remercions au nom de notre Union, très chaleureusement, et nous lui souhaitons beaucoup de chance et de succès dans le travail qu'il se propose.

Dr. CORTESAO : Voudriez-vous nous dire ce que vous pensez faire pour l'organisation d'autres groupes nationaux ?

J'ai compris que vous alliez d'abord faire circuler ces statuts aux membres effectifs pour qu'ils soient approuvés par lettre. S'ils le sont, est-ce qu'il faudra les présenter de nouveau à l'Assemblée ?

Dr. SERGESCU : Ce n'est pas la peine, s'ils sont approuvés.

Dr. CORTESAO : Pour que l'Union soit fondée, il faut que les groupes nationaux soient organisés. Que va-t-on faire dans ce sens ? C'est très important pour nous de le savoir. Que va-t-on faire pour le Portugal qui n'est pas représenté, par exemple ? Va-t-on communiquer avec le groupe portugais ?

Dr. SERGESCU : C'est mon idée. Là où les groupes existent, on leur communique les statuts, et on les prie de répondre s'ils sont d'accord ou non.

Dr. CORTESAO : Il serait important de savoir si un groupe d'historiens anglais des Sciences s'est déjà réuni et a commencé à s'organiser. Y a-t-il déjà un groupe en voie de formation ?

Mme SINGER : Le groupe anglais est à peine organisé. La Société Britannique pour l'Histoire des Sciences se forme, et le Comité chargé d'en formuler les statuts m'a chargée de transmettre à l'Académie Internationale d'Histoire des Sciences l'expression de ses meilleures salutations et l'espoir de travailler en coopération avec l'Académie. Ils ont demandé 20 exemplaires des statuts.

Dr. SERGESCU : Nous prions Mme Singer de remercier la nouvelle Société Britannique et de lui exprimer les meilleurs voeux de l'Académie Internationale.

Misc/87
F.

A.I.H.S./1/1947

PARIS, le 13 janvier 1947.

# PROJET DE STATUTS DE L'ACADEMIE INTERNATIONALE D'HISTOIRE DES SCIENCES ET DE L'UNION INTERNATIONALE D'HISTOIRE DES SCIENCES

Art. 1 - L'organisation internationale de la discipline d'Histoire des Sciences comprend deux institutions étroitement liées entre elles : l'Académie Internationale d'Histoire des Sciences et l'Union Internationale d'Histoire des Sciences.

Art. 2 - L'Académie Internationale d'Histoire des Sciences - qui fonctionna depuis sa fondation à Oslo en août jusqu'au 25 juin 1935 sous le nom de Comité International d'Histoire des Sciences - a son siège à Paris.

Art. 3 - L'Académie Internationale d'Histoire des Sciences est constituée sur le modèle des grandes académies scientifiques. Elle comprend 50 membres effectifs et 100 membres correspondants, choisis parmi les historiens des Sciences dont les travaux dans cette spécialité sont les plus remarquables et qui ont le plus contribué au progrès de l'historiographie des Sciences.

Un minimum de places est réservé aux différents pays ou groupements des pays, sans que ce nombre doive nécessairement être atteint. Si ce nombre n'est pas atteint, les places qui ne sont pas occupées par des savants des pays envisagés doivent rester vacantes. La répartition entre les pays est faite selon le tableau compris dans l'additif de cet article.

L'Académie comprend aussi des membres d'honneur élus parmi les personnalités qui ont bien mérité des études d'Histoire des Sciences.

Art. 4 - L'Académie Internationale d'Histoire des Sciences est dirigée par un conseil composé d'un président, trois vice-présidents, un administrateur-trésorier (qui est rééligible), élus tous les trois ans, ainsi que des anciens présidents de l'Académie

et d'un secrétaire perpétuel.

Dans le cas où le Secrétaire Perpétuel n'a pas sa résidence à Paris, il sera suppléé au siège de l'Académie par un Secrétaire-Adjoint.

Art. 5 - Les membres de l'Académie Internationale d'Histoire des Sciences sont nommés à vie.

Tous les ans, vers la fin du mois de décembre, le secrétaire perpétuel invite les membres effectifs à nommer aux places vacantes des nouveaux membres effectifs ou correspondants. A cet effet il leur communique le nombre de places vacantes. Le vote qui suivra aura lieu exclusivement par correspondance.

Les nouveaux membres effectifs sont choisis exclusivement parmi les membres correspondants. Les bulletins de vote ne doivent pas porter plus de noms qu'il y a de places à pourvoir. Seront proclamés élus, dans l'ordre décroissant des voix obtenues et jusqu'au nombre de places à pourvoir, tous ceux qui obtiennent au moins la moitié des voix exprimées et pas moins d'un tiers du nombre de membres effectifs en charge.

Les nouveaux membres correspondants sont élus sur une liste comprenant les noms de tous les savants qui auraient obtenu au scrutin de deux années précédentes au moins cinq voix. La liste comprendra aussi tous ceux qui auraient été proposés par écrit par au moins trois membres effectifs. Ces propositions doivent être envoyées au secrétaire perpétuel au mois de novembre ou de décembre. Cette liste sera communiquée aux membres effectifs par le secrétaire perpétuel. L'élection se fait suivant la procédure indiquée pour l'élection des membres effectifs.

Les membres d'honneur sont élus dans les séances des sessions ordinaires triennales.

Art. 6 - L'Académie Internationale d'Histoire des Sciences se réunit en sessions ordinaires tous les trois ans dans le lieu désigné au cours de la session précédente, d'entente avec l'Union Internationale d'Histoire des Sciences, sauf dans les cas de force majeure. A chaque session ordinaire, l'Académie procède, selon l'ordre indiqué, aux délibérations suivantes : élection du Président de l'Académie, élection de trois vice-présidents, élection de l'administrateur-trésorier. Les élections sont faites à la majorité des membres effectifs présents. Les nouveaux élus entrent en charge à la fin de la session.

Dans sa session triennale l'Académie s'occupe aussi de toutes les questions relatives à l'administration de l'Académie, à son budget, aux directives scientifiques et pratiques à suivre. Les années où n'ont pas lieu les sessions ordinaires triennales, l'Académie se réunit une fois à son siège à Paris, ou dans les villes où éventuellement ont lieu les congrès internationaux des Sciences Historiques.

Dans des cas exceptionnels, le Président, après un vote favorable du Conseil, peut convoquer une session extraordinaire. Cette session doit être annoncée quatre mois d'avance et on n'y pourra discuter d'autres sujets que ceux portés à l'ordre du jour quatre mois d'avance.

Art. 7 - Lorsque la charge de secrétaire perpétuel devient vacante, le Président invite par correspondance tous les membres effectifs à proposer un candidat. Si le même candidat est désigné par les trois quarts des membres effectifs, celui-ci sera nommé secrétaire perpétuel. Dans le cas contraire, les membres effectifs voteront par correspondance pour un candidat qu'ils choisiront sur une liste comprenant les noms de ceux qui ont été proposés par quatre d'entre eux au moins. Sera proclamé élu le candidat qui aura obtenu les voix de trois quarts des votants. On procédera à autant de tours de scrutin qu'il sera nécessaire pour obtenir ce résultat.

Art. 8 - Pour élargir sa sphère d'influence et afin de contribuer plus directement à l'activité des grands organismes internationaux, spécialement l'Unesco et l'Icsu, il est créé, à partir du 1 janvier 1947, une Union Internationale d'Histoire des Sciences. Les buts de cette Union sont les suivants :

a) établir des rapprochements entre les historiens des Sciences et entre les institutions, les sociétés, les rédactions des revues, etc... consacrées à cette discipline,

b) rassembler tous les documents qu'on croira nécessaires au développement de l'Histoire des Sciences,

c) prendre toutes les mesures qu'on croira nécessaires ou utiles pour le développement et pour l'organisation des études de l'Histoire des Sciences, notamment les congrès internationaux d'Histoire des Sciences (qui ont lieu à l'occasion des sessions triennales de l'Académie d'Histoire des Sciences),

d) organiser du point de vue matériel les réunions périodiques internationales, congrès d'Histoire des Sciences,

e) attribuer les fonds nécessaires au bon fonctionnement de l'Académie Internationale de l'Histoire des Sciences, laquelle fixera les traitements du secrétaire perpétuel, de l'Administrateur-Trésorier et du Secrétaire-Adjoint (qui remplit aussi les fonctions d'archiviste-bibliothécaire).

Art. 9 - L'Union Internationale d'Histoire des Sciences comprend deux catégories de membres : a) les membres à titre personnel, c'est-à-dire tous les membres tant effectifs que correspondants de l'Académie Internationale d'Histoire des Sciences, b) les membres représentants, élus par les groupes nationaux d'Histoire des Sciences, à raison de deux par pays, pour une période de trois ans et qui sont rééligibles, Un membre à titre personnel peut être élu membre représentant.

Art. 10 - L'Union Internationale d'Histoire des Sciences est dirigée par un Conseil composé d'un président, de deux vice-présidents, deux assesseurs, un secrétaire exécutif (chargé des rapports avec les grands organismes internationaux), élus par l'Assemblée générale de l'Union pour trois ans et éventuellement rééligibles. De plus, le secrétaire perpétuel et l'administrateur-trésorier de l'Académie Internationale d'Histoire des Sciences font partie de droit de ce conseil, avec les attributions de secrétaire général et d'administrateur-trésorier.

L'Union Internationale d'Histoire des Sciences se réunit en assemblée générale tous les trois ans au moins.

A l'Assemblée générale de l'Union ont droit à un vote : 1) chaque membre effectif de l'Académie; 2) chaque groupe national; 3) chaque section d'une discipline particulière.

Art. 11 - L'Assemblée Générale de l'Union Internationale d'Histoire des Sciences a les attributions suivantes : 1) élit les membres du Conseil de l'Union, ainsi que deux délégués pour la représenter au Comité Exécutif du Conseil International des Unions Scientifiques: 2) édicte et amende ses statuts et règlements concernant la conduite des affaires qui lui sont propres; 3) fixe le lieu de réunion de la prochaine session.

Art. 12 - On encouragera l'organisation dans chaque pays d'un Groupe National d'Histoire des Sciences, afin de faire entrer les savants de ce pays en rapport avec l'Union Internationale d'Histoire des Sciences. Les buts des groupes sont, dans chaque pays, ceux indiqués à l'article 8 pour l'Union (points a,b,c,d).

L'organisation de ces groupes sera semblable, dans les lignes générales, dans tous les pays, et sera déterminée par un règlement spécial.

UNESCO/Misc.91/1947

PARIS, le 13 janvier 1947

# Projet de Statuts

# de l'Union Internationale d'Histoire des Sciences

Article 1 - L'Union Internationale d'Histoire des Sciences a comme but de contribuer directement à l'activité de l'Unesco et de l'ICSU dans le domaine de l'Histoire des Sciences.

Article 2 - L'Union reconnaît l'Académie Internationale d'Histoire des Sciences comme organe d'orientation de son activité scientifique.

Article 3 - Pour réaliser son but, elle s'efforcera de :

a) établir des rapprochements entre les histoires des Sciences, et entre les institutions, les Sociétés, les rédactions des revues, etc... consacrés à cette discipline ; b) rassembler tous les documents qu'on croira nécessaires au développement de l'Histoire des Sciences ; c) prendre toutes les mesures qu'on croira nécessaires ou utiles pour le développement et pour l'organisation des études de l'Histoire des Sciences, notamment les Congrès internationaux d'Histoire des Sciences (qui ont lieu à l'occasion des sessions triennales de l'Académie d'Histoire des Sciences) ; d) organiser du point de vue matériel des réunions périodiques internationales, congrès d'Histoire des sciences ; e) attribuer les fonds nécessaires au bon fonctionnement de l'Académie Internationale d'Histoire des Sciences, laquelle fixe les traitements du Secrétaire Perpétuel, de l'Administrateur-Trésorier et du Secrétaire-adjoint (qui remplit aussi les fonctions d'Archiviste-bibliothécaire).

Article 4 - L'Union Internationale d'Histoire des Sciences comprend deux catégories de membres : a) les membres à titre personnel, c'est-à-dire tous les membres, tant effectifs que correspondants de l'Académie Internationale d'Histoire des Sciences ; b) les membres

représentants élus par les Groupes nationaux d'Histoire des Sciences à raison de deux par pays, pour une période de trois ans, et qui sont rééligibles. Un membre à titre personnel peut être élu membre représentant.

Article 5 - L'Union Internationale d'Histoire des Sciences est dirigée par un Conseil composé d'un Président, deux assesseurs, un Secrétaire exécutif (chargé des rapports avec les grands organismes internationaux), élus par l'Assemblée générale de l'Union pour trois ans, et éventuellement rééligibles ; de plus le Secrétaire perpétuel et l'Administrateur-Trésorier de l'Académie Internationale d'Histoire des Sciences font partie de droit de ce Conseil avec les attributions de Secrétaire général et d'Administrateur-Trésorier.

L'Union Internationale d'Histoire des Sciences se réunit en Assemblée générale tous les trois ans au moins.

Ont droit à un vote : 1) chaque membre effectif de l'Académie ; 2) chaque groupe national ; 3) chaque section spéciale d'une discipline quelconque.

Article 6 - L'Assemblée générale de l'Union Internationale d'Histoire des Sciences a les attributions suivantes : 1) elle élit les membres du Conseil de l'Union, ainsi que deux délégués pour la représenter au Comité Exécutif du Conseil International des Unions scientifiques ; 2) elle édicte et amende ses statuts et règlements concernant la conduite des affaires qui lui sont propres ; 3) elle approuve le budget de l'Union ; 4) elle fixe les lieux de réunion de la prochaine session.

Article 7 - L'Union peut accepter ou créer des Sections internationales d'une discipline quelconque. Ces sections s'organisent d'une manière autonome du point de vue de leur discipline. Chacune de ces Sections a droit à un membre dans le Conseil de l'Union.

Article 8 - On encouragera l'organisation dans chaque pays de groupes nationaux d'Histoire des Sciences, afin de faire entrer les savants de ce pays en rapport avec l'Union Internationale d'Histoire des Sciences. Les buts des groupes sont, dans chaque pays, ceux indiqués à l'article 3 pour l'Union (points a,b,c,d). L'organisation de ces groupes sera semblable dans ses lignes générales, dans tous les pays, et sera déterminée par le règlement spécial.

Article 9 - Chaque groupe national doit verser à l'Union Internationale d'Histoire des Sciences une cotisation annuelle. Tant que la situation financière internationale n'est pas rétablie, l'Assemblée Générale fixera la cotisation de chaque groupe d'après les disponibilités de son pays.

ACADEMIE INTERNATIONALE
D'HISTOIRE DES SCIENCES

Hôtel de Nevers
12, rue Colbert
Paris 5e

A.I.H.S./3/1947
PARIS, le 21 janvier 1947

Paris, le 15 janvier 1947

Monsieur et cher Collègue,

Le Conseil de l'Académie internationale d'Histoire des Sciences a décidé de collaborer avec les grands organismes internationaux Unesco et Icsu.

Dans sa session du 17-20 décembre 1946, il a établi un projet pour la création de l'Union internationale d'Histoire des Sciences, destinée à assurer la liaison entre Unesco et notre Académie. En même temps, il a dû modifier les statuts de l'Académie afin de les adapter à la situation actuelle.

Nous avons l'honneur de vous envoyer ci-joints les projets de ces nouveaux statuts.

Nous vous prions de nous faire parvenir vos observations à propos de ces statuts. Ils devraient être approuvés par vous afin que nous puissions entrer légalement en rapports avec l'Unesco.

Nous avons besoin de votre réponse avant le 15 avril 1947, afin de pouvoir agir en conséquence. Nous considérerons que vous approuvez nos projets de statuts si vous ne nous répondez rien jusqu'au 15 avril 1947.

Les réponses doivent être adressées à M. P. Brunet, Rue Colbert 12, Paris 5e.

Notre cinquième Congrès international d'Histoire des Sciences, où l'on devra élire le bureau de l'Union, aura lieu à Lausanne en septembre 1947.

Veuillez agréer, Monsieur et cher Collègue, l'expression de nos sentiments les meilleurs.

Le Président :
ARNOLD REYMOND

Le Secrétaire adjoint :
P. BRUNET

Le Vice-Président :
C. Sergescu

CIRCULAIRE ADRESSEE AUX MEMBRES DE
L'ACADEMIE INTERNATIONALE D'HISTOIRE DES SCIENCES

Monsieur et cher Collègue,

J'ajoute à la lettre qui vous est ci-joint adressée les quelques renseignements que voici :

Pour reconstituer notre Académie, je suis entré, dès la fin des hostilités, en relation avec les membres de son Conseil que j'ai pu atteindre.

En réponse à ma démarche, M. Aldo Mieli, qui fut pendant tant d'années l'animateur de notre corps académique, m'a écrit que, vu les circonstances où il se trouvait à Buenos-Aires, il me priait de faire le nécessaire pour le suppléer et préparer le futur congrès.

J'ai appris, d'autre part, que Mme Metzger, qui remplissait avec tant de zèle la fonction d'administrateur-trésorier, était morte victime de la persécution nazie.

Dans ces conditions, et sur la demande du Conseil, MM. J.A. Vollgraaf et P. Brunet ont bien voulu accepter d'assumer, provisoirement, le premier les fonctions de secrétaire-trésorier et le second celles d'archiviste-bibliothécaire.

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Ces mesures étant prises, le Conseil a estimé nécessaire de faire connaître à l'Unesco et à l'Icsu l'existence de notre Académie afin d'éviter qu'une institution similaire à la nôtre ne soit créée et ne fasse double emploi avec elle. Il a également demandé à ces Organisations internationales si et comment notre Académie pouvait être moralement et financièrement soutenue par elles, sans perdre son autonomie et sa structure.

Pour la mise au point de ces questions, le Conseil s'est réuni à Paris au milieu de décembre dernier et a tenu plusieurs séances auxquelles MM. Cortesao et Establier (de l'Unesco) voulurent bien assister. Au cours de ces séances, les statuts de notre Académie ont été quelque peu modifiés sous la forme que vous trouvez ci-joint. Comme vous le verrez, l'article 1 maintient, comme par le passé, la nécessité pour la discipline de l'histoire des sciences d'avoir deux organisations scientifiques internationales étroitement liées entre elles. Les articles 2-7 concernent l'Académie et les articles 8-11 se rapportent à l'Union internationale d'Histoire des Sciences.

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Nous avons la conviction que si les modifications statutaires proposées sont acceptées, elles contribueront à renforcer la situation de notre Académie et à développer l'histoire des sciences.

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Dans cette même session de décembre 1946, le Conseil a fixé la semaine du 7 au 14 septembre comme l'époque où aura lieu le prochain congrès qui se tiendra à Lausanne, conformément à la décision prise à Prague en 1937.

Vu les circonstances, aucun sujet spécial n'est proposé pour les communications. Celles-ci seront groupées en sections d'après la similitude des questions traitées. C'est pourquoi il est très désirable que, dès maintenant, le titre des communications présentées soit annoncé au soussigné.

Nous espérons pouvoir faciliter matériellement aux membres effectifs et correspondants leur venue et leur séjour à Lausanne.

Des avis ultérieurs préciseront ces points.

Avec mes meilleurs voeux de Nouvelle Année, veuillez croire à mes sentiments très dévoués.

ARNOLD REYMOND

Président de l'Académie internationale
d' Histoire des Sciences

La Rouvenar, Pully/Lausanne

A.I.H.S./3
F.

I A H S/4/1947

PARIS, le 20 février 1947

Académie Internationale d'Histoire
des Sciences,
Hôtel de Nevers,
12, rue Colbert,
Paris.

Monsieur et Cher Collègue,

Après la terrible guerre qui vient de prendre fin, notre Académie reprend son activité. Le Conseil de l'Académie s'est réuni à Paris du 17 au 20 décembre 1946. On a pris des mesures pour entrer en collaboration avec les grands organismes internationaux, comme Unesco et Icsu. Afin que la collaboration soit rendue possible, on a créé, à côté de l'Académie, une Union Internationale d'Histoire des Sciences.

Durant la guerre, notre Académie a subi des pertes très cruelles. Nous avons la douleur de vous faire part de la mort de nos chers collègues suivants :

Mme Paul Tannery et M. Emile Picard, membres d'honneur, ainsi que des membres effectifs et correspondants :

Abel Rey, K. Suethoff, D.E. Smith, Ch. Haskins, Sir Th. Heath, Mme H. Metzger, E. Radl, M. Meyerhof, M. Asin Palacios, S. Dickstein, F. Enriques, F. Vasconcellos, H. Renaud, J. Bidez, L. Brunschvicg, G. Senn, Tropfke, V. Lippmann.

Guinet, Thureau Dangin, Darmstaedter, Mittwoch, Gunther, Fotheringham, Nallino, A. Klebs, De Lint, Lagercrantz, V. Györy, Schevensteen, Marcolongo, Emanuelli, Mouy.

Il y a d'autres collègues dont nous n'avons plus aucune nouvelle depuis 1939, mais que nous aimons croire bien vivants. Nous vous prions de nous donner des nouvelles de nos collègues dont nous ne savons plus rien et aussi de nous envoyer des courtes notices nécrologiques sur ceux de nos chers disparus que vous avez mieux connus. Nous voudrions les faire publier dans un prochain tome d'Archeion.

Pour combler en partie les vides considérables dans les rangs des membres de notre Académie, le Conseil a décidé qu'on fera élire cette année 9 (neuf) membres effectifs et 18 (dix-huit) membres correspondants. Nous vous prions de nous envoyer, jusqu'au 1er mai 1947, votre bulletin de vote, contenant 9 membres effectifs et 18 membres correspondants. Le bulletin doit être adressé à M. P. Brunet, 12, rue Colbert, Paris, 2e.

Conformément aux Statuts, les membres effectifs doivent être élus parmi les correspondants. On a suggéré au Conseil les noms suivants des membres correspondants, susceptibles d'être élus membres effectifs :

P. ver Eecke (Anvers), M. Caullery (Membre de l'Institut, Paris), W. d'Arcy Thompson (St.-Andrews), B. Nemec (Praha), C. de Waard (Vlisingen, Pays-Bas), A. Birkenmajer (Cracovie, Pologne), J. Pelseneer (Bruxelles), V. Gomoiu (ancien Président de la Société Internationale d'Histoire de la Médecine à Bucarest).

Vu qu'il n'y a pas eu des élections depuis sept ans, une partie des membres du Conseil propose, exceptionnellement pour cette année, que certaines personnalités soient élues directement membres effectifs, sans être d'abord membres correspondants. A cet effet, on vous propose :

Prof. H. Dingle (Chef du département d'Histoire des Sciences, London)
Dr. E. Askworth Underwood (Directeur du Welcome, London)
Prof. J. Needham (Chef du Département Sciences à l'Unesco, Paris)
Dr. A. Cortesao (Conseiller pour l'Histoire des Sciences à l'Unesco, Paris)
Prof. J. Guyenot (Genève).

Nous vous prions de vouloir bien décider par votre vote si ces savants peuvent être élus directement membres effectifs. Il reste bien entendu que si quelqu'un de ces savants n'atteint pas le nombre de voix nécessaire pour être élu membre effectif, ces voix seront considérées comme valables pour l'élection comme membre correspondant. D'ailleurs, ces cinq savants doivent être considérés comme inscrits aussi sur la liste des éligibles comme membres correspondants.

Le Conseil a reçu, en outre, les propositions suivantes pour inscrire sur la liste des éligibles comme membres correspondants :

Prof. J. Pérès (Membre de l'Institut, Paris)
Prof. Y. Guiart (Secrétaire général de la Société internationale d'Histoire de la Médecine, Lyon)
Prof. P. Humbert (Montpellier)
Prof. G. Bachelard (Professeur d'Histoire des Sciences à la Sorbonne, Paris)
Prof. D. McKie (London)
Prof. B. Farrington (Swansee)
Partington (London)
Sherwood Taylor (Angleterre)
Seydl (Directeur de l'Observatoire astronomique, Praha)
Prof. Kostojanez (Moscou)
W.E. van Wyk (Directeur de la Maison néerlandaise, à Paris)
L. Dijksterhuis (Oisterwyk, Pays-Bas)
Prof. L. Rosenfeld (Utrecht)
Prof. M. Florkin (Bruxelles)
Nordenmark (Upsala)
Prof. Oseen (Directeur de l'Institut Nobel, Stockholm)
Prof. Frans Verdoorn (Waltham, Mass. U.S.A.)
Prof. R. Fueter (Zurich)
Prof. C. Chagas (Brésil)

Cette année-ci, on n'a pas besoin de tenir compte des places minima réservées à chaque pays, puisque les vides sont si grands que toutes les places minima sont assurées pour les élections suivantes.

Nous vous prions de bien vouloir nous envoyer votre bulletin de vote en temps utile, parce que nous avons besoin d'un minimum de 12 voix pour proclamer un candidat élu.

Agréez, Monsieur et Cher Collègue, l'expression de nos sentiments cordialement dévoués.

Le Secrétaire-trésorier — Le Secrétaire-adjoint

J.A. Vollgraff — P. Brunet

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I A H S/4/1947

PARIS, le 20 février 1947

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Hôtel de Nevers,
12, rue Colbert,
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Nous vous prions de bien vouloir nous envoyer votre bulletin de vote en temps utile, parce que nous avons besoin d'un minimum de 12 voix pour proclamer un candidat élu.

Agréez, Monsieur et Cher Collègue, l'expression de nos sentiments cordialement dévoués.

Le Secrétaire-trésorier — J.A. Vollgraff

Le Secrétaire-adjoint — P. Brunet

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Académie Internationale
d'Histoire des Sciences
Hotel de Nevers
13, Rue Colbert
PARIS

I A H.S./5/1947

PARIS, le 30 février 1947

Monsieur et Cher Collègue,

En vue de la publication du quatrième Annuaire de l'Académie Internationale d'Histoire des Sciences, nous vous prions de bien vouloir nous retourner d'urgence la notice ci-jointe concernant votre biographie.

Nous saisissons cette occasion pour vous prier en même temps de nous envoyer, pour les archives de notre Académie, votre photo ainsi qu'un Curriculum vitae. S'il vous est possible de nous envoyer, pour la bibliothèque de l'Académie, vos travaux, nous vous en serions bien reconnaissants.

Veuillez croire, Monsieur et Cher Collègue, à nos sentiments les plus dévoués,

Le Bibliothécaire-Archiviste

P. BRUNET.

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Notice pour l'Annuaire

Nom et Prénoms :

Né à le

Fonction :

Adresse :

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EX/CF/4
PARIS, 29 janvier 1948

ORGANISATION DES NATIONS UNIES
POUR L'EDUCATION, LA SCIENCE ET LA CULTURE

CONSEIL EXECUTIF

COMITE FINANCIER

Cinquième Session

# PROPOSITIONS DE SUBVENTIONS A ACCORDER AUX ORGANISATIONS SCIENTIFIQUES INTERNATIONALES, 1948

Point 15 de l'ordre du jour provisoire

Le présent document contient les propositions relatives aux subventions à accorder en 1948 au Conseil international des Unions scientifiques (ICSU) et aux Unions adhérant à cet organisme, et qui sont soumises à l'approbation du Conseil exécutif, à l'occasion de sa première session de 1948. Ces subventions sont attribuées conformément aux principes provisoirement adoptés en 1947 (Exec.Com./2ème Sess/29), et en tenant compte des nouvelles directives sur les Relations avec les Organisations non gouvernementales formulées par la Conférence générale lors de sa seconde Session, dans le document 2C/130, Annexe VII, Appendices I et II. Leur répartition se conforme également de très près aux principes exposés dans le Mémoire sur les Catégories et les Principes à appliquer dans l'octroi de Subventions aux Organisations internationales non gouvernementales, qui est soumis à cette même session, pour examen et approbation, au Conseil exécutif, et à son Comité des Relations avec les Organisations internationales non gouvernementales.

Toutes les subventions proposées sont conformes aux termes de l'Accord officiel ICSU/UNESCO (C/Admin & Jur/Leg & Ext/3).

En 1948, le total des crédits affectés aux subventions dans le budget de la Section des Sciences exactes et naturelles s'élève à 240.000 dollars, alors qu'en 1947 ce total était de 275.000 dollars. Cette réduction nous met dans l'obligation de refuser les subventions à un certain nombre de projets qui, tout en étant importants, sont moins urgents que d'autres. On peut voir que le total des demandes s'élève à 413.436 dollars. Chaque fois qu'une demande a été refusée, en totalité ou en partie, on trouvera dans les tableaux un exposé des raisons de ce refus.

En 1948, cinq Unions (Astronomie, Géodésie et Géophysique, Radioscientifique, Mécanique théorique et appliquée, et Géographie) doivent tenir les Assemblées générales prévues par leurs statuts. Ce fait explique

l'augmentation des subventions accordées aux Sciences Physico-chimiques et aux Sciences de la Terre, et la réduction qui en résulte pour les Sciences biologiques. On doit naturellement s'attendre à voir ces proportions se modifier chaque année.

La disposition du présent document est la suivante : tout d'abord, un tableau résumé donne les sommes demandées et les subventions proposées pour tous les projets de l'ICSU et de ses Unions fédérées. Vient ensuite la répartition détaillée des subventions pour chaque organisation.

## PROJET DE REPARTITION DES SUBVENTIONS POUR 1948

### RESUME GENERAL

(Toutes les Organisations sont couvertes par l'Accord officiel ICSU/UNESCO)

(Toutes les sommes sont exprimées en dollars américains)

| Sci. Ex. & Nat. N° | Nom de l'Organisation | Sommes demandées | Subventions proposées |
|---|---|---|---|
| 4.06 | ICSU (Conseil international des Unions scientifiques) | 50.284 | 30.934 |
| 4.101 | IUPAP (Union internationale de Physique pure et appliquée) | 28.900 | 15.300 |
| 4.102 | IAU (Union Astronomique internationale) | 32.580 | 21.880 |
| 4.103 | IUSR (Union Radio-scientifique internationale) | 15,000 | 9.000 |
| 4.107 | IUCr (Union internationale de Cristallographie) | 10,000 | 8.000 |
| 4.201 | IUC (Union internationale de Chimie) | 11.225 | 11.325 |
| 4.301 | IGU (Union Géographique internationale) | 11.680 | 2.000 |
| 4.303 | IUGG (Union Géodésique et Géophysique internationale) | 76.460 | 34.270 |
| 4.401 | IUBS (Union internationale des Sciences biologiques) | 23.345 | 22.945 |
| 4.4011 | IZSN (Station internationale de Zoologie, Naples) | 20.000 | 10.000 |
| | | 309.474 | 165.654 |

| Sci. Ex. & Nat. N° | Nom de l'Organisation | Sommes demandées | Subventions proposées |
|---|---|---|---|
| | Report..... | 309.474 | 165.654 |
| 4.4029 | ICZ (Congrès international de Zoologie) | 3.000 | 3.000 |
| 4.403 | ICZN (Commission internationale de la Nomenclature zoologique) | 13.536 | 10.600 |
| 4.405 | ICGen (Congrès international de Génétique) | 9.500 | 4.000 |
| 4.408 | ICEnt (Congrès international d'Entomologie) | 3.000 | 3.000 |
| 4.411 | IAMB (Association internationale des Microbiologistes) | 3.600 | 25.900 |
| 4.4151 | IHAS (Station internationale de Haute Altitude) | 20.550 | 4.000 |
| 4.504 | IUTAM (Union internationale de Mécanique pure et appliquée) | 12.776 | 7.200 |
| 4.93 | IUHS (Union internationale de l'Histoire des Sciences) | 13.000 | 8.900 |
| | | 413.436 | 232.254 |

CONSEIL INTERNATIONAL DES UNIONS SCIENTIFIQUES

| | Sommes demandées | Subventions proposées |
|---|---|---|
| A. Frais de déplacement pour la réunion du Comité exécutif (Bruxelles, juin ou septembre 1948) - 24 personnes | 3.350 | 3.350 |
| B. Commissions mixtes : | | |
| 1. Rhéologie | | |
| Frais de déplacement (Schoveningue, 20-23 septembre 1948) - 10 personnes | 3.750 | néant |
| Publications | 250 | néant |
| Cette Commission s'est déjà réunie en 1947. En raison des crédits limités affectés aux Subventions pour 1948, aucune subvention ne sera accordée. | | |
| 2. Radiométéorologie | | |
| Frais de déplacement (Stockholm, 1948) | | |
| 8 personnes | 4.840 | 4.840 |
| Publications | 100 | 100 |
| 3. Océanographie | | |
| Frais de déplacement (Oslo, 1948) | | |
| 12 personnes | 6.270 | néant |
| Publications | 100 | néant |
| Pas de subvention, pour la raison indiquée sous B.1. | | |
| 4. Relations solaires et terrestres | | |
| Frais de déplacement (Zurich, 1948) | | |
| 17 personnes | 4.644 | 4.644 |
| Publications | 400 | 400 |
| 5. Ionosphère | | |
| Frais de déplacement (Stockholm, 1948) | | |
| 11 personnes | 5.460 | 5.460 |
| Cette Commission devait se réunir en 1947, mais ce projet n'a pu être réalisé. La somme accordée (6.644 dollars) fut transférée à la Commission des Aspects sociaux de la Science. | | |
| | 29.164 | 18.794 |

| | Sommes demandées | Subventions proposées |
|---|---|---|
| Report..... | 29.164 | 18.794 |
| 6. Aspects sociaux de la Science | | |
| Frais de déplacement (Londres, septembre 1948) - 13 personnes | 4.500 | néant |
| Publications | 400 | néant |
| Cette Commission s'est déjà réunie en 1947. Sur la somme indiquée ci-dessus, qui lui a été transférée (6.664 dollars), une faible portion (environ 1000 ou 2000 dollars) a été utilisée pour la session de septembre 1947. Le reliquat devrait suffire pour la session prévue en 1948. | | |
| C. Secrétariat : | | |
| 1. Bureau du Secrétaire général | | |
| Frais de correspondance, impression, fournitures de bureau, etc... | 400 | 400 |
| 2. Bureau de l'Agent de liaison auprès de l'Unesco | | |
| a) traitement de l'Agent de liaison | 4.800 | 4.800 |
| b) traitement du Secrétaire de l'Agent de liaison | 1.920 | 1.920 |
| c) impression, fournitures, etc... | 160 | 160 |
| d) frais de représentation du Secrétaire général et de l'Agent de liaison | 800 | 400 |
| Les crédits de cet ordre ont été réduits en 1947 à l'Unesco. En conséquence, une réduction de 50 % est proposée pour cette subvention. | | |
| e) indemnité de vie chère : | | |
| Agent de liaison (3,10,0 livres par jour) | 2.180 | néant |
| L'Agent de liaison actuel résidant déjà à Paris depuis plusieurs années au moment où il a occupé son poste, n'a pas droit à cette indemnité suivant les statuts en vigueur à l'Unesco. | | |
| Secrétaire de l'Agent de liaison (1 livre par jour) | 1.460 | 1.460 |
| 3. Frais de déplacement du Secrétaire général et de l'Agent de liaison | 4.500 | 3.000 |
| En 1948, la Conférence générale de l'Unesco se tiendra à Beyrouth. Les frais de déplacement seront sensiblement inférieurs à ceux de 1947. Une réduction de 1/3 de la somme allouée en 1947 est proposée en conséquence. | | |
| | 50.284 | 30.934 |

UNION INTERNATIONALE DE PHYSIQUE PURE ET APPLIQUEE

| | Sommes demandées | Subventions proposées |
|---|---|---|
| A. Comité exécutif<br>Frais de déplacement (Amsterdam, juillet 1948)<br>12 personnes | 1.800 | 1.800 |
| B. Commission de Thermodynamique :<br>Réunion de spécialistes de Thermodynamique<br>Frais de déplacement (Bruxelles, janvier 1948)<br>13 personnes | 900 | néant |
| Publications | 1.000 | néant |
| Ces frais sont couverts par le transfert du solde disponible de la subvention accordée à la Commission de l'Optique (1911 dollars) au Budget de 1947. Ce transfert a été approuvé par le Directeur général adjoint, le 31 décembre 1947. | | |
| C. Commission des Symboles, des Unités et de la Nomenclature<br>Frais de déplacement (Amsterdam, juillet 1948)<br>4 personnes | 100 | 100 |
| D. Commission de l'Optique<br>Frais de déplacement (Amsterdam, juillet 1948)<br>18 personnes | 2.400 | néant |
| Cette Commission s'est déjà réunie en 1947. Les crédits limités affectés aux subventions ne permettent pas à l'Unesco d'assumer les frais d'une nouvelle réunion en 1948. | | |
| E. Commission de la Radioactivité<br>Frais de déplacement (Amsterdam, juillet 1948)<br>7 personnes | 1.600 | 1.600 |
| F. Commission des Rayons cosmiques<br>Frais de déplacement (Amsterdam, juillet 1948)<br>6 personnes | 1.300 | 1.000 |
| G. Commission d'organisation<br>1. de la Physique des très basses températures<br>2. de la Physique moléculaire<br>3. du Magnétisme<br>Frais de déplacement (Amsterdam, juillet 1948)<br>6 personnes par commission | 3.000 | néant. |
| L'organisation de ces nouvelles Commissions semble être en premier lieu de la compétence du Comité exécutif. | | |
| | 12.100 | 4.500 |

| | Sommes demandées | Subventions proposées |
|---|---|---|
| Report..... | 12.100 | 4.500 |
| H. Réunion de spécialistes de la Physique des métaux<br>Frais de déplacement (Amsterdam, juillet 1948) 18 personnes | 3.000 | 3.000 |
| I. Frais de déplacement du Président et du Secrétaire général en vue d'organiser les travaux de l'Union | 600 | 600 |
| J. Publications | | |
| 1. Activité générale de l'Union et rapports de toutes les commissions sauf celle de l'Optique | 600 | 50 |
| 2. Rapport de la Réunion des Spécialistes des Rayons cosmiques (tenue à Cracovie, octobre 1947 - aucune subvention pour frais de publications n'avait été prévue sur les crédits de 1947) | 2.000 | 80 |
| 3. Rapport sur la Réunion de spécialistes de la Physique des métaux | 2.000 | 800 |
| 4. Rapport sur les travaux de la Commission de l'Optique | 2.000 | 500 |
| 5. Centre international de documentation pour l'Optique | 600 | 600 |
| L'Unesco ne doit assumer la totalité des frais d'aucune publication des Unions scientifiques internationales | | |
| K. Indemnités de voyage pour les physiciens travaillant hors de leur pays | 6.000 | 4.000 |
| Les subventions accordées à cet effet en 1947 étaient de 4.000 dollars. Il n'est pas possible de procéder à une augmentation de 50 % en 1948. | | |
| | 28.900 | 15.300 |

## UNION ASTRONOMIQUE INTERNATIONALE

| | Sommes demandées | Subventions proposées |
|---|---|---|
| A. Service international de la Latitude | 980 | 980 |
| B. Bureau international de l'Heure | 8.800 | 4.400 |
| Réduction de 50 % pour les raisons indiquées dans la Note sur les principes à adopter pour l'octroi des subventions | | |
| C. Echanges d'Astronomes<br>Subventions pour déplacements | 4.000 | 3.000 |
| Les crédits limités affectés aux subventions pour 1948 ne permettent pas d'augmenter de façon considérable les sommes allouées à cette importante activité. La subvention accordée en 1947 s'élevait à 1960 dollars. | | |
| D. Assemblée générale | | |
| 1. Frais de déplacement (la réunion se tiendra en Suisse à une date encore indéterminée - 40 personnes) | 10.000 | 8.000 |
| Cinq grandes Unions tiendront au 1948 des réunions de leur Assemblée générale. L'Unesco ne peut supporter la totalité des frais de déplacement. | | |
| 2. Frais de déplacement supplémentaires (astronomes invités à la réunion) | 4.000 | 2.000 |
| Cette somme permettra à de jeunes astronomes de se rendre à la réunion, mais il n'est pas possible d'accorder la totalité de la somme demandée, étant donné l'importance des sommes nécessaires pour répondre à des demandes analogues de la part de quatre congrès internationaux. | | |
| E. Publications | | |
| 1. Volume VII des Comptes Rendus des Travaux | 2.000 | 1.500 |
| 2. Liste nominale des Etoiles variables | 300 | 200 |
| 3. Ephémérides des Planètes secondaires | 1.000 | 800 |
| 4. Volume des Résultats de la Variation de Latitude | 1.500 | 1.000 |
| L'Unesco n'assume qu'une partie des frais de publication des organisations internationales quelles qu'elles soient | | |
| | 32.580 | 21.880 |

## UNION RADIOSCIENTIFIQUE INTERNATIONALE

| | Sommes demandées | Subventions proposées |
|---|---|---|
| A. Assemblée générale | | |
| Frais de déplacement (Stockholm, 1948) 50 personnes | 6.000 | 3.000 |
| L'Unesco ne peut accorder la totalité de la somme demandée, 4 grandes Assemblées générales devant se tenir en 1948. | | |
| B. Publication du rapport de l'Assemblée générale | 6.000 | 3.000 |
| L'Unesco ne doit pas supporter la totalité des frais. | | |
| C. Publication du Bulletin mensuel et des Rapports spéciaux | 3.000 | 3.000 |
| | 15.000 | 9.000 |

UNION INTERNATIONALE DE CRISTALLOGRAPHIE

| | Sommes demandées | Subventions proposées |
|---|---|---|
| A. Publication des "Acta Crystallographica" et des Rapports sur la Structure des Cristaux | 10.000 | 8.000 |

La somme demandée ne correspond qu'à une partie des frais de publication de ces importantes revues internationales de cristallographie. Le grand nombre des demandes reçues et la limitation des crédits ne permettent pas à l'Unesco d'accorder la totalité de cette somme. Il faut toutefois souligner que le solde disponible de la subvention de 1947 ne sera pas déduit de celle de 1948. L'aide financière de l'Unesco et de certaines sources britanniques et américaines pendant trois années consécutives (1947 à 1949 inclus) permettra à ces revues de devenir ensuite financièrement autonomes.

## UNION INTERNATIONALE DE CHIMIE

| | Sommes demandées | Subventions proposées |
|---|---|---|
| A. Commission des Tables de Constantes | | |
| 1. Préparation des Tables de Constantes (Réduction due à la limitation des crédits) | 10.000 | 2.500 |
| 2. Frais de déplacement du Comité de liaison : deux membres américains et deux membres français; un voyage France-Amérique et un voyage en sens inverse; et deux voyages entre Genève et Paris pour le Président de la Commission | 500 | 500 |
| B. Commission des Nouveaux Réactifs analytiques | | |
| 1. Publication du Troisième Rapport, précis des nouveaux réactifs portant sur la période qui va de la fin de 1936 à la fin de 1946<br>L'Unesco ne doit supporter qu'une partie des frais de publication | 1.000 | 500 |
| 2. Frais de déplacement à Paris du Président et du Secrétaire-Rapporteur de la Commission (pour mettre au point les derniers détails de la publication du Troisième Rapport) | 125 | 125 |
| 3. Conférence de Genève pour la préparation du Quatrième Rapport<br>Frais de déplacement de 8 membres européens de la Commission<br>Il n'est pas souhaitable que seuls les membres européens se réunissent | 800 | néant |
| C. Commission pour l'étude des Matières Grasses | | |
| 1. Réunion annuelle (Paris 1948) 20 personnes<br>La limitation des crédits ne permet pas à l'Unesco de supporter les frais de la réunion annuelle de la Commission | 3.500 | néant |
| 2. Compilation de "Les Méthodes unifiées 1947" | 500 | 400 |
| 3. Dépenses de Secrétariat<br>Dépenses administratives | 200 | néant |
| | 16.625 | 4.025 |

| | Sommes demandées | Subventions proposées |
|---|---|---|
| Report,.... | 16.625 | 4.025 |
| D. Commission de la Chimie macromoléculaire | | |
| Traité de chimie macromoléculaire (Belgique 1948) | 3.000 | 1.500 |
| La limitation des crédits ne permet pas d'accorder la totalité de la somme demandée | | |
| E. Commission des Encyclopédies de la Documentation | | |
| Publication de Manuels de Gmelin et de Heilstein | 20.000 | 5.000 |
| L'Unesco souscrit pour 5.000 dollars aux périodiques pour lesquels le paiement se fait en dollars américains | | |
| F. Comité exécutif | | |
| Frais de déplacement pour 4 réunions (Paris-Londres ou Amsterdam, une par trimestre en 1948), 5 personnes | 1.600 | 800 |
| L'Unesco contribue au paiement des frais pour deux réunions | | |
| | 41.225 | 11.325 |

## UNION GEOGRAPHIQUE INTERNATIONALE

| | Sommes demandées | Subventions proposées |
|---|---|---|
| A. Frais de déplacement des membres de 6 Commissions à l'occasion du Congrès international de Géographie (Lisbonne, septembre 1948) 37 personnes | 3.200 | 1.600 |
| B. Frais de déplacement du Secrétaire général du Congrès, qui viendra à Paris consulter le Président de l'Union, et du Président de l'Union, qui se rendra à Lisbonne pour s'entretenir avec le Secrétaire général immédiatement avant la réunion du Congrès | 400 | 400 |
| La limitation des crédits ne permet pas d'accorder la totalité des sommes demandées pour les articles A et B | | |
| C. Publications | | |
| 1. Rapports des Commissions | 4.000 | néant |
| 2. Rapport du Congrès | 4.000 | néant |
| La limitation des crédits empêche l'Unesco d'accorder aucune subvention à ces publications | | |
| | 11.600 | 2.000 |

## UNION GEODESIQUE ET GEOPHYSIQUE INTERNATIONALE

| | Sommes demandées | Subventions proposées |
|---|---|---|
| **A. Services internationaux permanents** | | |
| 1. Précis international de Séismologie<br>La subvention accordée en 1947 à l'Union à ce titre était de 12.000 dollars | 14.400 | 12.000 |
| 2. Bureau international de l'Heure | 4.400 | 4.400 |
| 3. Bureau international des Réductions Isostatiques (Helsinki) | 1.000 | 1.000 |
| 4. Service international de la Latitude | 1.000 | 1.000 |
| **B. Autres Services et Recherches scientifiques** | | |
| 1. Mise au point du réseau européen de triangulation (géodésique)<br>Ce travail doit être subventionné par le gouvernement intéressé | 4.000 | néant |
| 2. Contribution à la construction de locaux pour le Précis international de Séismologie<br>L'Unesco n'octroie aucune subvention pour les bâtiments | 14.000 | néant |
| 3. Comparaison internationale des instruments standard de géomagnétisme<br>La limitation des crédits ne permet pas d'accorder la totalité de la somme demandée | 2.000 | 1.200 |
| 4. Subventions à l'Association d'Hydrologie scientifique pour lui permettre de poursuivre ses recherches sur la pluviologie, les eaux souterraines, la limnologie, la neige et les glaciers<br>L'Unesco n'accorde pas de fonds destinés directement à la recherche | 1.120 | néant |
| **C. Publications de première importance** | | |
| 1. Association internationale de Géodésie<br>Publication des "Résultats de l'Opération internationale des Longitudes mondiales de 1933" (2 volumes) | 1.000 | 500 |
| 2. Association internationale de Séismologie<br>Publication mensuelle du "Bulletin séismologique provisoire" | 600 | 300 |
| 3. Association internationale de l'Electricité et du Magnétisme terrestres | | |
| a) Publication mensuelle et trimestrielle de calculs de géomagnétisme | 600 | 300 |
| b) Publication des Comptes Rendus de l'Assemblée générale de 1948 | 1.200 | 600 |
| | 45.320 | 21.300 |

| | Sommes demandées | Subventions proposées |
|---|---|---|
| Report..... | 45.320 | 21.300 |
| 4. Association internationale de Vulcanologie<br>Publication du "Bulletin vulcanologique" (300 p.) | 960 | 400 |
| 5. Association internationale d'Hydrologie | | |
| a) Publication de la Bibliographie de l'hydrologie | 300 | 150 |
| b) Solde des frais de publication et de distribution des Comptes Rendus de l'Assemblée générale de Washington (1939) | 1.200 | néant |
| c) Publication des documents scientifiques à présenter à l'Assemblée générale de 1948 | 1.080 | 540 |
| 6. Pour l'Union elle-même<br>Contribution à la publication d'une brochure sur le travail de l'Union | 240 | 240 |
| Toutes les réductions sont faites en vertu du principe que l'Unesco ne doit supporter entièrement les frais d'aucune publication | | |
| L'article 5 b) est supprimé, parce qu'on ne peut demander à l'Unesco de payer les anciennes dettes d'une Organisation scientifique internationale quelle qu'elle soit | | |
| D. Assemblée générale | | |
| Frais de déplacement (Oslo 1948), environ 35 personnes | 19.840 | 9.640 |
| Somme réduite pour la raison déjà indiquée à propos des Assemblées générales de l'Union Astronomique internationale de l'Union Radio-scientifique internationale et de l'Union internationale de Mécanique pure et appliquée. | | |
| E. Services de secrétariat et de dactylographie | | |
| 1. Pour l'Association internationale de l'Electricité et du Magnétisme terrestre | 3.000 | néant |
| 2. Pour la Commission de la Structure des Continents et des Océans | 520 | néant |
| L'Unesco n'accorde pas de fonds destinés aux travaux administratifs | | |
| | 72.460 | 32.270 |

| | Sommes demandées | Subventions proposées |
|---|---|---|
| Report..... | 72.460 | 32.270 |
| F. Frais de déplacement : | | |
| 1. de savants distingués ressortissants de pays non membres de l'Union, et, | | |
| 2. de jeunes géodésistes et géophysiciens invités à l'Assemblée générale et incapables de payer leurs frais de déplacement | 4.000 | 2.000 |
| La limitation des crédits ne permet pas d'accorder la totalité de la somme demandée. | | |
| | 76.460 | 34.270 |

## UNION INTERNATIONALE DES SCIENCES BIOLOGIQUES

| | Sommes demandées | Subventions proposées |
|---|---|---|
| A. Frais de déplacement | | |
| 1. Comité exécutif (Paris, octobre 1948) 3 personnes | 425 | 425 |
| 2. Congrès international de Génétique (Stockholm, juillet 1948) un délégué de l'Union | 250 | 250 |
| 3. Congrès international de Zoologie (Paris, juillet 1948) un délégué de l'Union | 100 | 100 |
| 4. Congrès international d'Entomologie (Stockholm, août 1948) | 250 | 250 |
| B. Publications | | |
| 1. Rapport du Congrès international de Génétique | 1.000 | 950 |
| 2. Rapport du Congrès international de Zoologie | 1.000 | 950 |
| 3. Rapport du Congrès international d'Entomologie | 1.000 | 950 |
| 4. Rapport du Congrès international de Nomenclature botanique | 1.500 | 1.400 |
| Conformément au principe suivant lequel l'Unesco ne prend pas à sa charge la totalité des frais de publication. | | |
| C. Subventions aux Bureaux des Sections | | |
| 1. Botanique | 800 | 800 |
| 2. Zoologie | 400 | 400 |
| 3. Biologie des Cellules | 400 | 400 |
| 4. Microbiologie | 400 | 400 |
| 5. Génétique | 400 | 400 |
| 6. Embryologie | 400 | 400 |
| 7. Entomologie | 400 | 400 |
| | 8.725 | 8.475 |

| | Sommes demandées | Subventions proposées |
|---|---|---|
| Report..... | 8.725 | 8.475 |
| D. Subvention, Station de Biologie marine, Roscoff - France | 400 | 400 |
| E. Frais, Commission internationale de Nomenclature botanique | 620 | 620 |
| F. Subvention, Dépôt international de Préparations microscopiques, Louvain - Belgique | 100 | 100 |
| G. Subventions à des Revues de comptes rendus analytiques et d'information (Resumptio-Genetica, Biological Abstracts, Biologia, Zoological Abstracts) | 4.000 | 3.050 |
| Une faible réduction, conformément au principe suivant lequel l'Unesco ne prend à sa charge qu'une partie des frais de publication. | | |
| H. Répertoires : | | |
| Terminologia Geneticae et cytologicae | 1.000 | 1.000 |
| Index Herbarium | 1.000 | 1.000 |
| I. Réunions spéciales : | | |
| 1. Problèmes et aspects de la Taxinomie et de la Nomenclature botanique | | |
| Frais de déplacement (Utrecht, 1948) | 1.500 | 1.500 |
| 2. Terminologie de génétique et de cytologie | | |
| Frais de déplacement (Stockholm, juillet 1948) | 1.500 | 1.500 |
| 3. Interaction de l'oeuf et du sperme chez les animaux | | |
| Frais de déplacement (Milan, 1948) | 1.500 | 1.500 |
| | 20.345 | 19.945 |

| | Sommes demandées | Subventions proposées |
|---|---|---|
| Report..... | 20.345 | 19.945 |
| J. Indemnités de déplacement | | |
| 1. Station internationale de Zoologie marine, Naples - Italie (deux personnes) | 2.000 | 2.000 |
| 2. Station de Biologie marine, Roscoff - France (une personne) | 500 | 500 |
| 3. Office central de culture des mucorinées, Baarn - Pays-Bas (une personne) | 500 | 500 |
| | 23.345 | 22.945 |

## STATION INTERNATIONALE DE ZOOLOGIE, NAPLES

| | Sommes demandées | Subventions proposées |
|---|---|---|
| Matériel permanent | 19.000 | 9.000 |
| Les crédits limités affectés aux dépenses de cet ordre ne permettent pas d'augmenter la subvention attribuée en 1947 (9.000 dollars) | | |
| Deux Tables | 1.000 | 1.000 |
| | 20.000 | 10.000 |

TREIZIEME CONGRES INTERNATIONAL DE ZOOLOGIE

| | Somme demandée | Subvention proposée |
|---|---|---|
| Frais de déplacement des délégués au Treizième Congrès international de Zoologie (Paris, juillet 1948) | 3.000 | 3.000 |
| | ===== | ===== |

## COMMISSION INTERNATIONALE DE NOMENCLATURE ZOOLOGIQUE

| | | Sommes demandées | Subventions proposées |
|---|---|---|---|
| A. | Traitement de Sous-Directeur | 4.000 | 3.500 |
| B. | Traitement de Chef des publications et de Comptable | 1.400 | 1.400 |
| C. | Traitement de Secrétaire-Sténographe | 1.248 | 1.248 |
| D. | Frais de déplacement du personnel | 400 | 400 |
| E. | Subvention spéciale pour les frais de transport du personnel se rendant au Congrès international de Zoologie à Paris, juillet 1948 | 1.200 | 600 |
| | Les crédits limités affectés aux dépenses de cet ordre ne permettent pas l'attribution d'une subvention égale à la somme demandée. | | |
| F. | Frais de bureau (papeterie, affranchissements postaux, télécommunications, mobilier, ouvrages de référence, cartonnage des dossiers, vérification des comptes, frais généraux, divers) Le programme de l'organisation comporte presque uniquement du travail de bureau | 3.288 | 1.452 |
| | Montant réduit pour la raison indiquée au § E. | | |
| G. | Publications (évaluation de l'excédent des frais d'imprimerie (4.000 dollars) sur le produit des ventes (2.000 dollars) | 2.000 | 2.000 |
| | | 13.536 | 10.600 |

## HUITIEME CONGRES INTERNATIONAL DE GENETIQUE

| | Somme demandée | Subvention proposée |
|---|---|---|
| Frais de déplacement des délégués au Congrès (Stockolm, juillet 1948) | 9.500 | 4.000 |

Réduction due à la limitation des crédits affectés aux dépenses de cet ordre.

## HUITIEME CONGRES INTERNATIONAL D'ENTOMOLOGIE

| | Somme demandée | Subvention proposée |
|---|---|---|
| Frais de déplacement des délégués au huitième Congrès international d'Entomologie (Stockholm, août 1948) | 3.000 | 3.000 |

## ASSOCIATION INTERNATIONALE DE MICROBIOLOGIE

| | | Sommes demandées | Subventions proposées |
|---|---|---|---|
| A. | Office central de culture des mucorinées (Centraalbureau voor Schimmelcultures), Baarn, Hollande | 5.000 | 5.000 |
| B. | Centre de collection de culture d'algues et de protozoaires (Culture Collection of Algae and Protozoa) Botany School, Cambridge University, Cambridge, Angleterre | 700 | 500 |
| C. | Centre américain de Collection de Types microbiens (American Type Culture Collection) Washington, D.C. U.S.A. | 5.000 | 2.500 |
| D. | Institut Osvaldo Cruz (Instituto Osvaldo Cruz) Rio de Janeiro D.F. Brésil | 3.000 | 2.500 |
| E. | Fédération internationale des centres de Collection de Cultures microbiennes, Lausanne, Suisse | 2.000 | 2.000 |
| F. | Centre de Collection de Types microbiens Lausanne, Suisse | 6.500 | 5.000 |
| G. | Centre de Collection d'Algues et d'Hépatiques, Ustav Pro Fysiologii Rostlin, University Karlovy, Prague, Tchécoslovaquie | 800 | 800 |
| H. | Office national de Recherche industrielle Nankin, Chine | 500 | 500 |
| I. | Laboratoire de Cryptogamie, Museum national d'Histoire naturelle, Paris, France | 500 | 500 |
| J. | Institut de Recherche Walter et Eliza Hall (Walter and Eliza Hall Research Institute) Royal Melbourne Hospital, Melbourne, Australie | 500 | 500 |
| K. | Centre indien de Collection de Types Microbiens (Indian Type Culture Collection) - Indian Institute of Science, Bangalore, India | 500 | 500 |
| L. | Station d'Etudes océanographiques Hopkins (Hopkins Marine Station) Pacific Grove, California, U.S.A. | 500 | 500 |
| M. | Laboratoire de Microbiologie (Laboratorium voor Microbiologie) Technische Hoogeschool, Delft, Hollande | 500 | 500 |
| | | 26.000 | 21.300 |

| | | Sommes demandées | Subventions proposées |
|---|---|---|---|
| | Report..... | 26.000 | 21.300 |
| N. | Section de Bactériologie de la Faculté de Médecine de l'Université de Otago (Bacteriological Department, Medical School, University of Otago), Dunedin Nouvelle-Zélande | 400 | 400 |
| O. | Section de Mycologie Médicale de l'Ecole d'Hygiène et de Médecine tropicale de Londres (Department of Medical Mycology, London School of Hygiene and Tropical Medicine) London, Angleterre | 400 | 400 |
| P. | Institut impérial de Mycologie (Imperial Mycological Institute) Kew, Surrey, Angleterre | 400 | 400 |
| Q. | Institut Pasteur, Paris, France | 200 | 200 |
| R. | Institut de Parasitologie, Faculté de Médecine, Paris, France | 200 | 200 |
| S. | Centre Salmonella, Institut national des Sérums (Salmonella Centre, Statens Seruminstitut) Copenhagen, Danemark | 3.000 | 3.000 |
| | Toutes les réductions sont dues à la limitation des crédits affectés aux dépenses de cet ordre. | | |
| | | 30.600 | 25.900 |

## STATION SCIENTIFIQUE INTERNATIONALE DE HAUTE ALTITUDE - JUNGFRAUJOCH

| | Sommes demandées | Subventions proposées |
|---|---|---|
| A. Equipement permanent | 10.000 | 4.000 |
| La limitation des crédits affectés aux subventions pour 1948 ne permet pas d'augmenter les sommes attribuées en 1947. | | |
| B. Construction d'un observatoire international d'astrophysique sur les lieux de l'actuel observatoire du Sphynx | 10.550 | néant |
| La réalisation de ce projet doit être ajournée jusqu'à ce que soient connues les décisions de la Conférence sur les Laboratoires internationaux qui sera convoquée par le Conseil économique et social | | |
| | 20.550 | 4.000 |

UNION INTERNATIONALE DE MECANIQUE THEORIQUE ET APPLIQUEE

| | | Sommes demandées | Subventions proposées |
|---|---|---|---|
| A. | Réunion de préparation de l'Assemblée générale<br>Frais de déplacement (Londres avril 1948)<br>10 personnes | 2.168 | 1.200 |
| B. | Assemblée générale<br>Frais de déplacement (Londres, septembre 1948) 30 personnes | 8.608 | 5.000 |
| | Réduction due aux raisons déjà indiquées à propos de l'Assemblée générale de l'Union Astronomique internationale, l'Union Radio-scientifique internationale et l'Union Géodésique et Géophysique internationale | | |
| C. | Publication du rapport de l'Assemblée générale | 2.000 | 1.000 |
| | L'Unesco n'assume pas la totalité des frais de publication du rapport. | | |
| | | 12.776 | 7.200 |

UNION INTERNATIONALE D'HISTOIRE DES SCIENCES

| | | Sommes demandées | Subventions proposées |
|---|---|---|---|
| A. | Conseil exécutif (Paris 1948) 6 personnes | 1.000 | 1.000 |
| B. | Commission pour l'enseignement de l'histoire des Sciences<br>Frais de déplacement (Paris, mai 1948)<br>8 personnes | 500 | 500 |
| C. | Commission pour le Proche-Orient<br>Frais de déplacement (Palestine, juin 1948)<br>8 personnes | 500 | 500 |
| D. | Frais de correspondance<br>Dépenses d'ordre administratif | 500 | néant |
| E. | Publications : | | |
| | 1. monographies | 2.400 | 2.400 |
| | 2. archives | 4.500 | 4.500 |
| F. | Frais de correction des épreuves, d'expédition des archives et de secrétariat de l'Union<br>Dépenses d'ordre purement administratif | 2.400 | néant |
| G. | Frais de Secrétariat de l'Académie d'Histoire des sciences<br>Dépenses d'ordre purement administratif | 1.200 | néant |
| | | 13.000 | 8.900 |

INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

# REPORT OF THE EXECUTIVE COMMITTEE

1950

INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

# REPORT OF THE EXECUTIVE COMMITTEE

1950

edited by

F. J. M. STRATTON

*General Secretary*

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# TABLE DES MATIERES


| | |
|---|---|
| Comité Exécutif | *page* v |
| Organisations adhérant au Conseil | vii |
| Rapports: | |
| Comité Exécutif | 1 |
| Union Astronomique Internationale | 6 |
| Union Internationale de Géodésie et Géophysique | 8 |
| Union Internationale de Chimie Pure et Appliquée | 11 |
| Union Radio-Scientifique Internationale | 15 |
| Union Internationale de Physique Pure et Appliquée | 17 |
| Union Internationale de Géographie | 19 |
| Union Internationale des Sciences Biologiques | 21 |
| Union Internationale de Crystallographie | 24 |
| Union Internationale de Mécanique Théorique et Appliquée | 26 |
| Union Internationale d'Histoire des Sciences | 29 |
| Commission Mixte sur les Stations de Haute Altitude | 31 |
| Commission Mixte sur l'Ionosphère | 34 |
| Commission Mixte sur l'Océanographie | 43 |
| Commission Mixte des Données et des Etalons Physico-Chimiques | 44 |
| Commission Mixte pour les Résumés de Physique | 44 |
| Commission Mixte sur les Etalons, Constantes et Unités de Radioactivité | 50 |
| Commission Mixte sur la Radiobiologie | 55 |
| Commission Mixte sur la Radiométéorologie | 57 |
| Commission Mixte sur la Rhéologie | 58 |
| Commission Mixte sur les Relations Solaires et Terrestres | 60 |
| Commission Mixte sur la Spectroscopie | 60 |
| Commission sur la Science et les Relations Sociales | 62 |
| Rapport des Finances | 68 |
| Nouveaux Statuts des Unions | 78 |

# INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

## EXECUTIVE BOARD 1949–1950

PRESIDENT: Professor A. von Muralt (berne)

VICE-PRESIDENTS: Professor E. Borel (paris)
Dr H. Solberg (oslo)

RETIRING PRESIDENT: Dr John A. Fleming (washington)

GENERAL SECRETARY: Professor F. J. M. Stratton (cambridge, england)

I. *Elected by the General Assembly*

Dr J. N. Mukherjee (roorkee (u.p.), india)
Colonel E. Herbays (brussels)
(The above form the Bureau of the Council)

II. *Representatives of International Unions*

Astronomy:
Professor B. Lindblad (saltsjöbaden)
Professor B. Strömgren (copenhagen)

Geodesy and Geophysics:
Dr F. A. Vening Meinesz (de bilt)
Dr J. M. Stagg (london)

Pure and Applied Chemistry:
Dr H. R. Kruyt (the hague)
Professor R. Delaby (paris)

Radio-Science:
Sir Edward Appleton (edinburgh)

Pure and Applied Physics:
Professor H. A. Kramers (leiden)
Professor P. Fleury (paris)

Geography:
Professor George B. Cressey (syracuse, new york)

Biological Sciences:
Professor H. Munro Fox (london)
Professor P. Vayssière (paris)

Crystallography:
Dr R. C. Evans (cambridge, england)

Theoretical and Applied Mechanics:
Professor J. Pérès (paris)

History of Sciences:
Professor P. Sergescu (paris)

SECRETARIAT: Gonville and Caius College, Cambridge, England.

# ORGANISATIONS ADHERANT AU CONSEIL

| *Pays* | *Organisation Nationale* |
|---|---|
| Afrique du Sud | Council of Scientific and Industrial Research, Pretoria. |
| Argentine | Academia Nacional de Ciencias, Buenos Aires. |
| Australie | National Research Council, Sydney. |
| Autriche | Die Österreichische Akademie der Wissenschaften, Wien. |
| Belgique | Académie Royale de Belgique, Bruxelles. |
| Brésil | Academia Brasilieira de Ciencias, Rio de Janeiro. |
| Bulgarie | Gouvernement. |
| Canada | National Research Council, Ottawa. |
| Chili | Gouvernement. |
| Chine | Academia Sinica, Nanking. |
| Etat de la Cité du Vatican | Pontifica Accademia delle Scienze i Nuovi Lincei, Roma. |
| Cuba | Academia de Ciencias Medicas, Fisicas y Naturales, La Habana. |
| Danemark | Kongelige Danske Videnskabernes Selskab, Copenhague. |
| Egypte | Gouvernement. |
| Etats-Unis | National Research Council, Washington. |
| Finlande | Suomalainen Tiédeakatemia, Helsinki. |
| France | Académie des Sciences, Paris. |
| Grande-Bretagne | The Royal Society, London. |
| Grèce | Académie d'Athènes, Athènes. |
| Hongrie | Magyar Tudományos Akadémia, Budapest. |
| Inde | Department of Scientific Research, New Delhi. |
| Indonésie | Organisasi Penjelidikan dalam Ilmu Pengetahuan, Djakarta. |
| Israel | The Research Council of Israel, Jerusalem. |
| Italie | Il Consiglio Nazionale di Ricerche, Roma. |
| Japon | The Science Council of Japan, Tokyo. |
| Maroc | Gouvernement. |
| Mexique | Dirección de Estudios y Climatológicos, Tacubaya, D.F. |
| Norvège | Det Norske Videnskaps-Akademi, Oslo. |
| Nouvelle-Zélande | The Royal Society of New Zealand, Wellington. |
| Pakistan | Gouvernement. |
| Pays-Bas | Koninklijke Akademie van Wetenschappen, Amsterdam. |
| Pérou | Instituto Geografico Militar, Lima. |
| Îles Philippines | National Research Council, Quezon City. |
| Pologne | Polska Akademja Umiejetnosci, Cracovie. |
| Portugal | Gouvernement. |
| Roumanie | Akademia Roumânâ, Bucuresti. |
| Suède | Kungl. Vetenskapsakademien, Stockholm. |
| Suisse | Société Helvétique des Sciences Naturelles, Genève. |
| Tchécoslovaquie | Conseil National de Recherches, Prague. |
| Thailand | Gouvernement. |
| Tunisie | Gouvernement. |
| Uruguay | Instituto Geográfico, Montevideo. |
| Yougoslavie | Akademski Savet F.N.R.J., Belgrade. |

## UNIONS SCIENTIFIQUES INTERNATIONALES

Union Astronomique internationale.
Union internationale de Géodésie et Géophysique.
Union internationale de Chimie pure et appliquée.
Union Radio-Scientifique internationale.
Union internationale de Physique pure et appliquée.
Union internationale de Géographie.
Union internationale des Sciences biologiques.
Union internationale de Crystallographie.
Union internationale de Mécanique pure et appliquée.
Union internationale de l'Histoire des Sciences.

# International Council of Scientific Unions

## REPORT OF THE EXECUTIVE BOARD TO ADHERING ORGANIZATIONS, 1950

Since the meeting of the General Assembly in 1949 two new countries have been admitted by the Bureau as adhering organizations, Israel and Thailand, making the total of forty-three adhering countries.

The pamphlet on the Council and its Unions, prepared by Dr John A. Fleming, Past President of the Council, 'A Description of the International Council of Scientific Unions', has been issued. It has also been incorporated in vol. v of the *Reports of Proceedings of the General Assembly* and will be available later as an excerpt from that volume. The initiative in this matter was taken by Dr Fleming, and the Board wish to express the thanks of the Council to him for the trouble that he has taken in collecting the data from the Unions and preparing the material for publication.

During the year the Bureau held two meetings: at Paris, 20, 21 January 1950, and at Berne, 9 August 1950. The second meeting preceded the annual meeting of the Executive Board, 10, 11 August 1950 at Berne. All the members of the Board were present except Dr Fleming, Professor Lindblad, Dr Stagg and Sir Edward Appleton, who were prevented from attending. Dr Wang represented U.N.E.S.C.O. at the meetings of the Bureau and of the Board. Various decisions taken by the Bureau and the Board are referred to in the following report.

As requested by the General Assembly the Bureau in January appointed a Policy Committee to examine the question of the admission of Unions. The report of this Committee was circulated to all adhering organizations, and all comments received in reply were laid before the Executive Board. A full discussion at the meeting of the Board preceded the presentation of the case for admission as adhering organizations by representatives of various Unions. Professor J. Piaget attended on behalf of the International Union of Scientific Psychology, Professor L. Hersch on behalf of the International Union for the Scientific Study of Population and Professor F. Gonseth on behalf of the International Union of the Philosophy of Sciences. A statement by Dr L. Harris was submitted to the Board on behalf of the International Union of Nutritional Sciences: draft statutes were submitted on behalf of an International Union of Physiology. After further discussion

the Board agreed to admit the Union of Physiology as a specialized Union, provided that it complied with the Statutes of I.C.S.U.; a vote of 10 for and 4 against was given for the acceptance of the International Union of Nutritional Sciences. This was not a sufficient majority under the Statutes for acceptance, so that the Union was not accepted. The three other Unions mentioned above also failed to secure acceptance as adhering organizations.

As suggested at the General Assembly, steps have been taken by the Executive Board for the formation of a Co-ordinating Committee of International Councils to arrange co-operation with the *Conseil International de la Philosophie et des Sciences humaines* (C.I.P.S.H.) and with the *Conseil de ,Co-ordination des Congrès internationaux des Sciences médicales* (C.C.I.C.M.S.). The President, Professor Borel, and the General Secretary were appointed to represent the Council on the Co-ordinating Committee. One meeting of the Committee has been held and at that meeting Dr Fraser, I.C.S.U./U.N.E.S.C.O. liaison officer, was appointed Secretary for the first year. The Co-ordinating Committee approved the principle of multiple affiliation of bodies to the separate Council: they suggested however that, in general, requests for grants-in-aid should only be made through one Council. In exceptional circumstances the Committee approved of such applications being made through more than one Council, a view with which the Executive Board of I.C.S.U. has expressed its disagreement. The Committee recommended to the Councils that they should each invite observers from the other Councils to their General Assemblies.

The Executive Board received an invitation from the Council of Europe to collaborate with the Council. In reply the Board stated that they would be willing to help with scientific advice when requested.

At the request of the Bureau, Colonel Herbays has been taking up with the Belgian Government the question of the legal personality of the Council as an International Association established in Belgium. In this work he has been greatly assisted by the Federation of such bodies and the Executive Board has agreed to adhere to this Federation. It is clear that to meet the requirements of certain changes in the Belgian laws some modifications of the Statutes of I.C.S.U. will be necessary and the Bureau has appointed the President, the General Secretary and Colonel Herbays as a sub-committee to draft the necessary changes of Statutes for submission to the Executive Board and then to the General Assembly. The sub-committee has also been instructed to consider the report of the policy committee, the comments of adhering organizations and the discussion of

the Executive Board and to draft any modification in the Statutes that seems a natural sequel to them. Other matters referred to this sub-committee included the possibility of a development on a regional basis that would help to meet the feeling of isolation voiced at Copenhagen by the representatives of several countries far removed from Europe, and the question raised by New Zealand of the present uniform rate of subscription from all adhering countries.

In accordance with the decision of the General Assembly audited accounts for the year 1949 were presented to the Executive Board (see p. 68). The total balance at the end of the year in the various accounts, English, French, American and Dutch, totalled £6436, of which £4350 was U.N.E.S.C.O. money. The free balance of I.C.S.U. money £2086 showed an increase of £606 over that at the beginning of the year.

The Executive Board has agreed to pay 7% of the stipends of the I.C.S.U./U.N.E.S.C.O. liaison officer and his secretary to a Provident Fund, equal sums being paid by the two officers concerned. Their stipends are paid by U.N.E.S.C.O. A further decision in view of the general devaluation of currencies was to reduce further the daily subsistence allowance for delegates to $10 a day, or $12 a day in hard currency countries; an extra two days' subsistence allowance has been approved for delegates attending a meeting from distant countries.

The money received from adhering countries during the year was £1260 and from Unions £171.

The grants allocated by U.N.E.S.C.O. for the year 1950 are given on p. 4.

The grant to the Council was allocated as follows:

| | $ |
|---|---|
| Board and Executive Board, Travelling expenses | 5,000 |
| Joint Commissions | |
| (*a*) Oceanography | 2,600 |
| (*b*) Rheology | 3,500 |
| (*c*) Solar and Terrestrial Relationships | 2,000 |
| (*d*) High Altitude Research Stations | 4,000 |
| (*e*) Administration of Grants-in-aid to I.C.S.U. and its Unions | 14,200 |
| | 31,300 |

At the General Conference of U.N.E.S.C.O. in Florence in 1950 the responsibility for grants-in-aid for certain international scientific institutions (Hochalpine Forschungsstation, Jungfraujoch; Station Zoologique, Naples; Institut Océanographique, Monaco), not primarily under individual Unions has been transferred from the Unions to I.C.S.U. The

Council is on a short list of international non-governmental organizations which have special formal agreements with U.N.E.S.C.O. Changes in the existing agreement will be submitted by U.N.E.S.C.O. shortly to bring it into line with similar agreements with other bodies.

Rules have been drawn up and approved by the Executive Board covering the exact relations between Joint Commissions, Mother-Unions and I.C.S.U.; these have been framed in no way to hamper the action of the Commissions but to make smoother the necessary administrative tasks, especially in connexion with applications for grants-in-aid from U.N.E.S.C.O.

The Committee on Science and Social Relations has applied to become a Joint Commission of I.C.S.U. and C.I.P.S.H., with I.C.S.U. as Father-Council. The Executive Board has agreed and referred the question to the Co-ordinating Committee of International Councils. This is the first suggestion of a joint commission between Councils. C.S.S.R. has also proposed a colloquium in 1952 on 'The place of the scientific method in approaching social problems'.

---

| *U.N.E.S.C.O. grants-in-aid for* 1950 | $ | $ |
|---|---|---|
| International Astronomical Union | | 13,105 |
| International Union of Biological Sciences | 18,005 | |
| Supplementary grant | 4,000 | |
| | | 22,005 |
| International Union of Pure and Applied Chemistry | 14,240 | |
| Supplementary grant | 280 | |
| | | 14,520 |
| International Union of Crystallography (£2,427) | | 6,795.60 |
| International Union of Geodesy and Geophysics | | 15,759 |
| International Geographical Union | | 8,705 |
| International Union of History of Science | | 8,325 |
| International Union of Theoretical and Applied Mechanics | | 6,985 |
| International Union of Pure and Applied Physics | 15,480 | |
| Supplementary grant | 4,000 | |
| | | 19,480 |
| Union Radio-Scientifique Internationale | | 5,675 |
| Main grant to the Council | | 31,300 |
| Supplementary grant: | | |
| Joint Commission on Ionosphere | 4,100 | |
| Joint Commission on Rheology | 400 | |
| | | 4,500 |
| Specialized agencies: | | |
| I.U.B.S., Centre for Culture of *Drosophila* | | 3,000 |
| I.U.B.S., International Association for Microbiologists | | 20,150 |
| I.U.B.S., International Zoological Station, Naples | | 4,550 |
| I.C.S.U., High Altitude Station, Jungfraujoch | | 5,000 |

Observers have been appointed by the Bureau to represent I.C.S.U. at a number of meetings. Professor Borel, the General Secretary and the liaison officer were appointed to act as observers at the Fifth General Conference of U.N.E.S.C.O. at Florence. Professor van Straelen was nominated as observer at the Second General Assembly of the International Union for the Protection of Nature, and Colonel Herbays for the Conference of International Engineering Associations, Paris. Dr Fraser was selected by U.N.E.S.C.O. and Dr J. Needham was nominated by I.C.S.U. to serve on a working party to prepare a list for the International Commission responsible for the proposed Scientific and Cultural History of Mankind. The list drawn up by the working party was referred to I.C.S.U. for approval and at the same time I.C.S.U. was asked to nominate an observer to attend the meetings of the International Commission. The Bureau approved various lists for the Commission, alternate members and an advisory Council and nominated the General Secretary of the International Union of the History of Sciences, Professor P. Sergescu, as observer on the International Commission. After consulting the various Unions the Bureau submitted a number of names suitable as consultants or as members of the advisory Council.

Professor Borel was nominated to represent I.C.S.U. on a U.N.E.S.C.O. Committee appointed to study the implications of a resolution of E.C.O.S.O.C. on the subject of United Nations Research Laboratories, with special reference to a proposed International Computing Bureau. Captain E. B. Roberts, U.S.C. and G.S., represented I.C.S.U. at the General Assembly of the Pan American Institute of Geography and History at Santiago, Chile.

Dr R. Fraser continued to act as liaison officer with U.N.E.S.C.O. throughout the year. The Council wishes to express their appreciation of the zealous manner in which he, and his secretary, Miss I. Hermann, have carried out their duties.

# Rapports des Unions Internationales

## Report of the International Astronomical Union, 1950

During the year elapsed since the last report of the I.A.U. to I.C.S.U. the permanent services of the I.A.U.—the International Time Bureau, the International Latitude Bureau, the Bureau of Astronomical Telegrams, and the Minor Planets Centre—have functioned normally, and have been helped by grants from U.N.E.S.C.O.

The work of the standing commissions of the I.A.U. has continued. The newly created sub-commission on the theory of stellar atmospheres is organizing a discussion aiming at the formulation of research problems of special interest, and at co-ordination of theoretical and observational work in this field. The commission on Solar Eclipses has distributed advance calculations of the details of eclipse tracks in co-operation with the British Nautical Almanac Office and the U.S. Naval Observatory, and has contributed towards the co-ordination of the efforts in connexion with the eclipse of 25 February 1952. The commission on meteors is discussing plans for cataloguing all of the data on meteorites. The plans include a card-index catalogue on each meteorite and a microfilm file of the complete world literature on meteorites. Through the work of the Commission on the Carte du Ciel considerable progress has been made in catalogue publication. The New Revision of the Rowland Catalogue of the Solar Spectrum, carried out under the auspices of the relevant commissions of the I.A.U., is advancing and is expected to be ready in two or three years. The commission of exchange of astronomers, with the aid of grants from U.N.E.S.C.O., has arranged for the exchange of a number of astronomers, namely,

1 Italian to U.S.A.
1 Belgian to the Vatican State
1 Belgian to travel in U.S.A.
1 French to U.S.A.
1 Dutch to France
1 French to Holland
1 Chinese to England
1 Dutch to France
1 Finnish to Holland
1 Polish to Sweden
1 Dutch to Switzerland
1 Turkish to Switzerland
1 British to Italy
1 Italian to U.S.A.
1 German to England.

Among works published under the auspices of the I.A.U., and with the aid of U.N.E.S.C.O. grants, may be mentioned the Minor Planets Circulars and the Name-Lists of Variable Stars.

The I.A.U. has discussed plans for two Symposia in 1951, one on problems of astronomical instrumentation, and one on astronomical problems of radio-astronomy.

It has been decided to hold the next General Assembly of the I.A.U. in Leningrad and Pulkovo, 1–8 August 1951.

BENGT STRÖMGREN

# Report of the International Union of Geodesy and Geophysics, 1950

(1) *Membership*

The nominal membership is now thirty-seven countries, Turkey and the Philippines having become new members in the last year. Of the thirty-seven member countries, however, three have paid no subscription for a period of years.

(2) *Activities of the Constituent International Associations and Commissions*

(*a*) As U.G.G.I. is concerned with subjects which deal with the earth as a whole, the Bureaux of the seven constituent Associations are continuously in operation co-ordinating the methods of observation, collecting and reducing and analysing the results. In the life of the U.G.G.I., General Assemblies and Symposia are almost incidental activities: the unspectacular work of daily co-operation in advancing knowledge of the earth's behaviour goes on all the time, guided and sponsored by the several Associations within U.G.G.I.

(*b*) The Association of Geodesy maintains the only international periodical publication devoted to geodetic and allied matters: the Association also helps to guide the scientific work of several important permanent services. Co-operation with the I.A.U. and the geodetic and survey services in many countries is continuous, close and profitable.

(*c*) The Association of Seismology is responsible for the collection and publication of the only complete summary of details of all earthquakes wherever they may occur, thus providing an indispensable basis for researches into the structure of the earth.

(*d*) Within the Association of Meteorology the Committee on Solar Radiation has been active and has benefited much from the excellent work of Swiss and Belgian workers in this field. The Committee on Ozone, under the same Association, has continued to collect observations of the distribution and intensity of ozone in the atmosphere: a new instrument is being provided through a grant from U.N.E.S.C.O.

(*e*) In Geomagnetism and Electricity, the international comparison of magnetic standard instruments has been carried a stage further; observatories in South American countries and Australia and the south-west

Pacific area have now been covered. A special inquiry is being made into the anomalous behaviour of the earth's magnetic field between the geographic and the magnetic equators.

(*f*) The Association of Physical Oceanography has published a valuable report on 'Mean Sea Level and its Variations' for the years 1937–46. A Committee has been formed to encourage the making of oceanographical observations on Atlantic weather ships, and another Committee is preparing a much-required hand-book on the making and processing of oceanographical observations. U.N.E.S.C.O. has given financial support to the production of standard sea water, which is an indispensable requirement in analysis and must have an extremely high degree of accurate chemical composition.

(*g*) The Association of Vulcanology continues its close and fruitful collaboration with investigators in Japan, Italy and Holland, and has published three volumes of the *Bulletin Volcanologique*.

(*h*) In Hydrology, the Association has three very active Commissions on Snow and Ice, on Subterranean Waters and on Surface Waters. There is also a Committee on Erosion, which is taking an active part in deliberations on the establishment of an International Institute for the Arid Zones. The Commission on Snow and Ice is engaged in laying down an international classification of the various forms of snow crystals.

### (3) *Joint Committee on the Physics of the Earth's Interior*

As a provisional measure preparatory to a decision about the future organization within U.G.G.I., the Associations concerned formed a joint committee within the Union to study border-line subjects which are of interest to several U.G.G.I. Associations and other Unions. This Committee deals with the structure of the Earth's crust and core and links seismology, vulcanology, isostasy, radioactivity, etc. In collaboration with I.U.T.A.M., a symposium of Movements of the Earth's Crust was held in Washington in September 1950: U.N.E.S.C.O. has made this possible by a grant to each of the two Unions.

### (4) *Joint Commission on Oceanography*

U.G.G.I. is the mother union to this Commission and has given guidance through the Association of Oceanography. A separate report on the work of the Joint Commission by its Secretary, Col. Sewell, is on p. 43.

(5) *Future Arrangements*

U.G.G.I. is now actively engaged in preparation for the Ninth General Assembly to be held in Brussels, 21 August to 1 September 1951. Many important symposia on the various subjects have been arranged.

(6) *Assistance from U.N.E.S.C.O.*

Throughout the year, co-operation between U.G.G.I. and U.N.E.S.C.O. through the intermediary of the I.C.S.U.–U.N.E.S.C.O. Liaison Officer, Dr Fraser, has been close and friendly. U.G.G.I. acknowledges its indebtedness to U.N.E.S.C.O. for substantial financial assistance, particularly towards the permanent international services carried on by U.G.G.I.

J. M. STAGG

# Rapport de l'Union Internationale de Chimie Pure et Appliquée, 1950

A l'Assemblée Générale de Copenhague (septembre 1949) nous avons retracé sommairement les travaux de notre XVème Conférence qui venait de se tenir quelques jours auparavant à Amsterdam. Les comptes-rendus détaillés en sont à présent publiés et ils forment une brochure de 192 pages in-4° contenant en outre les exposés des réunions plénières par les Professeurs BIJVOET et WIBAUT, les tables des poids atomiques 1949, ainsi que d'importants rapports notamment: sur les symboles physico-chimiques, sur les données et étalons physico-chimiques, sur la nomenclature en chimie organique (radicaux, composés organo-siliciés) et en chimie biologique (amino-acides et vitamines).

En marge de ce document, il est bon de signaler que la remarquable revue 'Endeavour' a publié un article sur les *origines de l'Union, sa constitution et son fonctionnement, ses principales manifestations* jusqu'à ce jour. Des tirés à part en anglais, en français, en allemand, en italien ou en espagnol peuvent être délivrés sur simple demande à notre Secrétariat.

Depuis la XVème Conférence, le Comité exécutif de l'Union s'est réuni à Paris (décembre 1949), à Londres (mars 1950) et à la Haye (juin 1950). Il a envisagé *l'adhésion du Chili*, ce qui porte à 32 le nombre d'Organismes nationaux adhérents. Des pourparlers sont toujours en cours pour l'affiliation de divers pays, notamment: Cuba, Egypte, Guatemala, Honduras, Iran, Irak, Irlande, Mexique, Pérou et Turquie. Quelques cotisations d'Organismes adhérents restent impayées; reconnaissons d'ailleurs que la situation de certains d'entre eux est bien délicate.

Le Comité exécutif s'est principalement préoccupé de *l'organisation des six sections semi-autonomes créées dans l'Union*. Des projets de règlement ont déjà été ou seront examinés et une discussion générale, avec le concours des Présidents de Section, est portée à l'ordre du jour de la réunion, fixée à Paris au début d'octobre 1950, de façon à présenter ces projets devant le Conseil de la XVIème Conférence générale (septembre 1951).

La plupart des Sections ont constitué un *Comité-Directeur* destiné à aider le Président à déterminer les questions d'actualité à traiter sur le plan international et certains ont projeté d'établir des *Sous-Sections* susceptibles de couvrir tout le domaine de la Section, de façon que l'on puisse diriger

sur l'une d'elles n'importe quel problème présentant un intérêt international. Pour la Section de Chimie-Physique par exemple, ces Sous-Sections seraient: (1) Cinétique des réactions; (2) Structure moléculaire; (3) Radiochimie; (4) Thermodynamique et Thermochimie; (5) Macromolécules et Colloïdes; (6) Electrochimie.

D'autres ont créé des *Commissions nouvelles* pour compléter les anciennes. La Section de Chimie minérale comprend désormais trois nouvelles Commissions: (1) Hautes températures et Matériaux réfractaires; (2) Métaux purs et leur protection; (3) Localisation géochimique des éléments. De même, la Section de Chimie analytique comportera les Commissions suivantes: (1) Données physico-chimiques analytiques; (2) Nouveaux réactifs analytiques; (3) Terminologie analytique; (4) Microchimie. En Chimie appliquée dont le champ d'activité est considérable, —'la chimie est au fond de tout et rien ne lui échappe' (DUCLAUX)—on envisage pour l'instant de créer cinq Sous-Sections (Agriculture; Industries de fermentation; Matières Grasses, déjà existante; Matières plastiques; Matériaux de Construction et Matériaux routiers), dont la fonction principale ne serait pas de réunir des Conférences, mais de prendre des décisions sur des sujets exigeant une haute autorité; indépendamment de leurs domaines respectifs, les anciennes Commissions de Normalisation et d'Hygiène industrielle s'occuperaient aussi de rassembler, de réviser et de publier des données, des méthodes d'essais, des vocabulaires de termes techniques, etc....pour uniformiser et tenter de faire adopter partout les spécifications internationales ainsi définies.

Depuis la Conférence d'Amsterdam, quelques Commissions se sont réunies. Celle de *Nomenclature de chimie inorganique* (avril 1950) a décidé de nommer Wolfram ou Tungstène l'élément 74 et Berkélium le nouvel élément 97; des règles générales de nomenclature seront définitivement fixées lors de la Conférence de 1951; la Commission étudiera la nomenclature plus particulière des silicates, des silicones et des hydrures de bore. La Commission des *Nouveaux réactifs analytiques* (juillet 1950) envisage la traduction anglaise du 4ème Rapport des Réactifs recommandés pour l'analyse qualitative minérale et découverts dans la période 1937–47: ce document de 104 pages, complément du 2ème Rapport publié en 1945, vient de paraître à la Société d'édition d'enseignement supérieur, 99 Bld St Michel, Paris 6°. Elle décide d'établir un premier rapport bibliographique sur les réactifs colorimétriques utilisés en chimie minérale (jusque 1950); un second rapport sera publié après une sélection expérimentale effectuée par des Membres de la Commission. Enfin, la Commission Mixte des *Etalons, Unités et Constantes de Radioactivité* a élu le

Professeur PANETH (Durham, Grande-Bretagne) à la présidence: elle s'est réunie récemment à Paris (voir p. 50).

En dehors de ces réunions, d'autres Commissions continuent entre les Conférences, de manifester leur activité. Celle des *Tables de Constantes Sélectionnées* prépare la publication de nouveaux recueils, ce qui entraîne un travail bibliographique considérable avant la sélection par des spécialistes éprouvés. La Commission des *Encyclopédies et de la Documentation* a été particulièrement intéressée par la réorganisation des Instituts *Beilstein et Gmelin* qui publient respectivement en Chimie Organique et en Chimie Minérale des Encyclopédies indispensables aux Laboratoires de recherches. La Commission de *Chimie macromoléculaire* a demandé d'assurer la diffusion de deux rapports: l'un sur la nomenclature, l'autre sur l'examen d'échantillons-types avant de dresser les documents définitifs en 1951: ces Rapports miméotypés ont été joints à la Circulaire d'information de juin 1950. La Commission de *Codification, de Chiffrage et de Triage des Combinaisons organiques* étudie la dizaine de systèmes qui sont actuellement proposés pour traduire les formules de structure des composés organiques en symboles linéaires faciles à imprimer, à savoir: lettres, chiffres et signes de ponctuation; ayant fixé les conditions pour que de tels systèmes présentent une commodité maximum, elle déterminera, à l'aide de tests, le meilleur système de formulation.

Tout ce travail en commun se réalise, grâce, pour une bonne part, aux libéralités de l'U.N.E.S.C.O. dont l'Union reste l'obligée. En 1951, 8–17 août, se tiendra notre XVIème Conférence Générale à New York et Washington, en même temps que se déroulera le XIIème Congrès International de Chimie pure et appliquée où l'on escompte la présence d'environ quinze mille chimistes américains. Nous souhaitons une aide exceptionnelle de l'U.N.E.S.C.O.—la dernière Conférence tenue aux Etats-Unis fut la septième en 1926—pour que la participation européenne à la XVIème Conférence et au XIIème Congrès soit importante. A cet égard, observons que nos Conférences Générales constituent, sous leur forme actuelle, des réunions d'une vingtaine de colloques, correspondant aux multiples séances que tiennent simultanément toutes nos Commissions. Par la suite, certaines Conférences seront probablement plus restreintes, puisque toutes les Sections nouvellement créées pourront ne pas y être appelées à la fois. C'est ainsi qu'en 1952 sont projetés le deuxième Congrès International de Biochimie (Paris) et le premier Congrès International de Chimie analytique (Oxford): notre Section de Chimie biologique et notre Section de Chimie analytique y seront vraisemblablement et respectivement conviées. En 1953, les Sections qui ne se seraient pas réunies

l'année précédente formeraient une Conférence à Stockholm. Enfin, il est prévu un deuxième Congrès International de Microchimie à Milan en 1954, où notre Section de Chimie analytique entrevoit à nouveau la possibilité de se rassembler. Une commission de microchimie a été rattachée à cette Section.

R. DELABY

# Rapport de l'Union Radio-Scientifique Internationale, U.R.S.I., 1950

1. Poursuivant son plan de collaboration internationale et 'inter-scientifique', l'U.R.S.I. vient de publier, en français et en anglais, un Rapport Spécial sur 'Les bruits radio-électriques d'origine solaire et galactique' (On Solar and Galactic Radio Noise).

Des exemplaires de ce Rapport ont été distribués aux Comités Nationaux de l'U.R.S.I. et aux Unions qui s'intéressent à cette question d'actualité.

2. Le projet d'un Rapport sur 'Les phénomènes périodiques dans l'Ionosphère' (On Tidal Phenomena in the Ionosphere) a été discuté et mis au point au cours de l'Assemblée Générale à Zürich, du 11 au 22 septembre 1950.

Dès que ce Rapport sera publié, dans le courant de 1951, il sera distribué de la même façon que le Rapport précédent.

3. Dans un autre domaine, l'U.R.S.I. a conclu une entente avec l'Union Internationale des Télécommunications (U.I.T.). En vertu de cet accord, cette dernière Union qui groupe les Administrations de nombreux pays:

(*a*) Reconnait l'U.R.S.I. comme un organisme pouvant être d'une grande utilité pour les travaux de l'U.I.T. et en particulier du Comité Consultatif International des Radiocommunications (C.C.I.R.).

(*b*) Demande à l'U.R.S.I. d'étudier les questions scientifiques soulevées par les travaux du C.C.I.R.

Cet accord ne contient aucune clause financière.

4. A la réunion de l'Assemblée Générale à Zürich l'on a nommé les membres du bureau comme il suit:

*Président:* Sir Edward V. Appleton.

*Vice-Présidents:* Docteur J. H. Dellinger, R. P. Lejay, Docteur D. F. Martyn.

*Trésorier:* Professeur Ch. Manneback.

*Secrétaire:* E. Herbays.

*Présidents de Commissions:* I, Docteur J. H. Dellinger; II, Docteur Charles R. Burrows; III, Sir Edward Appleton; IV, Professeur

H. Norinder; V, Docteur D. F. Martyn; VI, Professeur Docteur B. van der Pol; VII, Docteur G. Lehmann.

*Représentants de l'Union à C.C.I.R.:* Docteur H. Bremmer, Docteur R. L. Smith-Rose, Docteur H. G. Wells, M. B. Decaux.

5. La Yugoslavie est devenu pays adhérent.
6. La prochaine Assemblée Générale se réunira en Australie en 1952.

E. Herbays

# Rapport de l'Union Internationale de Physique Pure et Appliquée, 1950

1. Les adhésions annoncées du Japon, du Brésil et de l'Argentine viennent de porter à 25 le nombre des pays adhérents.

2. Depuis l'an dernier, des Comités locaux ont organisé, avec le patronage de notre Union, les *Colloques* dont la liste suit, qui ont remporté un grand succès. L'aide financière de l'U.N.E.S.C.O. a permis les déplacements d'un certain nombre de conférenciers et de jeunes étudiants, et contribué à la publication des travaux.

Septembre 1949: *Bâle* (Professeur HUBER)—Physique nucléaire, théories de la structure du noyau et de l'électrodynamique des quanta (rappel); *Côme* (Professeur POLVANI)—Mésons et nucléons dans les rayons cosmiques (voir doc. SG. 49–4 et SG. 50–1); *Cambridge, Mass.* (Professeur J. C. SLATER)—Très basses températures (voir doc. SG. 49–4 et SG. 50–1).

Juin 1950: *Rome* (Professeur GIACOMINI)—Ultra-acoustique (voir doc. SG. 50–2).

Juillet 1950: *Reading, Grande-Bretagne* (Professeur DITCHBURN) (voir doc. SG. 50–2).

Décembre 1950: *Bombay* (Docteur BHABHA), Elementary Particles.

3. La *Commission Internationale d'Optique*, affiliée à notre Union, vient de se réunir à Londres, avant et pendant un Congrès d'Optique instrumentale organisé par le Comité d'Optique britannique (Professeur L. C. Martin, Secrétaire). Elle a pris d'importantes décisions concernant notamment des tentatives de classification des sujets et d'unification des principaux symboles et conventions en optique, des recommandations pour certaines expériences d'Optique physiologique poursuivies en vue des applications à l'Optique instrumentale, ainsi que pour les températures et longueurs d'onde de référence à adopter pour diverses mesures, etc.

Un projet de publication périodique internationale pour l'Optique a été mis à l'étude.

D'importants rapports ont été présentés, et le programme du travail ultérieur a été fixé (voir doc. SO. 50–26).

4. L'Union a été représentée aux réunions de l'U.N.E.S.C.O. concernant la fertilisation des zones arides, les bons pour achats d'instruments, et l'utilisation des résumés analytiques en physique.

La Commission des 'Unités, Symboles et Nomenclature' a été représentée à une réunion récente du Comité Electrotechnique International.

Sa Commission 'Rayons Cosmiques' doit se réunir en décembre 1950 à Bombay, à l'occasion d'un Congrès organisé par le Tata Institute of Fundamental Research.

Sa Commission des publications se réunit à Paris en septembre 1950 en même temps que la Commission mixte pour les Résumés analytiques en Physique de l'I.C.S.U.

5. En plus des habituelles circulaires d'information, et de celles spéciales à la C.I.O., nous signalons les nouvelles publications suivantes:

(1) *Colloque de mécanique statistique* (Florence, mai 1949). Mémoires et discussions, 162 pp. en anglais et en français; supplément au *Nuovo Cimento* (1949).

(2) *Colloque sur la physique nucléaire* (Bâle, 1949). Mémoires et discussions, 245 pp. en anglais, allemand et français; supplément aux *Helvetica Physica Acta* (1950).

(3) *Colloque sur les rayons cosmiques* (Côme, 1949). Mémoires et discussions; supplément au *Nuovo Cimento*.

(4) *Colloque sur la théorie des images optiques* (Paris, 1946). Mémoires et discussions, 320 pp. Editions de la *Revue d'Optique*, 1949.

(5) C.I.O.–3. 'Specifications for optical gratings' 1950 (rapporteur: E. Ingelstam).

(6) C.I.O.–4. 'Les récepteurs physiques de radiation' 1950 (rapporteur: H. König).

(7) Publ. 50–1. 'Publications et résumés analytiques en physique' (avril 1950).

6. L'Assemblée Générale se réunira à Copenhague en juillet, 1951.

P. FLEURY

# Report of the International Union of Geography, 1950

The year 1950 is one of important activity for the International Geographical Union. In part this is due to the revitalization provided by the Lisbon Congress in 1949, in part it is related to more adequate funds. Thanks to increased dues and to grants from U.N.E.S.C.O., the current budget amounts to some $15,000. More than thirty countries now adhere, with several applications pending. One significant development is the active extension of the Union to Asia and Latin America.

All of the twelve commissions are operating, and a number have held meetings. The second issue of the Newsletter has appeared, and 4000 copies have been distributed free of charge. The President has visited geographers in seventeen countries of Latin America and Europe. The Secretary-Treasurer has been very active; paid secretarial assistance has enabled him to carry on a wide correspondence. The ten members of the Executive Committee, from as many countries, met in London at the end of August. Plans are under way for the XVIIth Congress to be held in Washington, 8–15 August 1952.

Several problems may be of interest to I.C.S.U. These include the overly governmental character of the adhering organization in several countries, and the unrepresentative nature of some national Committees. Our dues are currently payable in United States dollars, a hard currency requirement which has not caused serious difficulties in payment but which has led some countries to elect membership in a lower category than previously. The I.G.U. continues to depend upon U.N.E.S.C.O. grants for many of its activities. We had hoped to arrange regional seminars in East Africa and Southern Asia, but funds were not forthcoming. Other programmes have been curtailed since grants were unavailable. The work of the commissions represents one of our major activities between sessions of the Congress. At present these are in part named from the floor during the final session of the General Assembly. As a result, we have more commissions than we can adequately support, some of the personnel are not the proper selection, and many assignments are too diffuse. The Union has no stock of its publications, and no central sales agency. In an international organization such as ours, particularly one without individual membership,

coherence is difficult and it is felt that personal visitation by the officers is essential.

Reports have been published during 1950 by the following Commissions of the Union:

Commission on Regional Planning—a body that may be of service in the preparation of surveys concerning the plans for the development of under-developed regions of the world.

Commission on Medical Geography—applying statistical methods and cartography to problems of geographical pathology.

Commission on International Cartographic Bibliography—for the years 1948, 1949.

GEORGE B. CRESSEY

# Rapport de l'Union Internationale des Sciences Biologiques, 1950

La Commission pour l'étude des calamités naturelles s'est réunie pour la première fois, avec la coopération de représentants des Unions de Géographie, Géodésie-Géophysique et Astronomie. La commission veut coordiner les recherches sur les phénomènes désastreux: tremblements de terre, éruptions volcaniques, famines, épidémies, invasions de sauterelles, etc., qui périodiquement étendent leurs ravages et répandent la misère. La commission a en vue de situer graphiquement les grands fléaux naturels dont souffre l'Humanité, d'en déterminer les causes, d'en étudier les retours accidentels ou périodiques, de rechercher enfin quels pourraient être les moyens les plus efficaces pour les prévoir, les éviter et les combattre.

Une autre Commission nouvelle est pour l'étude de la Lutte biologique: études biologiques et écologiques des parasites et prédateurs des principaux insectes nuisibles.

Plusieurs colloques ont été organisés en 1950 sur la Cytochimie, l'Ecologie des zones arides, la Limnologie et le Mode d'action des Radiations ionisantes.

Des subventions spéciales ont été allouées à quelques publications, notamment *Index herbariorum* (Docteur Lanjouw), *Guide de Terminologie génétique et cytologique* (Docteur Sirks), *Catalogue des Types des Acariens* (Docteur Radford): aussi l'on a alloué des subventions à quelques organismes—La station zoologique de Naples, et quelques Centres de Collection de Types microbiens. C'est surtout les subventions généreuses de l'U.N.E.S.C.O. qui ont facilité ces subventions et autres activités de l'Union.

L'Assemblée générale s'est tenue à Stockholm le 7–11 juillet 1950 sous la présidence du Professeur Sirks. 90 participants, représentant 28 pays adhérents, prirent part aux travaux.

La première journée fut consacrée à l'exposé des rapports, tant sur le fonctionnement de l'Union dans son ensemble, que des différentes Sections et Commissions spécialisées.

De la lecture du rapport du Trésorier et des interventions qui suivirent,

il ressort que, sur les 10 Unions affiliées à l'I.C.S.U., l'U.I.S.B. occupe l'avant-dernière place par l'importance des cotisations qu'elle reçoit de ses adhérents et que, même si le montant de la part unitaire de la cotisation est doublé, elle conservera encore cette place. La part unitaire est fixée, à partir de 1951, à 200 frs. suisses. En outre, il est décidé de modifier *l'Art. 16* des statuts comme suit: 'Le nombre de parts contributives à payer par chaque adhérent est de 1, 2, 4, 8 ou plus. Chaque pays est libre de s'inscrire dans une de ces catégories ou de changer ultérieurement de catégorie, en tenant compte de l'importance de ses établissements scientifiques et de celle qu'il attribue à l'Union, ainsi que de ses possibilités financières.'

Au cours de la seconde journée, il fut surtout question des Colloques qui pourraient être organisés en 1951, 1952 et 1953, à condition qu'un soutien financier permette de le faire. Les sujets suivants, après un long échange de vues, furent adoptés en priorité:

1951. *Biométrie:* Problèmes biométriques dans la prévision et l'estimation de la croissance des végétaux dans les régions tropicales et subtropicales. *Botanique:* The modern Botanical Garden, its aims, scope and administration. *Entomologie:* Les Symbiontes chez les Insectes.

1952. *Botanique:* Culture des tissus végétaux. *Cytologie:* Sujet pas encore arrêté. *Embryologie:* Croissance et Morphogenèse.

1953. *Génétique:* Sujet non adopté. *Zoologie:* Sujet non adopté. Section et sujet non choisis.

Les Commissions internationales de Nomenclatures botanique et zoologique, après s'être réunies séparément, se sont mises d'accord sur un texte commun par lequel elles demandent la création d'un 'Comité international puissant' pour appuyer la Commission de Nomenclature zoologique et d'une 'Association internationale' pour patroner le Bureau international de la Taxonomie et de la Nomenclature des plantes.

A la suggestion du Docteur Boyko, la création d'une Commission internationale pour l'Ecologie appliquée a été mise à l'étude.

En raison de la multiplicité et de la variété des grands Congrès internationaux d'appartenance biologique, l'Assemblée générale a invité le Secrétaire général à établir un calendrier qui faciliterait une distribution harmonieuse dans le temps de ces grandes manifestations qui ont besoin de concours financier important.

Enfin, il a été procédé à l'élection des membres du Bureau. Le Professeur Sirks ayant demandé à quitter définitivement la présidence, le nouveau Bureau a été ainsi constitué:

*Président:* Professeur H. Munro Fox, de Londres.
*Vice-Président:* Professeur J. Runsstrom, de Stockholm.
*Secrétaire général:* Professeur P. Vayssière, de Paris.
*Secrétaire:* Professeur Stuart Mudd, de Philadelphie.
*Trésorier:* Professeur F. Chodat, de Genève.

P. Vayssière

# Report of the International Union of Theoretical and Applied Mechanics, 1950

The 2nd General Assembly of the International Union of Theoretical and Applied Mechanics took place at Pallanza (Lago Maggiore, Italy) on 26 and 27 June 1950. It was preceded by a meeting of the Bureau of I.U.T.A.M. in the morning of 26 June, while a colloquium on 'Problems of Mechanics' had been held on 23 and 24 June.

The following members were present: J. Ackeret (Zürich); C. B. Biezeno (Delft); Sir David Brunt (London); J. M. Burgers (Delft) (*Secretary*); G. Colonnetti (Rome); A. Coppens (Louvain); A. Crocco (Rome); Sir Charles Darwin (Cambridge, England); H. L. Dryden (Washington, D.C.) (*Treasurer*); F. H. van den Dungen (Bruxelles); A. A. Hall (London); H. Favre (Zürich); N. J. Hoff (Brooklyn, N.Y.); Th. von Karman (Pasadena, California); C. Koning (Amsterdam); F. K. G. Odqvist (Stockholm); J. Pérès (Paris) (*President*); M. G. Salvadori (New York, N.Y.); R. J. Seeger (Silver Spring, Maryland); H. Solberg (Oslo); G. Temple (London); S. P. Timoshenko (Stanford, California); W. Weibull (Bofors, Sweden).

The secretary announced that since January 1950 the 'Swedish National Committee for Mechanics', Stockholm, the 'Turkish Society for Pure and Applied Mathematics', Istanbul, and the 'Department of Scientific Research of the Government of India', New Delhi, have been admitted as adhering organizations. A request for admission from the 'Swiss Federal Institute of Technology (Ecole Polytechnique Fédérale)' of Zürich was submitted to a vote at the meeting and received unanimous agreement.

Concerning the admission of scientific organizations from Japan, Spain, Germany and Austria (from one of which a preliminary letter had been received) it was unanimously expressed that there are no objections. If formal application comes in and is submitted to a vote by correspondence, a favourable decision can be expected in all cases.

Professor van den Dungen read a report on the work of the Committee to collect and compare data on internal damping.

An extensive discussion took place concerning a proposal which had been made by the Council of the Royal Society of London, to delete

Art IV (*b*) from the Statutes in order that after 1952 the General Assembly should be formed only of representatives of adhering organizations, with the exclusion of members elected personally. Also a change in the wording of Art. II had been suggested, which in effect would have the consequence that the International Committee for the Congresses of Applied Mechanics should no longer be counted as an adhering organization. The outcome of the discussions was the unanimous adoption of a resolution, proposed by Dr H. L. DRYDEN, as follows:

In confirmation of the views already expressed at the General Assembly of September 1948 when the present statutes were framed:

(1) The General Assembly expects that in those countries where more than one national organization is active in theoretical and applied mechanics, a national co-ordinating committee will be formed. In general it is expected to recognize only one adhering body in each country.

(2) The General Assembly believes that a gradual transition should be made in its composition, so that ultimately it will consist mainly of representatives of organizations adhering to the Union with the category of elected members reserved for exceptional and unusual cases. To this end it gives notice of its intention to reduce the number of elected members when the terms of the present elected members expire in 1952.

The British delegates declared that this resolution had taken away the greater part of their objections and withdrew their original proposal.

It was decided to arrange a colloquium on 'Non-Linear Vibrations' in October or November 1951. A provisional organizational Committee was appointed. The co-operation will be sought of the International Union of Radio Science.

In 1952 no colloquium will be arranged by the International Union in view of the VIIIth International Congress of Applied Mechanics to be held at Istanbul.

The 1951 meeting of the Bureau of I.U.T.A.M. will, if possible, be held in Chicago, Illinois, in June, at the time of the 1st U.S. National Congress of Applied Mechanics. In 1952 there will be a General Assembly at Istanbul, simultaneously with the International Congress.

*Colloquium at Pallanza*

The General Assembly of I.U.T.A.M. was preceded by a Colloquium on *Problems of Mechanics*, on 23 and 24 June 1950.

Apart from the members of the General Assembly, the following guests were present at the colloquium:

Mr R. Crawford (Paris)
Dr S. C. Lowell (London)
Dr F. Levi (Torino)
Dr F. Merlino (Torino)
Ing. P. L. Romita (Milano)

Papers were presented by:

Professor N. J. Hoff (Brooklyn, N.Y.): 'Report on an investigation of the dynamics of the buckling process.'

Professor F. H. van den Dungen (Bruxelles): 'Une erreur classique dans le problème des charges mobiles.'

Dr R. J. Seeger (Silver Spring, Maryland): 'Some remarks on aero-physical research.'

Professor J. Ackeret (Zürich): 'On aerodynamic heating and cooling'.

Dr F. Merlino (Torino): 'Etude des phénomènes d'adaptation dans les dalles en béton armé précontraint'.

Dr F. Levi (Torino): 'Fondements théoriques d'une étude directe des états de contrainte provoqués par une déformation non compatible'.

Professor J. M. Burgers (Delft): 'On a correlation problem in a model of turbulence'.

Professor G. Temple (London): 'Recent work on unsteady supersonic motion'.

A lively discussion followed after every paper.

Professor Colonnetti has promised to take care of the publication of the papers in *La Ricerca Scientifica*.

J. M. Burgers

# Rapport de l'Union Internationale d'Histoire des Sciences, 1950

I. La préoccupation principale de l'Union a été la préparation de la IIe Assemblée Générale (Amsterdam, 14 août 1950) et du VIe Congrès International d'Histoire des Sciences (Amsterdam, 15–21 août 1950). Ce congrès paraît devoir marquer un succès important de l'Union. Il réunit 350 participants, appartenant à 27 nations. Plus de 80 communications ont été présentées.

II. Les *publications* de l'Union ont continué dans le même rythme que l'année précédente, grâce à l'appui généreux de l'U.N.E.S.C.O.

On a publié les nos 10, 11, 12, Tome III, des *Archives Internationales d'Histoire des Sciences*, 804 pag. in 8°, 68 collaborateurs de 20 pays, dont 14 pays européens, plus: Argentine, Egypte, Inde, Iran, Israël, U.S.A., 23 mémoires originaux, 131 comptes rendus critiques, revue des revues, documents officiels, notes et informations. Nous avons à déplorer la très grande perte du directeur de la revue, Aldo Mieli, secrétaire perpétuel de l'Académie Internationale d'Histoire des Sciences.

Dans la *Collection de Travaux Scientifiques de l'Académie*, on a publié le no 4: *Ibn Qutayba. The Ujûn al-akhbâr*. Traduction, avec introduction et commentaires par F. S. Bodenheimer et L. Kopf, viii + 88 pag. in 8°.

L'Union a publié en outre *trois* brochures, 100 pag. in 8°.

En tout, on a fait imprimer 1000 pages.

III. L'activité de nos *cinq commissions* et de la section d'histoire de la médecine peut se résumer ainsi:

Six Réunions. Publication d'un volume et de l'Enquête internationale sur la place de l'histoire des sciences dans l'enseignement supérieur. Six ouvrages sont en cours, dont le Catalogue des Manuscrits Scientifiques de Grande-Bretagne. On travaille également au Catalogue des Globes anciens (terrestres et célestes).

IV. Quatre pays nouveaux ont adhéré à notre Union: l'Espagne, l'Inde, le Japon, les U.S.A., ce qui porte à *vingt-deux* le nombre des Groupes Nationaux adhérents, sans parler des Sociétés Nationales spécialisées affiliées à l'Union. Leur travail en 1949–50 a été le suivant: 5 Congrès Nationaux d'Histoire des Sciences, avec 53 communications; 39 séances publiques, avec 57 communications; 7 Périodiques d'Histoire

des Sciences; Notes bibliographiques mensuelles et publication de 14 ouvrages; Séminaire et Cours libres d'Histoire des Sciences; Collaboration avec le Palais de la Découverte de Paris à l'organisation de l'Exposition Pascal.

V. L'Union a commémoré le bicentenaire de P. S. Laplace, en organisant une séance au Palais de la Découverte, où ont pris la parole MM. A. Raymond, J. Hadamard, J. Chazy, van Dantzig, P. Humbert.

Elle prit part au Congrès International des Sciences Historiques, Paris, 28 août–3 septembre 1950, où elle organisa la séance consacrée à l'histoire des sciences.

L'Académie a organisé à Paris une séance publique sur Christophe Colomb, où la conférence a été donnée par M. R. Almagià.

Le XIIe Congrès International d'Histoire de la Médecine a lieu dans les cadres de notre congrès d'Amsterdam.

VI. Le secrétaire de l'Union a écrit 1082 lettres, car nous n'avons aucun service de secrétariat, plus les circulaires.

VII. Les revenus de l'Union en 1950 ont été: $8325 subvention de l'U.N.E.S.C.O. pour aider l'organisation du Congrès d'Amsterdam et pour les publications (*Archives*, Actes du Congrès, etc.).

En outre, notre Union a réussi à avoir des *revenus propres* 469,069 fr. fr. employés en grande partie pour les frais du Congrès, du Secrétariat, de l'administration et de correspondance.

VIII. Les Conseils de l'Union et de l'Académie se sont réunis en août 1950 à Amsterdam. De nouveaux Conseils, pour 1950–53, ont été élus par les Assemblées Générales du 14 et 20 août 1950.

Le conseil de l'Union a été élu de la manière suivante:

*Président:* G. Sarton (Cambridge, U.S.A.).

*Vice-présidents:* Mme. D. Waley Singer (London).
Professeur R. J. Forbes (Amsterdam).

*Assesseurs:* Professeur J. Pelsencer (Bruxelles).
R. Taton (Paris).

*Administrateur:* J. A. Vollgraff (Leiden).

*Secrétaire Général:* P. Sergescu (7 Rue Daubenton, Paris V).

L'Assemblée a nommé une commission pour la modification des statuts en vue de faire possible l'admission des philosophes des sciences.

La prochaine Assemblée générale de l'Union et le VIIe Congrès International d'Histoire des Sciences auront lieu à Jerusalem (Israël) en août 1953.

P. Sergescu

# JOINT COMMISSION ON HIGH ALTITUDE RESEARCH STATIONS

*Historical*

At the meeting of the Executive Committee of I.C.S.U. at Brussels in 1948, a Joint Commission on High Altitude Research Stations was formed. This was in accordance with the resolution passed by the international conference on High Altitude Research Stations organized by U.N.E.S.C.O., which met in Interlaken on 31 August 1948. The International Union of Biological Sciences acts as mother union and delegates four members. The International Union of Geodesy and Geophysics is equally represented and the International Unions of Astronomy and Pure and Applied Physics each send three members. Most of the members are high altitude research specialists and several of them represent research stations already in existence. They are recruited from the following scientific fields: general medicine and high altitude climatology, physiology, botany, zoology, meteorology, snow and avalanche research, spectrophotometry of the atmosphere, astronomy, astrophysics, nuclear physics and cosmic radiation and crystallography. Two advisory counsellors have been appointed, one a physiologist and the other a geologist.

*Financial Resources*

The powers of the commission for supporting an appeal are limited to those of proposal and designing of projects, and the submitting of these to the International Union concerned. The commission itself possesses only the funds allotted to it every other year for the meeting of its members.

The secretarial expenses have been paid for 1949 by the Secretary General of I.C.S.U. and it is hoped that further expenses will be paid in the same way.

Grants either for high altitude research projects, for publications connected with similar researches, for the construction of new scientific stations, or the maintenance of those now existant will be requested from U.N.E.S.C.O. with the aid of I.C.S.U.

*Future Activity*

The commission discussed at its meeting at Bagnères-de-Bigorre, August 1950, the following projects:

(*a*) Exchange of biologists between high altitude research stations in Peru and Europe. A request for a grant-in-aid has already been transmitted to U.N.E.S.C.O. through I.U.B.S. and I.C.S.U. and is now under consideration.

(*b*) Other exchange projects (cosmic rays, astronomy and astrophysics).

(*c*) International collaboration to erect and run a 1600 kW. electromagnet at the Pic du Midi observatory.

(*d*) Publication of reports about different fields of high altitude research presented at the meeting in Bagnères-de-Bigorre by members of the commission.

(*e*) Appeal to the Egyptian Government to stimulate work at the Mount Sinai observatory.

(*f*) Development of a physical laboratory at Morococha.

(*g*) Co-ordination of high altitude research and creation at the secretariat of an information centre about high altitude research.

At their first meeting, the Joint Commission on High Altitude Research Stations considered the work of the Instituto Nacional de Biologia Andina dealing with the physiology of men accustomed to live at high altitudes on the plateaux of Peru. The Commission was impressed with the importance of this work and is convinced that Science and Medicine would benefit from its extension to other suitable centres. Since there are also populations in Bolivia, Columbia, Ecuador, Mexico and Venezuela living at high elevations, there would appear to be an opportunity for co-operation among these countries in this type of research. The Commission therefore urged U.N.E.S.C.O. to draw the attention of the appropriate medical and university authorities of those countries to the opportunity they have for co-operation in this important field and to request them to form a Joint Committee to initiate and co-ordinate research along these lines in their several territories.

At this meeting the following resolutions were adopted for submission to U.N.E.S.C.O. and the Unions concerned:

I. The Joint Commission on High Altitude Research Stations, having considered the various fields of research at high altitudes, has come to the conclusion that Biology, both pure and applied, is one of the fields most in need of active research. The Commission has been informed of work in

physiological and veterinary biology in Peru and has noted the substantial research facilities at high altitudes that have been developed there. In view of the large populations which live at high altitudes in the Andean region this Commission considers that development and extension of these research activities will be fruitful, and deserve serious consideration. If, therefore, U.N.E.S.C.O. receives from the Peruvian Government proposals for the provision of technical assistance to prosecute research of this type, the Commission would ask U.N.E.S.C.O. to give those proposals favourable consideration.

II. The Joint Commission on High Altitude Research Stations of I.C.S.U. has heard with interest that a Committee for planning a High Altitude Research Station in the Himalayas has been set up in India, that survey parties of scientists have visited various parts of the mountains and that observations on meteorological and 'seeing' conditions in selected areas will shortly be under way.

The extensive and elevated mountain system to the north of India presents many problems of great scientific interest, both in the physical and biological fields. It also provides unique opportunities for work in Cosmic Rays, Astrophysics and the Physics of the High Atmosphere.

The Commission looks forward with great interest to the early establishment of research centres in the Himalayan region where scientific workers from all parts of the world can co-operate, and will be glad to render such assistance as may be in its power to give.

III. With increasing activity in upper-atmosphere research, in many fields, complete co-ordination of effort becomes more and more difficult. Certain phases of the studies are on a routine continuous basis; others represent special activities designed to cover a limited period of time. Rocket observations are, perhaps, the most significant studies of the latter group.

In order to obtain as high a concentration as possible of upper-air data, it is recommended that a set of special days be designed as 'world days' or 'international days'. These should consist of approximately two days per month, one near new and the other near full moon. In addition, certain special world days may be designated, to coincide with such natural phenomena as total solar eclipses or major meteor showers.

If some experiment of a non-routine character is envisaged, relative to conditions in the upper atmosphere or associated phenomena, it is recommended that the experiment be performed on a world day if there is no specific reason for choosing another time. This programme will lead automatically to the securing of concentrated atmospheric data at special

times and will effect co-ordination with a minimum of trouble of the experimenters. Associated studies may include such fields as: Rocket Firings; Plane and Balloon Flights; Night-sky Brightness; Auroral Measures; Solar Activity; Ionospheric Studies; Radion Absorption; Solar Radio Noise; Upper-air Meteorology; Cosmic-ray Experiments; Super-refraction of Sound by Upper Air; Magnetic Disturbances; Ozone Measurements; etc.

The foregoing plan, received by J.C.H.A.R.S., is heartily endorsed by the Commission. It is forwarded for further consideration, general ratification and action to I.U.G.G., I.A.U., I.U.P.A.P., I.U.B.S. and other cognizant committees.

The Commission also requested U.N.E.S.C.O. to consider seriously, with the aid of the Cosmic Ray Commission of I.U.P.A.P., giving support to the project of the Pic du Midi Observatory, co-operating with the Universities of Brussels, Manchester and Toulouse, to observe tracks of high-energy particles in a nuclear emulsion in a magnetic field of 100,000 gauss.

Professor Carlos Monge (Peru) has been appointed *Honorary President* of the Commission; Professor Donald H. Menzel (Harvard College Observatory, Cambridge, Mass., U.S.A.) *President*; and Dr R. Stämpfli (5, Bühlplatz, Berne, Switzerland) *Secretary*.

The next meeting will be held in Colorado, U.S.A., in 1952.

R. Stämpfli

## JOINT COMMISSION ON THE IONOSPHERE

In November 1949 the Proceedings of the First Meeting of the Commission (held in July 1948) were published. Copies of the Proceedings were distributed to U.N.E.S.C.O., the various National Committees of U.R.S.I., I.G.G.U., I.A.U., I.U.P.A.P., and to a number of individual scientists.

We wish to acknowledge the financial assistance received from the Executive Board of U.N.E.S.C.O., enabling publication of the Proceedings of the First Meeting and for a grant towards the travelling expenses of the Commission for its Second Meeting.

During the period under review the Second Meeting was held in Brussels on 4–6 September 1950. At this Meeting discussion centred around the following specific topics:

(*a*) Atmospheric Oscillations (Tides, etc.).
(*b*) Region $F_2$ Anomalies.

(*c*) Ionospheric Storms.
(*d*) Formation of Ionospheric Layers.
(*e*) Magnetic Variations and Ionospheric Current Systems.
(*f*) Sporadic E Ionization.

Members of the Commission and other scientists had been invited to submit written contributions on one or more of these topics. A number of papers were submitted and copies of these have been circulated to Members.

The following were present: Sir EDWARD APPLETON (*Chairman*); Professor L. VEGARD, Professor H. S. W. MASSEY, Dr D. F. MARTYN, R. P. LEJAY, Dr D. H. MENZEL, Mr L. V. BERKNER, Mr A. H. SHAPLEY (representing Dr Newbern Smith), Col. E. HERBAYS (Secretary U.R.S.I.), Dr W. J. G. BEYNON (Secretary, Mixed Commission), Dr H. G. BOOKER (U.S.A.), Professor A. H. WAYNICK (U.S.A.), Dr C. R. BURROWS (U.S.A.), Dr K. MAEDA (Japan), Professor Y. HAGIHARA (Japan), Dr M. NICOLET (Belgium), Dr. M. KOTANI (Japan), Professor S. HAMADA (Japan), Dr Y. AONO (Japan), M. M. NUYENS (Belgium).

Five sessions of the Commission were held. A full report of the discussions at the meetings together with the papers submitted to the Commission will be published in due course.

The following is a brief abstract:

*The Formation of the Ionosphere* (Professor MASSEY)

Professor H. S. W. Massey surveyed existing knowledge concerning the composition and formation of the principal ionospheric layers and stressed the uncertainties which still exist with regard to both the precise sources and constituents of the layers. Assuming the layers to be formed by solar ultra-violet radiation, we can assume as a starting-point a black body radiation at 6000° K., but account must also be taken of radiation from both the chromosphere and the solar corona, the latter possibly providing a soft X-ray radiation. The main constituents of the upper atmosphere are nitrogen and oxygen in molecular and atomic states—the change from molecular oxygen to atomic oxygen occurring at about the level of the E layer. There is evidence too for the presence of Na and NO. It is not yet certain whether atomic oxygen is the main constituent of region E or region $F_1$. If region E is assumed to be principally O, then $N_2$ is a possibility for region $F_1$, but a difficulty arises from the fact that studies of the twilight flash only give a concentration of about 10 ions/c.c. for $N_2$. If region $F_1$ is N, then this requires that a very large proportion of the N in the upper atmosphere shall be in the atomic state. For the D layer Vassy and

Vassy have suggested Na but the possibility of NO should also be considered. Professor Massey emphasized the value of new information which might be forthcoming from rocket experiments, the need for data on the state of the E layer at night, and also the need for extended laboratory experiments on atomic processes in ionized gases.

*Movements in the Ionosphere* (Dr D. F. Martyn)

Dr Martyn outlined the development in the theory of oscillations in the atmosphere, beginning with the early work of Laplace and of Lamb which was later extended by Taylor and Pekeris. This work showed that in the atmosphere there should be a great increase in the amplitude of atmospheric oscillations with height. In the case of the ionized layers of the atmosphere the motions are profoundly influenced by the presence of the earth's magnetic field. In particular, due to the effect of the field, the vertical component and horizontal components of the motion of the ionized constituents may be of comparable magnitude. Dr Martyn explained the type of current diagrams to be expected in the upper atmosphere as a result of tidal motion, and concluded with a brief review of the outstanding problems of atmospheric motions.

*Ionospheric Disturbances and Solar Phenomena* (Dr D. H. Menzel)

The high correlation between sunspot numbers and geomagnetic and ionospheric activity has long been established, but there is now an increasing tendency to regard sunspots as secondary characteristics. The relationship between sunspot numbers and terrestrial phenomena is most pronounced when monthly mean rather than daily values of the parameters are correlated. This suggests that some feature other than sunspots, although directly or indirectly correlated with them is really responsible for many terrestrial effects. A new and quantitative study of solar variability, based on motion pictures and coronal spectra taken at the High Altitude Observatory of Harvard University and the University of Colorado, Climax, Colorado, may partially clarify the problem. The most active features of solar activity, the observations show, are centred in the neighbourhood of the solar poles. Frequent eruptions, discovered and discussed by Dr Walter O. Roberts, occur in high solar latitudes, where large quantities of highly ionized gas shoot into the solar atmosphere. These eruptions are generally called the polar spicules. These high-velocity jets of gas rise to great heights, to form the faint background of the solar corona. The sun's general magnetic field tends to support the material. However, when too great an accumulation of the material is present, the

magnetic lines of force sag and matter cascades back to the solar surface, forming various types of prominences and, in the extreme case, actually producing the sunspots.

This theory, which attributes sunspots almost completely to a special type of coronal rain, seems to clarify the picture of solar activity and its terrestrial effects. Gaseous masses, cascading downward, are focused and condensed in the magnetic field. They release large quantities of ultra-violet light, which can exert an important effect on the earth's upper atmosphere.

The bent and twisted lines of magnetic force can, under certain circumstances, act like catapults to toss masses of gas upward, but indications are that very little matter actually escapes from the sun. If the sun does emit streams of atoms, the polar spicules are probably the main source of material reaching the earth. The aurora borealis and other so-called corpuscular effects, associated with magnetic storms, may result from the interaction of the terrestrial atmosphere with the solar stream. Under some circumstances, the released ultra-violet light may be responsible for a part of the observed phenomena, as in the case of sudden ionospheric disturbances.

Although many details still remain to be clarified, the indications are that the primary M regions are associated with variable spicule activity near the poles.

*Sporadic E Ionization* (Dr D. F. Martyn)

Dr Martyn discussed the type of sporadic E ionization which is observed in tropical and moderate latitudes, and in particular referred to observations made at Brisbane, Australia. The seasonal variations at Brisbane show a maximum in summer but also a secondary maximum in winter with minima near the equinoxes. It is suggested that this type of variation results from the superposition of two types of sporadic E ionization. The summer-time sporadic E ionization is found to originate at levels well above the 100 km. level and its progress can be traced down to this level. On the other hand, the winter sporadic E ionization appears *in situ* at the 100 km. level—it has a more patchy appearance, is easily penetrated and is similar to the fringe E ionization observed at Huancayo. Dr Martyn outlined an explanation for these results in terms of tidal theory. It is suggested that all the summer-time sporadic E ionization results from movement of ionization carried down from the $F_1$ to the E level but that below this level the ionization disappears by attachment or some other dissipation process. The winter-time sporadic E ionization is explained

as a reverse process whereby banks of negative ions are slowly lifted up and at the 100 km. level the electrons may be freed, giving rise to the observed ionization. Dr Martyn stated that the fact that no lunar tide has been observed in normal E layer critical frequency but that such a tide has been detected in the critical frequency of the sporadic E layer lends support to the theory outlined.

*Solar Particles at the Earth* (Dr D. F. Martyn)

Dr Martyn outlined a new theory which he had developed concerning magnetic storms and aurorae. The theoretical work of Chapman and Ferraro could explain the first phase but not the later phases of a magnetic storm. Treating the stream of particles from the sun as a conducting fluid it can be shown that around the earth a stream-lined flow is established with a hollow space, the radius of this space being determined by an energy balance between the moving particles and the earth's magnetic field. Simple considerations of the energy of the particles and the strength of the field show that the radius of this hollow will be about 5·5 earth radii for all reasonable values of the number density in the stream. Dr Martyn explained the formation of a ring current around the earth and the manner in which particles from this ring current may be expected to reach the earth in the neighbourhood of the auroral zones. In conclusion, he considered the form of the current sheets to be expected during a magnetic storm and the ionospheric effects which accompany such storms.

The final Session of the Commission was devoted to formulating the following resolutions:

(i) *Laboratory Researches Relating to the Formation of Ionospheric Layers*

It is resolved that encouragement and support be given to physics laboratories to initiate and extend experimental researches on ultra-violet absorption, atomic collision processes (including recombination), discharges in electro-negative gases and the motion of charges in plasmas in magnetic fields.

(ii) *Scaling of Ionospheric Records and Accuracy in Measurements*

In view of the great geophysical significance of ionospheric data, all ionospheric observatories are urged to aim at the highest accuracy and maintenance of consistency, in both experimental work and the scaling of records. Many important facts have already emerged from the material supplied by present ionospheric observations and it is clear that even

further results would follow from enhanced accuracy. It is also recommended that routine measurements should be supplemented by specially accurate observations made less frequently but at regular intervals.

(iii) *Publication of Data*

That in the investigation of phenomena of the ionosphere and their relation to other terrestrial and extra-terrestrial phenomena, there is need for readily accessible data in published form of hourly measurements of ionospheric characteristics from all stations. Therefore this Commission urges that all stations consider this need and take steps to publish such hourly measurements not yet published which exist in their records. If difficulty is experienced in publishing all parameters, then preference should be given to the quantities now scaled in C.R.P.L. reports.

(iv) *Ionospheric Winds*

The Commission is of the opinion that further experimental knowledge of winds at ionospheric levels is vitally essential to the proper understanding of ionospheric phenomena. Such experimental studies should be supplemented by theoretical investigations of the phenomena attending the motion of electrically conducting fluids in non-uniform magnetic fields.

(v) *Rocket Research*

The Commission stresses the great importance of upper atmospheric research by means of rockets at many places over the earth. Such information is supplementary to that obtained by other methods used at present since it is obtained *in situ*.

(vi) *Siting of New Stations*

In siting new ionospheric stations preference should be given to perfecting chains of stations on lines of longitude at which stations already exist, e.g. at the approximate longitudes 75° W., 0° and 120° E. In view of the fact that the $F_2$ layer is simultaneously affected by both solar and geomagentic influences, the Commission recommends that a detailed study should be made of ionospheric and magnetic characteristics at sites on the geographical and magnetic (zero dip) equators. This should be done preferably in the South American and African continents where very few ionospheric stations exist at present.

(vii) *Sporadic E Ionization*

That in sporadic E ionization measurements, attention should be paid to the variation of reflexion and scattering characteristics of this ionization with frequency.

(viii) *Solar Work*

Increasing evidence of a direct relationship between solar activity and numerous radio phenomena emphasize the need for new and more general indices of solar activity. The Commission suggests that such indices as coronal emission, H-$\alpha$ emissions, flare activity, prominence activity, etc., would probably be of great practical value. To obtain the necessary continuity and completeness of solar records, world-wide co-operation is necessary and a few additional high-altitude stations are desirable, e.g. in the longitudes of Australia, India and Egypt. Some special studies can be made at high latitudes, where during part of the summer unusually extensive runs can be made during the long day. The Commission wishes to point out that no serious duplication of effort would be involved in the expansion of the solar-observing programme. It is further suggested that methods for more rapid dissemination of solar data, especially useful to radio experimenters, be developed as far as possible. In addition, close collaboration and contact between workers in the radio and solar fields should benefit both parties.

(ix) *Solar Work in Relation to 1952 Eclipse*

In connexion with the total solar eclipse of 1952, maps and other special studies designed to exhibit the location of active solar areas on the disk and in the corona are a necessity. Such data should generally be made available for all eclipses, total, annular or partial.

The Commission recommends the I.A.U. that resolutions (viii) and (ix) above be referred to the cognizant solar commissions for consideration and implementation.

(x) *Organizing of Observations for 1952 Eclipse*

That concerning the total eclipse of 25 February 1952, there be appointed a Sub-Commission to encourage the organizing of the maximum number of observing stations for ionospheric, radio astronomy and related astronomical observations and to recommend the optimum network for adequate coverage of individual areas. (The Sub-Commission appointed consisted

of Mr L. V. Berkner (Chairman), M. P. Lejay, Dr D. F. Martyn, with Dr D. H. Menzel as an *ex-officio* member.)

(xi) *Third International Polar Year*

That, for the reasons* attached, the 3rd International Polar Year be nominated for 1957–58, and that, in view of the length of time necessary for adequate organization of the complex physical equipment now potentially available, an International Polar Commission be appointed in 1951 to supervise planning. This resolution is transmitted by the Mixed Commission on the Ionosphere for the approval of the Unions affected and sponsoring this Commission and for action by the I.C.S.U.

(xii) *Median and Mean Values*

In view of the widespread statistical analyses of geophysical data now being made the Commission recommends stations to publish both median and mean values.

(xiii) *Nomenclature*

The Commission gives provisional support to the suggestions on 'Upper Atmospheric Nomenclature' contained in the memorandum prepared by Professor S. Chapman, and refers the document for general consideration to I.G.G.U.

(xiv) *Auroral Observations*

Much information of importance to the interpretation of ionospheric phenomena would follow from a proper understanding of auroral spectra. Since information concerning the wave-lengths of the lines in the auroral spectrum is sufficient to enable identification to be made with some certainty, the Commission considers that whilst still more precise wavelength measurements are required, more attention should now be paid to the measurement of relative and absolute intensities of selected auroral lines of major significance.

(xv) *Radio Sounding of Aurorae and Auroral Noise Observations*

The Commission records its support for experimental work on direct quantitative measurement of the ionization density in aurorae by radio sounding methods and for observations on radio noise from aurorae.

* The reasons are given in a special memorandum prepared by members of the Commission.

(xvi) *World Days in Upper Atmosphere Research*

The Mixed Commission on the Ionosphere having learnt of the following proposal, wishes to express its whole-hearted approval of the plan and recommends its general adoption:

With increasing activity in many fields of upper atmospheric research, complete co-ordination of effort becomes more and more difficult. Certain phases of the studies are on a routine continuous basis; others represent special activities designed to cover a limited period of time. Rocket observations are, perhaps, the most significant studies of the latter group.

In order to obtain as high a concentration as possible of upper-air data it is recommended that a set of special days be designated as 'world days' or 'international days'. These should consist of approximately two days per month, one near new and the other near full moon. In addition, certain special world days may be designated, to coincide with such natural phenomena as total solar eclipses or major meteor showers.

If some experiment of a non-routine character is envisaged, relating to conditions in the upper atmosphere or associated phenomena, it is recommended that the experiment be performed on a world day if there is no specific reason for choosing another time. This programme will lead automatically to the securing of concentrated atmospheric data at special times and will effect co-ordination with a minimum of trouble to the experimenters. Associated studies may include such fields as: Rocket firings, plane and balloon flights, night-sky observations, auroral measurements, solar activity, solar radio noise, ionospheric studies, upper air meteorology, cosmic-ray experiments, super-refraction of sound waves, magnetic measurements, ozone measurements, etc.

Only a few of the above fields are represented by a single Commission. This resolution should be referred to I.U.G.G., U.R.S.I., I.A.U., I.U.P.A.P. and other Unions interested for general consideration and ratification. It is further suggested that formal implementation and detailed drafting of the plan be referred to I.G.G.U.

Dr W. J. G. Beynon has replaced Col. E. Herbays as one of the members of the Commission nominated by U.R.S.I.

It was resolved that the Mixed Commission on the Ionosphere should meet in 1952 and again in 1954, but that thereafter meetings should be held triennially instead of biennially as hitherto. It was suggested that the Mixed Commission should meet at the same place and time as the U.R.S.I. General Assembly of 1952.

W. J. G. Beynon

# JOINT COMMISSION ON OCEANOGRAPHY

## (1) *Organization for deep oceanic research*

Advantage was taken of the presence of a number of Members of the International Commission on Oceanography at the Meeting of the British Association for the Advancement of Science in Newcastle upon Tyne to hold a Meeting of the Commission on 6 September 1949.

The main item on the Agenda was consideration of a proposal, put forward by Professor HANS PETTERSEN that co-operation in future deep oceanic research would best be achieved by the setting up of either: (*a*) an already existing international organization; or (*b*) a special organization for this purpose.

After considerable discussion it was decided to instruct the Secretary to get into touch with the two parent Unions of the International Commission, I.U.G.G. and I.U.B.S., and also with I.C.S.U. and U.N.E.S.C.O., and inquire what their views might be regarding a proposal to establish an INTERNATIONAL BUREAU OF OCEANOGRAPHY.

Considerable correspondence has taken place between the Secretary, Professor Pettersen, other members of the Commission, the two Unions concerned and I.C.S.U. without any definite decision being reached as to the most hopeful line to pursue. U.N.E.S.C.O. has referred the question to I.U.B.S., the Mother-Union of the Commission. The whole question will be discussed at the next meeting of the Commission.

Meanwhile, it is to be noted that, by a decision at the U.N.E.S.C.O. conference at Florence this year, the responsibility for applying for a grant to the Institute of Oceanography, Monaco, has been transferred from I.U.B.S. to I.C.S.U.

## (2) *Claim for Grant for Joint Commission on Oceanography for Brussels Meeting, August* 1951

Application has been made to U.N.E.S.C.O. for a grant to enable the International Joint Commission on Oceanography to hold its next Meeting simultaneously with the Meeting of its Mother-Union, I.U.G.G., in Brussels in 1951.

R. B. SEYMOUR SEWELL

# JOINT COMMISSION ON PHYSICO-CHEMICAL DATA AND STANDARDS

Depuis sa réunion à Amsterdam en septembre 1949, à l'occasion de la 15e Conférence de l'Union Internationale de Chimie, la Commission Mixte des Données et des Etalons Physico-Chimiques ne s'est pas encore remise au travail: les préoccupations du Bureau de la Commission ont été concentrées sur l'effort de réorganisation nécessité d'une part par la transformation en Commission Mixte, de l'autre par la mise au point de ses relations avec les autres commissions dépendant de la Section de Chimie Physique de l'Union Internationale de Chimie.

Quant au Bureau International des Etalons Physico-Chimiques, sa nouvelle Section Métrologique s'est activement mise à l'œuvre, tandis que son Service d'étude des produits organiques purs à repris ses travaux de laboratoire, depuis qu'a paru l'ouvrage publié par son Directeur, M. le Professeur J. Timmermans, sur les 'Physico-Chemical Constants of Pure Organic Compounds', édité par Elsevier Publishing Company, Amsterdam–New York (juin 1950).

J. Timmermans

# COMMISSION MIXTE POUR LES RESUMES DE PHYSIQUE

1. La création de cette Commission mixte a eu lieu dans les conditions suivantes:

Profitant des réunions tenues par l'U.N.E.S.C.O. sur la documentation scientifique en juin 1949, l'Union Internationale de Physique avait organisé des rencontres de Physiciens qui eurent lieu à Paris les 25 et 26 juin 1949. Au cours de ces rencontres, il fut suggéré à l'Union Internationale de Physique de demander au Conseil International des Unions Scientifiques la création d'une Commission mixte pour étudier les meilleurs moyens d'appliquer les recommandations édictées par l'U.N.E.S.C.O. au cours de la Conférence.

2. La création de cette Commission fut proposée au Conseil International des Unions Scientifiques dans sa réunion de Copenhague en septembre 1949 et le principe de cette création fut adopté par lui. M. G. A. Boutry, Professeur au Conservatoire National des Arts

et Métiers, accepta d'assurer le Secrétariat provisoire de la Commission. M. G. A. Boutry était déjà Secrétaire de la Commission des Publications de la Commission Internationale de Physique, Commission qui, dans une certaine mesure, poursuivait une activité parallèle à celle de la Commission mixte qui allait être créée.

Dès cette date, en application des recommandations de l'U.N.E.S.C.O. sur la rédaction des sommaires (Doc. U.N.E.S.C.O./NS/SAC/27 Recommandation 11), M. Boutry avait commencé, en France, d'agir auprès des différents périodiques scientifiques de ce pays pour qu'ils acceptent d'appliquer les règles posées par l'U.N.E.S.C.O. en cette matière.

3. C'est alors que l'U.N.E.S.C.O. songea à organiser une conférence réunissant les usagers des résumés de physique (Comité d'utilisateurs d'analyses de documents de physique). Il en informa le Secrétaire provisoire de la Commission mixte en lui indiquant que l'U.N.E.S.C.O. désirait inviter à cette Conférence les membres de la Commission mixte en formation.

A ce moment (novembre 1949), la Commission n'était pas régulièrement constituée: en effet, si le Secrétaire provisoire avait reçu des suggestions concernant les représentants possibles des différentes Unions, il n'avait pas encore obtenu la sanction de ces Unions ni celle du Conseil International des Unions Scientifiques. Dans ces conditions, les dirigeants de l'U.N.E.S.C.O. insistant sur l'urgence, le Secrétaire provisoire communiqua avec le Professeur F. J. M. Stratton pour obtenir son autorisation pour une réunion officieuse de la Commission mixte pour les Résumés de Physique.

Cette approbation obtenue, l'invitation de l'U.N.E.S.C.O. put être acceptée. En conséquence, les réunions prévues eurent lieu à Paris les 19 et 20 décembre 1949.

La composition de la Commission provisoire était la suivante:

Représentant l'Union International de Physique: Docteur J. H. Awbery (Grande Bretagne), Doyen E. E. Hutchisson (U.S.A.); Professeur G. A. Boutry (France); Professeur E. Perucca (Italie).

Représentant l'Union Internationale d'Astronomie: Professeur P. Bourgeois (Belgique).

Représentant l'Union Internationale de Mécanique: Professeur J. Pérès (France).

Représentant l'Union Internationale de Cristallographie: Dr A. J. C. Wilson (Grande Bretagne).

Représentant l'Union Internationale de Géodésie et Géo-Physique: M. Laclavère (France).

Représentant l'Union Internationale Radio Scientifique: Colonel E. Herbays (Belgique).

Représentant l'Union Internationale de l'Histoire des Sciences: M. J. Pelseneer (Belgique).

En ce qui concerne la composition du Comité d'utilisateurs d'analyses de documents de Physique de l'U.N.E.S.C.O. le Prof. S. K. Banerji (Inde) et M. J. Beranek (Tchécoslovaquie), invités de l'U.N.E.S.C.O., étaient adjoints aux membres dont la liste précède.

Enfin, aux séances du même Comité étaient présents à titre d'observateurs: le Prof. J. Wyart, et M. J. Kersaint, du Centre de Documentation du Centre National de la Recherche Scientifique (France); le Professeur P. Fleury, Secrétaire Général de l'Union de Physique. Le Docteur R. Fraser, agent de liaison U.N.E.S.C.O./I.C.S.U., était également présent aux séances du Comité et aux séances de la Commission mixte.

4. La Commission mixte, à l'issue de ses délibérations, a adopté le rapport suivant (20 et 21 janvier 1950):

1. La Commission a pris connaissance des premiers résultats fournis par l'enquête décidée en juin 1949 par un groupe de physiciens intéressés à la question (voir I.U.P.A.P./Doc. Publ. 49–2, juillet 1949) au sujet de la position des différents périodiques s'intéressant aux Sciences Physiques vis-à-vis des résolutions contenues dans l'Acte Final de la Conférence de l'U.N.E.S.C.O. de juin 1949 et, en particulier, au sujet de la résolution 11–1.

1.1. La Commission exprime le vœu que cette enquête soit continuée avec activité dans chaque pays par les Comités Nationaux qui désigneront chacun la personne chargée de ce travail.

1.2. La Commission espère que les résultats de cette enquête, transmis au Secrétaire de la Commission mixte, pourront être présentés par ce dernier, le 1er mars 1950, sous forme d'un tableau indiquant pour chaque périodique:

si le périodique accepte de publier des sommaires de tous les articles originaux;

si le périodique accepte de publier des résumés en français ou en anglais;

si le rédacteur en chef du périodique accepte d'examiner ces résumés, de veiller à ce que les recommandations de la Royal Society soient observées dans leur rédaction, de faire en sorte qu'ils soient une image correcte du contenu de l'article et qu'ils soient de dimensions raisonnables.

2. La Commission demande qu'il soit veillé à ce que la liaison soit assurée le mieux possible entre les Comités Nationaux ou Régionaux et les Comités Internationaux spécialisés et à ce que les diverses spécialités soient suffisamment représentées au sein des Comités Nationaux ou Régionaux.

3. La Commission propose d'inscrire à son programme de travail l'étude des améliorations à apporter à la publication des mises au point. Elle demande à ses membres de transmettre au Secrétariat toute proposition ou suggestion concernant cette question.

3.1. La Commission propose d'inscrire à programme de travail la délimitation des domaines frontières entre la physique, ses applications et les sciences connexes (au point de vue des résumés analytiques seulement).

4. La Commission charge son Secrétaire de transmettre au Conseil International des Unions Scientifiques, avant sa prochaine séance et en vue de solliciter son approbation, ses propositions relatives à son programme de travail et à la composition de son bureau.

5. La Commission propose à l'unanimité pour la représenter au Comité spécialisé de l'U.N.E.S.C.O. sur l'analyse des documents physiques les personnes dont les noms suivent:

MM. Docteur P. Bourgeois
Professeur G. A. Boutry
Docteur J. H. Awbery
Docteur E. E. Hutchisson

Le Docteur Bourgeois et le Professeur Boutry agiraient respectivement comme Président et Secrétaire de cette délégation. La Commission charge alors son Secrétaire de transmettre au Conseil International des Unions Scientifiques cette proposition, dans les mêmes conditions que la proposition précédente.

6. La Commission prend note avec satisfaction du sentiment exprimé par le Comité de Direction de Science Abstracts par l'entremise de son Secrétaire, et suivant lequel la Commission mixte pour l'Analyse des Documents (Sciences Physiques), créée par le Conseil International des Unions Scientifiques, est à tous égards l'organisme le plus qualifié pour étudier les problèmes d'analyse des documents de Physique sur le plan international.

Le rapport qui vient d'être reproduit appelle quelques remarques:

(*a*) La Commission a apporté la plus grande attention à ce que soit poursuivie l'enquête commencée par son Secrétaire provisoire et conduite d'abord en France. Cette enquête avait été continuée en Italie et en Angleterre. Depuis la réunion dont il vient d'être rendu compte, le Secrétaire a étendu son enquête à la Belgique et à la Suisse. Le Docteur Hutchisson a, d'autre part, accepté de conduire la même enquête aux Etats-Unis d'Amérique.

Suspendant pour un moment l'ordre chronologique, il est utile de dire que cette enquête continue et que les résultats sont, à l'heure actuelle, les suivants:

*FRANCE.* Tous les périodiques préparant des articles de physique ont

maintenant accepté d'appliquer dans un très bref délai les recommandations de l'U.N.E.S.C.O. en matière de rédaction des sommaires.

*GRANDE BRETAGNE.* La situation est la même (sauf pour 7 périodiques), savoir:

*International Seismological Summary (Kew Observatory)*
*Journal of the British Astronomical Association*
*Memoirs of the British Astronomical Association*
*Memoirs of the Royal Astronomical Society*
*Observatory*
*Weather*

Il est remarquable que ces exceptions soient des périodiques spécialisés en Astronomie et en Météorologie.

*ITALIE.* Le Professeur PERUCCA a informé le Secrétaire de la Commission que la totalité des périodiques susceptibles de publier en Italie des articles de physique avait accepté d'appliquer les recommandations de l'U.N.E.S.C.O.

*BELGIQUE.* Les résultats de l'enquête commencée par le Comité belge de Physique ne sont pas encore parvenus au Secrétaire de la Commission mixte.

*SUISSE.* La revue *Helvetica Physica Acta*, qui publie des sommaires, a été vivement pressée d'appliquer les règles de l'U.N.E.S.C.O. Nous espérons recevoir incessamment sa réponse favorable.

Les informations relatives aux Etats-Unis et à la Hollande ne nous sont pas encore parvenues. D'autre part, l'enquête n'a pas encore été étendue aux pays de langue espagnole, à l'Allemagne, à la Suède et à la Norvège.

(*b*) La Commission mixte, consciente de son caractère provisoire, l'a souligné dans son rapport et avait chargé son Secrétaire de demander au Conseil International des Unions Scientifiques la ratification de ses propositions et la désignation définitive de son bureau.

5. Cette approbation fut obtenue lors de la réunion tenue par le Bureau de l'I.C.S.U. à Paris en janvier 1950.

6. Au cours des réunions des 19 et 20 décembre 1949 la Commission mixte n'avait pas abordé l'étude du point capital figurant dans la recommandation de l'U.N.E.S.C.O. de juin 1949 (Doc. U.N.E.S.C.O./NS/SAC/27 Rec. 10.1, 10.2, 10.3). Le sens de ces recommandations était clair; il s'agissait d'étudier les moyens de parvenir à établir un Service International de Résumés de Physique qui soit aussi complet et aussi efficace que possible. Pour qu'il en soit ainsi, ce service devrait être unique. Pourtant, comme le montre clairement le texte de la résolution 10.2, la Conférence de

l'U.N.E.S.C.O. n'écartait pas les solutions transitoires permettant d'organiser une coopération internationale efficace.

Le Bureau de la Commission mixte avait bien envisagé un moment de discuter ces questions lors des réunions de décembre. Mais ces réunions avaient été préparées rapidement pour répondre au désir de l'U.N.E.S.C.O.; d'autre part, la délégation des représentants de la revue anglaise *Physics Abstracts*, conviés par l'U.N.E.S.C.O. à assister comme observateurs aux séances de ce Comité, n'avaient pu accepter cette invitation. Pour toutes ces raisons, il avait paru préférable d'ajourner l'examen de cette question capitale à un moment plus propice. C'est pourquoi, en plein accord avec la Commission mixte et les Services compétents de l'U.N.E.S.C.O., il fut demandé de réunir à Londres un Comité des Résumés de Physique des 4 membres participants appartenant à la Commission mixte. C'étaient ceux qui avaient été désignés par cette Commission dans la séance du 20. 12. 49. A ces membres étaient adjoints deux représentants du Comité de Direction de Science Abstracts de Londres, savoir le Docteur S. Whitehead et le Docteur A. C. Menzies, et deux représentants du Bulletin Analytique du C.N.R.S., Paris, savoir le Prof. J. Wyart et M. G. Kersaint. Enfin, le Docteur B. M. Crowther, éditeur de Science Abstracts, et le Docteur R. Fraser étaient invités à titre d'observateurs. Le secrétariat de l'U.N.E.S.C.O. était assuré par M. J. B. Reid, du Département des Sciences Naturelles.

L'ordre du jour des séances qui eurent lieu les 26 et 27/9/1950 se composa uniquement de l'étude des moyens d'appliquer les recommandations 10.1, 10.2, 10.3 de la Conférence de l'U.N.E.S.C.O.

7. Cette session avait été soigneusement préparée à l'avance; les 4 délégués de la Commission mixte étaient restés en communication et, pendant l'été de 1949, avaient échangé par écrit leurs opinions personnelles sur la question mise à l'ordre du jour. Il en est résulté que les discussions ont pris un caractère de grande rapidité. Dès la première séance, le Comité invita les représentants des deux journaux spécialisés dans la rédaction des résumés de physique à se réunir en sous-comité au cours de l'après-midi et à lui présenter le lendemain matin des propositions concrètes. Cela fut fait et ces propositions amendées en séance plénière forment la substance des recommandations du Comité distribuées par U.N.E.S.C.O. le 9 octobre 1950 (U.N.E.S.C.O./NS/81).

Dans l'esprit de tous les membres, les résultats obtenus représentent une première étape. Avant d'en franchir une autre, il convient de continuer et d'étendre l'enquête sur l'application des recommandations de l'U.N.E.S.C.O. concernant les sommaires, de demander et d'obtenir de

chaque périodique le prompt envoi de ses épreuves à *Science Abstracts* ou au *Bulletin Analytique*; il convient aussi de prendre connaissance périodiquement du développement et de la coopération entre les deux périodiques *Bulletin Analytique* et *Science Abstracts*, d'encourager et de développer cette coopération.

Cela nécessite pour la Commission mixte un minimum d'organisation permanente et de pouvoirs qu'elle ne peut se donner d'elle même mais qu'elle doit demander à l'I.C.S.U. Si elle est appuyée dans son action par le Conseil, on peut espérer que le moment n'est plus très éloigné où il sera possible de constater l'existence d'une véritable organisation internationale pour les Résumés de Physique, formée par les deux journaux présents à la rencontre de Londres, et d'appliquer la dernière recommandation de la Commission permettant à ces journaux de faire comprendre à leurs lecteurs les progrès réalisés. Il sera dès lors possible d'espérer étendre à des journaux d'autre langue (Espagnol, Allemand), si cela paraît nécessaire, l'organisation déjà établie pour l'anglais et le français.

G. A. Boutry

# JOINT COMMISSION ON STANDARDS, CONSTANTS AND UNITS OF RADIOACTIVITY

The following is the report of a meeting held at Paris in July 1950. The following members of the Commission were present: Professor F. A. Paneth, *President*, Professor G. J. Sizoo, *Secretary*, Mme I. Joliot-Curie, Mlle. E. Gleditsch, Sir John Cockcroft, and Professors L. F. Curtiss, G. Hevesy, R. D. Evans, J. C. Jacobsen. Dr. Ch. Volet of the Bureau International des Poids et Mesures, Sèvres, was also present and for part of the time Drs L. V. Mayneord, G. Failla and R. Fraser.

Professor F. A. Paneth opened the meeting and recalled the death of Professor Stefan Meyer, who had been the last president of the International Radium Standard Commission and who had shown great interest in the work of this new commission and provided it with very valuable information. The President then discussed the following points:

(1) *Advisory Members*

To overcome the rather awkward situation that the commission had to reduce from 8 to 6 the number of members appointed by the I.U.C., while at the same time the urgent wish had been expressed by Professor

Stefan Meyer that one more member, Professor Otto Hahn, should be co-opted, the commission had decided at its first meeting (Amsterdam, September 1949) to invite the surviving members of the old Radium Standard Commission, Stefan Meyer, S. C. Lind, J. Chadwick, O. Hahn and A. Piccard, to become advisory members.

Mme Joliot-Curie proposed that Professor Berta Karlik, director of the Radium Institute of Vienna should be asked to become Advisory Councillor in the place of Professor Stefan Meyer.

All members agreed with this proposal and it was unanimously decided that the secretary should send an official invitation to Professors Lind, Chadwick, Hahn, Piccard and Karlik to become advisory councillors of the Joint Commission. (It was subsequently reported that all except Professor Hahn had accepted this invitation.)

(2) *Ownership and use of Existent International Radium Standards*

All members agreed that, according to the proposal of Professor Stefan Meyer, made in his letter of 16 June 1949, to the Commission, the ownership of the International Radium Standard, prepared by Hönigschmid in 1934, consisting of 22·23 mg. pure $RaCl_2$, should be transferred from the Old Radium Standard Commission to the Joint Commission.

The surviving members of the Radium Standard Commission have been asked by the secretary for their consent and have given it.

The Standard will remain under the care of the Bureau International des Poids et des Mesures.

It will be permitted to transport the Standard for the sake of measurements to the Laboratoire Curie. In this case Mme Joliot-Curie will have the responsibility for the Standard.

For other use of the Standard the consent of the Commission would be required.

Concerning the second International Standard, which is at present in the Institut für Radiumforschung at Vienna and which is the property of the Austrian Akademie der Wissenschaften, the commission expressed the desire for the ownership of this Standard to be transferred to the commission. This Standard might remain at Vienna under the care of the Academy.

This wish of the commission will be discussed with Professor Berta Karlik. If necessary the commission would try to obtain the money to pay for the Standard.

## (3) *Preparation of New Standards*

### (3.1) *Secondary Radium Standards.*

The PRESIDENT remarked that from time to time there are requests for new secondary radium standards. He got information from the Union Minière du Haut Katanga, that a number of samples of radium, purified by Hönigschmid, of about 30 mg. each, are still in the possession of the Union Minière. Also a larger quantity of more than 1000 mg. is still available.

Mme JOLIOT-CURIE explained that it would not be advantageous to use this larger quantity of highly purified radium for secondary standards. It would be of high value to compare with each other the various older secondary standards. This comparison might be done by the Laboratoire Curie.

The commission agreed with this idea and asked Mme Joliot-Curie to take the initiative to realize it.

### (3.2) *Gamma-ray Standards of Artificial Radioactive Isotopes*

The possibility to make use of artificial radioactive isotopes for secondary gamma-ray standards was discussed.

Sir JOHN COCKCROFT read a report about this question which has been prepared in Harwell. The conclusions of this report are similar to those of Professor Evans in his letter of 19 June, which has been circulated among the members.

Cobalt-60 might perhaps be used in future for such a standard, but the half period is not yet known with sufficient accuracy.

Professor EVANS reported that measurements with cobalt-60 have been made in Oak Ridge, Chalk River, and by the Bureau of Standards; the results agreed to about 0·5 %.

The commission agreed with the conclusions of the report from Harwell and that of Professor Evans in his letter of 19 June that the time is not yet ripe for the use of cobalt-60 or any other artificial radioactive isotope as secondary radioactive standards at the international level.

The commission recommended that samples of cobalt-60 should be prepared by various laboratories and be exchanged for comparison.

Sir John Cockcroft was asked to take the initiative in this respect.

### (3.3) *Beta-ray Standards.*

The commission agreed that reliable beta-ray standards would be of high value. RaD + E + F, strontium-90, thallium-204 seem to offer some possibilities. However, the difficulties connected with evaporation,

diffusion, backscattering, absorption, etc., were still too great to take any decision.

Dr CURTISS pointed out that already much work has been done by the Bureau of Standards on beta-ray standards. The best way to help the people who wanted to calibrate their methods of measurement has proved to be to send out periodically calibrated beta-ray sources of the kind the people want to use, e.g. phosphor and iodine.

The commission concluded that the time is not ripe to take any international decision on this problem.

However, the commission wished to recommend the laboratories equipped for such kind of measurements to co-operate in attacking this problem. For example, the Bureau of Standards and Harwell might prepare a number of calibrated samples of beta-ray sources and distribute them to various laboratories, where their relative values might be checked by various methods of measurement.

Sir John Cockcroft was asked to take the initiative with respect to this point.

Mme JOLIOT-CURIE informed the commission that in one or two years there will probably be a service in France, which will be sufficiently equipped to make measurements of this kind.

## (4) *Units*

### (4.1) *Unit of Radioactivity*

The PRESIDENT reminded the commission of the suggestions made by the International Union of Physics (Amsterdam, July 1948) to define the International Curie as the quantity of radioactive matter in which the number of disintegrations per second is $3{\cdot}60 \times 10^{10}$.

This number was based on the supposition that the recent measurements made by Kohman, Ames and Sedlet* should provide the most reliable determination of the disintegration rate of radium.

However, all members of the commission were now of the opinion that these measurements are no more convincing than the older determinations which led to the value $3{\cdot}70 \times 10^{6}$, which hitherto has been generally accepted.

The PRESIDENT remarked that the International Radium Standard Commission recommended in 1930 that the use of the term curie be extended to include the equilibrium quantity of any decay product of radium, but that the Commission did not favour its extension to members

* *The specific activity of radium*, by Truman P. Kohman, Donald P. Ames and Jacob Sedlet, U.S. Atomic Energy Commission, Oak Ridge, M.D.D.C.–852.

outside the radium family. It would be possible to eliminate this restriction, and to define a curie as that quantity of any radioactive substance for which the number of atoms disintegrating per second is the same as that of 1 g. of radium. In this case the curie would be based on the weight of radium, and not on a given number of disintegrations.

Various members pointed out, however, that the widespread use of artificial radioactive isotopes makes it necessary to have a unit of radioactivity which is defined by a definite number of disintegrations per second.

In principle it is not very important if this number is related to a certain amount of radium. A decimal number, e.g. $10^6$ sec., would even be more logical. However, for historical and practical reasons it is preferable to chose the number in close correspondence to the old definition of the curie.

For example, in all catalogues for radioactive substances the quantities are expressed in curies and milli-curies.

Professor EVANS remarked that in the definition of the unit of radioactivity the term 'substance' might be ambiguous in the case of a source comprising more than one member of a radioactive family. He proposes to use the word *nuclide*.

The commission agreed with this proposal. All members were of the opinion that it is undesirable to add to the existing curie, based on 1 g. of radium, a new unit, based on a number of disintegrations per second, but that it is preferable to change the definition of the curie.

As a result of thorough discussion the commission decided to recommend the following definition of the curie:

*The curie is a unit of radioactivity defined as the quantity of any radioactive nuclide in which the number of disintegrations per second is* $3{\cdot}700 \times 10^{10}$.

In French this definition would be:

*Le curie est une unité de radioactivité définie comme la quantité d'une nuclide radioactive quelconque dans laquelle le nombre des désintégrations par seconde est* $3{,}700 \times 10^{10}$.

The PRESIDENT stressed the fact that this definition differs in principle from the old definition which was based on weighing. In practice, however, there will be no difference. When the disintegration rate of radium is determined with higher accuracy it may prove that 1 g. of radium will be somewhat more or less than 1 curie radium.

The commission agreed to recommend the following abbreviations: *c.* for curie; *mc.* for milli-curie; *μc.* for micro-curie; *Kc.* for kilo-curie.

(4.2) *Unit of Cross-Section*

The President read a letter from the Royal Society of London, in which the commission was asked to give its opinion on the use of the name 'barn' for $10^{-24}$ cm.$^2$ as a unit of cross-section for nuclear processes, which term has come into use during World War II in the U.S.A.

Mme Joliot-Curie remarked that she proposed earlier to call this unit of cross-section the 'rutherford'.

Other members, however, remarked that there was no question of a real new unit and that the name of Rutherford should be preserved for a more important and fundamental unit.

The commission concluded that the word 'barn' is now already in common usage and should be accepted.

It is proposed to hold a session in Washington in September 1951 in combination with the I.U.C. if the number of members attending the General Assembly of the I.U.C. is large enough.

G. J. Sizoo

## JOINT COMMISSION ON RADIOBIOLOGY

La Commission Mixte de Radiobiologie du Conseil International des Unions Scientifiques a tenu sa première séance le 16 juillet 1950, à Paris.

Les membres de la Commission présents à cette séance étaient MM. Gray, Failla, Hévesy, Mme Joliot-Curie, MM. Lacassagne, Marinelli, Mayneord, Melander, Naidu et Bonét-Maury. Etaient excusés MM. Chagas, Grimmett, Lawrence et Spear.

Le Conseil International des Unions Scientifiques était représenté par le Docteur Fraser, et l'U.N.E.S.C.O., dont l'aide financière avait permis cette réunion, par le Docteur Wang.

Le Professeur Hévesy a été élu président de la Commission et le Docteur Bonét-Maury, secrétaire.

La première question figurant à l'ordre du jour a été alors étudiée par la Commission, à savoir l'organisation internationale de la Radiobiologie, et tout d'abord le problème de la création d'une revue spécialisée internationale. MM. Lacassagne, Hévesy et Gray exposent leur point de vue respectif; devant les inconvénients de la création d'une telle revue, et compte tenu du nombre déjà important de journaux de Radiologie, dans les différents pays, journaux qui publient jusqu'ici les travaux de Radiobiologie, la Commission renonce à envisager la création d'une revue spécialisée et décide que soient étudiées les possibilités d'aide financière

à apporter aux journaux existants, en vue de l'extension de la place consacrée par ces journaux à la Radiobiologie, de la publication par leurs soins de suppléments spéciaux plus nombreux, ceci afin d'éviter les délais actuels, souvent considérables, de la publication des travaux de Radiobiologie.

Le problème suivant étudié dans le cadre de l'organisation internationale de la Radiobiologie est celui de la création d'un Institut International de l'O.N.U. Le Docteur Wang expose les raisons administratives qui rendent problématique, au moins à brève échéance, l'institution d'un tel organisme. Dans ces conditions, le Docteur Failla se montre d'avis de songer d'abord à assurer la création de bourses d'études et à favoriser les échanges d'étudiants d'un pays à l'autre. Les Docteurs Mayneord et Gray se rallient à sa proposition. La Commission décide en conclusion la création d'une Sous-Commission destinée à étudier les possibilités de création de bourses, et, pour un avenir plus lointain, d'un Institut International de Radiobiologie.

Le second point de l'ordre du jour: Enseignement de la Radiobiologie et formation des chercheurs, est alors discuté. MM. Bonét-Maury, Failla, Naidu et Mayneord exposent respectivement la situation à ce point de vue en France, aux Etats-Unis, dans l'Inde et en Angleterre. La Commission décide d'exprimer des vœux auprès des divers pays où cela sera opportun, en vue de la création de chaires spécialisées et de l'extension de l'enseignement de la Radiobiologie.

Puis la Commission étudie la question suivante de l'ordre du jour: Fixation des souches ou races standard de matériel biologique expérimental (rats, bactéries, matériel génétique) et leurs possibilités d'échanges entre Laboratoires. Le Professeur Lacassagne pose le problème de la création de souches déterminées d'animaux de radiosensibilité connue; Mme Joliot-Curie pense que les souches pures déjà déterminées pour d'autres buts (cancer, par exemple) pourraient se révéler également pures au point de vue de la radiosensibilité: il serait suffisant, dans ce cas, d'étudier la radiosensibilité des souches pures existantes. On pourrait ainsi disposer de toute une gamme de souches de radiosensibilité connue. En ce qui concerne les échanges d'animaux de pays en pays, le Professeur Lacassagne déclare qu'ils se pratiquent couramment sans inconvénients, tandis que le Docteur Mayneord les considère comme difficiles. Le Docteur Naidu propose que la Commission émette un vœu, sur le plan international, afin que ces échanges soient facilités au maximum; sa proposition est acceptée.

La question des unités de Radiobiologie devant être prochainement traitée au Congrès de Radiologie de Londres, ainsi que par la Commission

Paneth, sur l'instigation de son Président la Commission considère qu'elle n'est pas de son ressort.

Le sujet suivant de l'ordre du jour: Définition et mesure de la radiosensibilité pour l'irradiation générale, est alors discuté. MM. Lacassagne, Bonét-Maury et Hévesy soulignent la difficulté de cette question, le mot même de radiosensibilité n'étant pas toujours pareillement défini par les divers auteurs. Ils insistent sur la multiplicité des critères qu'il est possible de choisir et sur l'avantage qu'il y aurait à adopter un critère unique et précis—critère à déterminer.

Après un large débat sur cette question, auquel participent MM. Naidu, Gray, Hévesy, Failla et Mayneord, la Commission décide la création d'une Sous-Commission chargée de passer en revue la littérature et de présenter un rapport sur l'état actuel de la question.

P. Bonét-Maury

## JOINT COMMISSION ON RADIO METEOROLOGY

The proceedings have been published and distributed in connexion with the Symposium on Tropospheric Wave Propagation convened under the leadership of Dr C. R. Burrows, President of the Joint Commission, and held at the United States Navy Electronics Laboratory, San Diego, California.

The following changes in Commission personnel were recorded during the year: Professor Norinder, University of Uppsala, Sweden, was designated by the International Union of Geodesy and Geophysics to replace A. Thomson, resigned. M. Voge, Chairman of the French National Commission on Tropospheric Propagation of U.R.S.I. replaces Le R.P. Lejay by action of the Conseil du Comité National de Radioélectricité Scientifique.

The present members of the Commission are:

Geodesy and Geophysics: H. Norinder, P. A. Sheppard, M. Voge, H. Wexler.

Radio Science: C. R. Burrows (*President*), H. G. Booker, H. Bremmer, J. Lugeon.

Physics: E. O. Bowen, O. Rydbeck, W. E. Gordon (*Secretary*).

The next meeting will be held at Brussels 13–15 August 1951.

Chas. R. Burrows

# JOINT COMMISSION ON RHEOLOGY

In its work the Committee has been handicapped by a long illness of Dr Scott Blair, who had always been one of its most active members. It is expected that next year work can be taken up with more success.

Some preparatory work has been done in order to arrive at an International Union of Rheology. These steps, however, have not yet advanced so far that results can be communicated here.

An International Colloquium on 'Rheological Topics arising in Biology' was held at Lund during the week 26–28 July 1950, under the auspices of the Joint Committee on Rheology of the I.C.S.U. and with the aid of a generous subvention from U.N.E.S.C.O. The Organizing Committee consisted of Professor A. Frey-Wyssling (Zürich), Professor G. van Iterson (Delft) and Dr P. Eggleton (Edinburgh), Chairman. It was attended by approximately thirty-four delegates from countries other than Sweden and by eleven Swedish biologists. About six delegates, mostly from the near East, were prevented at the last minute from attending on account of visa difficulties.

The formal sessions of the Conference were six in number, and seventeen papers were read, which covered problems in botany, zoology, physiology, biophysics and surgery. Most of the papers provoked considerable discussion, and the marked success of the Colloquium in this respect is attributed to:

(*a*) The number of delegates being small enough for personal acquaintance to develop quickly.

(*b*) The provision of meals at the place of meeting making it unnecessary for the delegates to scatter in search of sustenance.

Five of the speakers reading papers at the Colloquium were invited guests. A brief report of the Colloquium was published in *Nature*, 16 September 1950, and the Proceedings will be published as part of a monograph on 'Rheological Problems in Biology' to be published shortly under the editorship of Professor A. Frey-Wyssling (Zürich).

The Organizers of the meeting wish particularly to place on record the kindness and hospitality of the authorities at Lund, and to mention in particular the careful organization carried out by Professor Hans Burström, Dean of the Faculty of Natural Sciences at Lund, and Dr Adam Deutsch, Privatdozent in the same Faculty.

The following papers were read:

Professor W. Seifriz (Philadelphia). 'Rheological Properties of Protoplasm.' (Illustrated by film.)

Professor J. E. Harris (Bristol). 'Nuclear Viscosity and Thixotropy.'

Dr H. H. Pfeiffer (Bremen). 'Rheo-Diochroism of Protoplasm.'

Professor W. Boothby and Dr N. Emmelin (Lund). 'Gaseous Nitrogen Elimination.' (Pulmonary and Tissue.)

Dr R. D. Preston (Leeds). 'Problems in the Ascent of Sap in Trees.'

Professor A. Frey-Wyssling (Zürich). 'Poiseuille Flow in Latex Tubes.'

Professor R. Fåhraeous (Uppsala). 'Some Experiments with Streaming Blood.'

Dr J. M. Potter (London). 'Blood Streams in the Basilar Artery.' (Illustrated by film.)

Dr T. D. Day (Leeds). 'The Effect of Hyaluronidase on the Flow of Water in Connective Tissue.'

Dr G. P. Wells (London). 'Lugworms (*Arenicola marina*) and the Mechanical Properties of their Environment.'

Dr P. Eggleton (Edinburgh). 'Diffusion Problems in Relation to Decompression Sickness.'

Dr F. A. Glover (Reading). 'Rheology of Human Uterine Secretions.'

Professor A. V. Hill, F.R.S. (London). 'The Mechanics of the Active State of Muscle.'

Professor F. Buchtal (Copenhagen). 'Dynamic Properties of Muscle Fibres revealed by Vibrational Investigations.'

Dr O. Sten-Knudsen (Copenhagen), 'Torsional Elasticity of Isolated Muscle Fibres.'

Dr M. Joly (Paris). 'Modifications Structurales Provoquées par l'Ecoulement dans des Solutions de Biocolloïdes.'

Professor F. Anderson (Copenhagen). 'Studies on the Relaxation Phenomenon in Fibre Substances.'

J. M. Burgers

# JOINT COMMISSION ON SOLAR AND TERRESTRIAL RELATIONSHIPS

La Commission a eu à déplorer la perte d'un de ses membres, Raymond Jouaust, délégué de l'Union internationale de Géodésie et Géophysique, décédé le 28 novembre 1949, à Paris, à l'âge de 74 ans. Il vient d'être remplacé par M. Etienne Vassy, Professeur à la Faculté des Sciences de Paris.

A la réunion qu'elle a tenue à Zürich en 1948, la Commission avait décidé que ses rapports triennaux seraient essentiellement constitués désormais, non plus par des notes individuelles dont l'ensemble ne peut renseigner complètement sur l'état des questions qui relèvent de son domaine, mais par des mises au point, traitant chacune d'une de ces questions, et suivies d'un index bibliographique, de manière à constituer un répertoire complet des travaux effectués et des résultats obtenus dans l'intervalle de deux rapports.

Le prochain rapport, destiné à paraître en 1951 et actuellement en voie d'élaboration, tient compte de la décision de la Commission. Il sera composé d'une douzaine de mises au point, complétées éventuellement par quelques notes individuelles, qui couvriront dans son ensemble le champ d'activité de la Commission. Le manuscrit sera vraisemblablement donné à l'impression avant la fin de cette année.

La publication du *Quarterly Bulletin on solar activity*, édité par le Directeur de l'Observatoire fédéral de Zürich, a été complètement suspendue depuis un an, par suite de difficultés financières. Ces difficultés sont, à l'heure actuelle, momentanément aplanies, mais un gros effort sera nécessaire pour regagner rapidement le retard du Bulletin. Dans ces conditions, il semble qu'il y ait lieu de différer l'augmentation de son volume par l'addition de données géophysiques, qui avait été envisagée en 1948.

L. D'AZAMBUJA

# JOINT COMMISSION ON SPECTROSCOPY

The Commission held its first meeting in Cambridge, England, in September 1950 in connexion with a conference of the Faraday Society on Molecular Spectra. Professor C. HERZBERG presided. It was agreed to appoint Professor H. N. RUSSELL Honorary President and Professors J. E. MACK and R. S. MULLIKEN as Advisory Councillors. Dr W. F. MEGGERS (National Bureau of Standards, Washington, D.C., U.S.A.)

was elected President and Professor C. J. Bakker (Zeeman-Laboratorium der Universiteit van Amsterdam, Plantage Muidergracht 4, Amsterdam-C, Netherlands) was elected Secretary, with Dr Klinkenberg as assistant secretary.

The following lectures were given:

Dr W. F. Meggers. 'Fundamental Research in Atomic Spectra.'
Professor R. B. Pearse. 'Fundamental Research in Molecular Spectra.'
Professor P. Swings. 'Spectroscopic Problems of Astronomical Interest.'

These will be published in an American periodical.

### (1) *Field of Interest*

The Commission decided to occupy itself primarily with questions concerning both physics and astronomy, though other fields like microwave spectroscopy, X-rays and spectrochemistry should not be excluded in the future. It was noted that a considerable number of spectrochemists, a few representatives of whom were present at the meeting, desire the affiliation of spectrochemistry with the Joint Commission for Spectroscopy. It was decided to contact the International Union of Pure and Applied Chemistry on that subject.

### (2) *Bureau of Information*

The Secretariat will try to collect spectroscopical data and information on work in progress from all institutes engaged in spectroscopic research, and diffuse the information by means of a periodical bulletin.

### (3) *Atlases and Tables*

The Commission recognized the work performed by Dr Gatterer as highly important and notes with disappointment the stagnation of this work due to the lack of assistance. The Commission will recommend the work to Commission No 29 of the I.A.U.

### (4) *Sub-committees*

The following sub-committees have been appointed:

(*a*) For listing of spectroscopic institutes and main workers and cataloguing of special spectroscopic equipments, Jacquinot.
(*b*) For collecting of data on research in atomic spectra, Meggers, Mrs Moore-Sitterly.
(*c*) For collecting of data on research in spectra of diatomic molecules, Pearse.

(*d*) For collecting of data on research in spectra of poly-atomic molecules of astronomical interest, HERZBERG.
(*e*) For notation in atomic spectra, MEGGERS, Mrs MOORE-SITTERLY.
(*f*) For notation in spectra of diatomic molecules, JENKINS.
(*g*) For notation in spectra of poly-atomic molecules, MULLIKEN.
(*h*) For supply of requirements, SWINGS, MACK.

The sub-committees will prepare inquiries which will be diffused by the secretariat.

(5) *Next meeting*

The next meeting will be arranged in the first week of September 1952 at Columbus, Ohio, in conjunction with the annual Symposium on Molecular Spectra at Ohio State University. A colloquium on 'Spectroscopic Problems of Astronomical Interest' has been planned at the same occasion.

C. J. BAKKER

## COMMITTEE ON SCIENCE AND ITS SOCIAL RELATIONS

The Committee on Science and its Social Relations held a meeting at U.N.E.S.C.O. House, on 24–25 April 1950, which meeting was combined with a Colloquium on 'Human Biology and Society'.

A summary of the colloquium is annexed to this report (Appendix II). The text of the lectures delivered and the discussions, together with some conclusions which were formulated at the end of the colloquium, will be collected in a manuscript, to be submitted to the Executive Committee of I.C.S.U., with the request to authorize publication.

The meeting of the C.S.S.R. was attended by Professors J. M. BURGERS, M. FLORKIN, J. PIAGET, P. B. REHBERG, and further by Dr RONALD FRASER, liaison-officer I.C.S.U.-U.N.E.S.C.O., and by Professor P. AUGER, Dr G. H. WANG and Mr B. MICHELSEN from U.N.E.S.C.O.

The meeting was devoted to a discussion of the future status of the C.S.S.R. in connexion with a letter received from the General Secretary of I.C.S.U., dated 13 February 1950. The C.S.S.R. was gratified to read that according to the unanimous opinion of the Bureau of I.C.S.U. the C.S.S.R. had really served its purpose as a special Committee of the

Council, in having ventilated the important questions of the social relations of science during the past decade.

The same as the Bureau, the C.S.S.R. is of opinion that the time has come to make a new programme for its work. Experience of the past years has shown that the C.S.S.R. is not a body equipped to make wide investigations on subjects chosen by itself. For the future the C.S.S.R. considers as its most suitable task:

(*a*) To prepare reports on special questions submitted to it by I.C.S.U. (General Assembly, Executive Committee or Bureau) or by other bodies according to an agreement such bodies may have made with I.C.S.U.

(*b*) To organize, every two years, a colloquium on a subject concerning the social relations of science, submitted beforehand to the Bureau of I.C.S.U. for approval.

The C.S.S.R. has given much attention to the possibility of a close contact with the 'World Federation of the Associations for the Advancement of Science', the foundation meeting of which is due to take place under the auspices of U.N.E.S.C.O. in August of this year. Professor Auger and Mr Michelsen from U.N.E.S.C.O. gave information on the plans in view for this Federation. The C.S.S.R. considers the formation of such a body of great importance, and it urgently requests the Executive Committee of I.C.S.U. to give help and to take up close contacts with it. The C.S.S.R. is willing to act as an advisory body to this Federation for special problems, provided this is authorized by an agreement between the Federation and I.C.S.U.

Since, however, the Federation is not yet in existence and its proper sphere and purpose of action are not worked out, time is not ripe thus far to consider a transfer of the C.S.S.R. to it.

Referring to the last line of Professor Stratton's letter of 13 February 1950, the C.S.S.R. would come forward with a different proposal.

Since the problems to which the C.S.S.R. has given attention, and which will continue to call for attention in the near future, refer to the human aspects of the applications of science and to the problems of behaviour, of judgement and of ethics, connected with these applications, the C.S.S.R. proposes that it be constituted as a *Joint Commission* of *I.C.S.U.* and the *International Council of Philosophy and Humanistic Study*, with I.C.S.U. as its 'father council', so that its budget will continue to go exclusively through I.C.S.U.

It may be useful to consider also a connexion with the International Council for Social Sciences, but it is thought that this point can be postponed for later consideration.

Summing up the C.S.S.R. suggests:

I. That it be constituted as a Joint Commission of I.C.S.U. and C.I.P.S.H., with I.C.S.U. as 'father council';

II. That its task will be:

(*a*) to prepare reports on special questions submitted to it by I.C.S.U. (General Assembly, Executive Committee or Bureau);
by C.I.P.S.H.;
by the new World Federation of Associations for the Advancement of Science if formed;

(*b*) to organize every two years at U.N.E.S.C.O. House a colloquium on a subject concerning the social relations of science, either proposed by I.C.S.U. or C.I.P.S.H., or chosen by the C.S.S.R. itself;

III. That the subject chosen for the colloquium shall be submitted in advance to the Bureau of I.C.S.U. for approval, assuming that approval will authorize the C.S.S.R. to publish the Proceedings of the Colloquium. A request for a grant from U.N.E.S.C.O. for travelling expenses and costs of publication will be added.

The C.S.S.R. proposes that the Executive Committee of I.C.S.U. gives provisional agreement to the suggestions mentioned above, so that the C.S.S.R. can continue to work and have a meeting in the spring of 1952, in order to bring forward more definite proposals, to be submitted to the General Assembly of I.C.S.U., when it shall meet in the summer of 1952 at Amsterdam.

It is requested at the same time that the C.S.S.R. shall be authorized to arrange in 1952 a colloquium on the subject 'The place of the scientific method in approaching social problems', and to publish the proceedings of that colloquium, if a grant is available.

For this purpose a grant-in-aid is requested from U.N.E.S.C.O., for travelling expenses and for the publication of the Proceedings.

Concerning the composition of the C.S.S.R. the following statement can be given:

When the C.S.S.R. met in London, September 1947, its members were Professor F. J. M. Stratton (*Chairman*), Professor S. Chapman (*Vice-*

*chairman*), Professor J. M. Burgers (*Secretary*), Dr Bart J. Bok, Professor M. Brønsted, Professor Coching Chu, Dr A. Establier, Professor B. Nemec, Professor F. Perrin, Professor P. B. Rehberg, Professor L. Szilard, Professor Wong Wen-Hao. Shortly after that meeting two vacancies occurred; in consequence of the retirement of Professor Chapman and of the inability of Professor F. Perrin to assist in the work of the C.S.S.R. On the other hand, since the meeting the co-operation was obtained of the following scientists: Professor P. Auger (Paris), Professor V. Deulofeu (Buenos Aires), Professor G. Kahlson (Lund), Lord Boyd Orr (Scotland). Professor Brønsted died in December 1947. In the beginning of 1948 Professor Stratton withdrew; in his place Dr C. H. Desch (London) became a member. There was further obtained the co-operation of Professor M. Florkin (Liège). During the course of 1948 Professor Auger and Dr Establier left the C.S.S.R. since they took up official positions in U.N.E.S.C.O.

In consequence of a letter directed by Professor Stratton in 1947 to organizations adhering to I.C.S.U., there have been appointed Dr E. Ashby by Australia and Mr J. M. Sen by India.

Finally, on the authorization of the Executive Committee of I.C.S.U. at its meeting of September 1948 in Brussels, the C.S.S.R. co-opted the following scientists: Dr Lucien Febvre (Paris), Dr Gordon Allport (Harvard University, Cambridge, Mass.), Professor Jean Piaget (Geneva).

Dr Bart J. Bok withdrew in 1950 in connexion with his absence from the U.S.A. for more than a year.

It is requested that all interim appointments and co-optations shall now be ratified by the Executive Committee of I.C.S.U. (A list of all present members is given in Appendix I).

It is further requested that the Executive Committee invites: (*a*) the National Research Council of the U.S.A. to appoint a successor to Dr Bart J. Bok; (*b*) the International Council of Philosophy and Humanistic Study and the World Federation of Associations for the Advancement of Science each to appoint a small number of delegates, so that at the meeting of the C.S.S.R. scheduled for the spring of 1952 a plan for co-operation with these bodies can be formulated, to be submitted to the General Assembly of I.C.S.U.

Since Professor Burgers through absence from Europe will be unable to attend the meeting of the Executive Committee of I.C.S.U. in Berne this year, it is requested that Professor M. Florkin, secretary of the C.S.S.R., be admitted at that meeting to present the report of the C.S.S.R. and to give information concerning its views and plans.

Finally it is asked that the C.S.S.R. may be informed of the reaction of bodies adhering to I.C.S.U. on its report submitted in 1949, in particular with regard to the resolutions appended to it.

Professor Dr J. M. BURGERS
(*Chairman*, C.S.S.R.)

Professor M. FLORKIN
(*Secretary*)

*Appendix I*

Members of the C.S.S.R. (May 1950): Dr GORDON ALLPORT (Cambridge, Mass.), Principal E. ASHBY (Belfast), Professor J. M. BURGERS (*Chairman*) (van Houtenstraat, 1, Delft, Holland), Dr COCHING CHU (President National Chekiang University, Hangchow), Professor V. DEULOFEU (Buenos Aires), Dr C. H. DESCH, F.R.S., (London), Professor L. FEBVRE (Paris), Professor M. FLORKIN (*Secretary*) (Laboratoires de Biochimie de l'Université, 17, Place Delcour, Liège, Belgium), Professor Dr G. S. KAHLSON (Lund), Professor B. NEMEČ (Prague), Lord BOYD ORR (Angus, Scotland), Professor J. PIAGET (Geneva), Professor P. B. REHBERG (Copenhagen), Mr J. M. SEN (India), Dr L. SZILARD (Chicago), Dr WONG WEN-HAO (Nanking).

*Appendix II*

Summary of the Colloquium on 'Human Biology and Society', at U.N.E.S.C.O. House, 24 and 25 April 1950, arranged by the Committee on Science and its Social Relations of I.C.S.U.

The following scientists were present at the Colloquium: Professor J. M. BURGERS (Delft), M. G. CANGUILHEM (Paris), Professor M. FLORKIN (Liège), Professor M. KLEIN (Strasbourg), M. LEVI-STRAUSS (Paris), Professor A. MAYER (Paris), Professor J. PIAGET (Geneva), Professor B. P. REHBERG (Copenhagen); and further Dr R. FRASER, Professor P. AUGER, Dr G.-H. WANG, Mr B. MICHELSEN.

The following subjects were treated: Professor M. KLEIN, 'Les limites de la biologie humaine dans la vie sociale'; Professor A. MAYER, 'Biologie humaine et société'; Professor J. PIAGET, 'Raison et Société'.

The paper read by Professor Mayer defined 'human biology' as the study of man's life in all its aspects, having regard to the fact that man changes his surroundings and also his behaviour, which leads to a continually progressive extension of the possibilities for choice. At the same time social development increases the possibilities and means for investigation.

Professor Klein's paper gave attention first to the exceptional position of man in biology, which derives partly from morphological and physiological differences, partly from the social relations and from man's adherence to normative rules. It then considered the question whether experimentation on man, in which man is made into an object of research, can be accepted. Many aspects of this problem were taken into consideration, and a lively discussion followed.

Professor Piaget gave an analysis of the influence of social factors on various stages of the development of intelligence.

Discussion continued after Professor PIAGET's paper had been delivered, and various other questions were brought forward. The main point of the discussions will be given in the Proceedings of the Colloquium.

The last session of the meeting was devoted to the formulation of a series of conclusions.

# Rapport des Finances

## Auditors' Report for 1949

During the year 1949 a Bank Account in American currency was opened by the Council, and for that year, therefore, accounts are printed in that currency as well as in Sterling and in French francs. Further transactions were also undertaken by the Council in Dutch currency, and the balance of Belgian currency at 31 December 1948 has been returned to U.N.E.S.C.O.

A statement of Balances as at 31 December 1949 is printed in the same way as last year, showing the balance held by the Council in all currencies, and we should again draw attention to the fact that in addition to the normal transactions of the Council, it is still interested in the publication of a Bulletin on Solar Activity, in respect of which there was, at 31 December 1949, an amount owing to the Observatoire Fédéral de Zürich of 2,177.60 Swiss francs (£178).

It will be noticed that the transactions of the Council for the year 1949 show a substantial surplus, which is due partly to the fact that fewer meetings were held for which subsistence allowances were paid, and partly to the automatic increase in subscriptions in relation to expenses in most countries, caused by devaluation. Subscriptions from both member countries and affiliated unions have again been very erratic, and although many arrears have been collected, many others have fallen into arrear, and in view of the fact that the reduced number of meetings during 1949 was probably exceptional, we feel that it is essential that subscriptions to the Council should be kept up to date.

HERBERT GIMSON AND SON
*Chartered Accountants*

11, St Bride Street, London, E.C. 4
31 *July* 1950

# Subscriptions received during 1949

| Countries | Subscription years | Sterling £ | s. | d. | French francs |
|---|---|---|---|---|---|
| Argentine | — | | — | | — |
| Australia | — | | — | | — |
| Belgium | 1949 | 58 | 5 | 11 | — |
| Brazil | — | | — | | — |
| Bulgaria | — | | — | | — |
| Canada | 1949 | 40 | 0 | 0 | — |
| Chile | — | | — | | — |
| China | — | | — | | — |
| Cuba | — | | — | | — |
| Czecho-Slovakia | — | | — | | — |
| Denmark | 1949 | 40 | 0 | 0 | — |
| Egypt | — | | — | | — |
| Esthonia | — | | — | | — |
| Finland | 1949 | 40 | 0 | 0 | — |
| France | 1948/49 | | — | | 89,498 |
| Great Britain | 1949 | 40 | 0 | 0 | — |
| Greece | — | | — | | — |
| Holland | 1949 | 40 | 0 | 0 | — |
| Hungary | — | | — | | — |
| India | 1948/49 | 80 | 0 | 0 | — |
| Italy | 1949 | 40 | 0 | 0 | — |
| Japan | 1949 | 40 | 0 | 0 | — |
| Latvia | — | | — | | — |
| Mexico | — | | — | | — |
| Morocco | 1949 | 38 | 13 | 0 | — |
| Netherlands East Indies | 1946/47/48/49 | 125 | 18 | 9 | — |
| New Zealand | 1949 | 40 | 0 | 0 | — |
| Norway | — | | — | | — |
| Pakistan | 1949 | 40 | 0 | 0 | — |
| Peru | — | | — | | — |
| Philippine Islands | 1949 | 40 | 0 | 0 | — |
| Poland | — | | — | | — |
| Portugal | 1949 | 40 | 0 | 0 | — |
| Roumania | — | | — | | — |
| South Africa | 1949 | 40 | 0 | 0 | — |
| Sweden | 1948/49 | 80 | 0 | 0 | — |
| Switzerland | — | | — | | — |
| Tunis | — | | — | | — |
| U.S.A. | 1948/49 | 98 | 6 | 2 | — |
| Uruguay | — | | — | | — |
| Vatican City | 1946/47/48/49 | 128 | 0 | 0 | — |
| Yugo-Slavia | 1948/49 | 80 | 0 | 0 | |
| Carried forward | | £1,169 | 3 | 10 | 89,498 |

| | | | |
|---|---|---|---|
| Brought forward | | £1,169 3 10 | 89,498 |
| Unions | | | |
| I.A.U. | — | — | — |
| I.U.C. | 1948/49 | 25 0 10 | — |
| I.U.G. | 1947/48 | 22 8 7 | — |
| U.R.S.I. | — | — | — |
| I.U.B.S. | 1947/48 | 17 12 9 | — |
| I.G.G.U. | 1948 | 99 0 0 | — |
| I.U.P.A.P. | — | — | — |
| I.U.T.A.M. | 1948 | 7 11 | — |
| I.U.H.S. | 1949 | — | 6,000 |
| | | £1,333 13 11 | 95,498 |

## *Receipts and Payments Account (Sterling) for the year ended 31 December 1949*

### Receipts

| | £ s. d. | £ s. d. |
|---|---|---|
| Subscriptions: Member Countries ... | 1,169 3 10 | |
| Unions ... ... ... | 164 10 1 | |
| | | 1,333 13 11 |
| Sales of Reports ... ... ... ... | | 3 11 3 |
| Bank deposit interest ... ... ... | | 16 19 1 |
| | | 1,354 4 3 |
| Repayment of amount paid in error in Belgium in 1948... ... ... ... | | 49 18 0 |
| Transfer from French currency account... | | 47 10 0 |
| Received from U.N.E.S.C.O. ... ... | | 62 0 0 |
| Balance in hand, 1 January 1949 ... | | 4,884 15 2 |
| | | £6,398 7 5 |

### Payments

| | £ s. d. | £ s. d. |
|---|---|---|
| Subsistence allowances paid: | | |
| Executive Committee ... ... ... | 393 3 6 | |
| Special Sub-committee ... ... ... | 35 19 10 | |
| Joint Commission on Rheology ... | 21 1 0 | |
| Joint Commission on Oceanography ... | 12 1 0 | |
| | | 462 5 4 |
| Printing ... ... ... ... ... | | 149 19 3 |
| Secretarial and office expenses: | | |
| General Secretary ... ... ... | 104 8 8 | |
| Joint Commission on Science and Social Relations ... ... ... ... | 20 0 0 | |
| Joint Commision on Rheology ... | 20 0 0 | |
| Joint Commission on Oceanography ... | 7 3 9 | |
| Joint Commission on Ionosphere ... | 2 5 6 | |
| Joint Commission on High Altitude Stations ... ... ... ... | 9 8 1 | |
| | | 163 6 0 |
| | | 775 10 7 |
| Expenses covered or expected to be covered by grants from U.N.E.S.C.O. | | |
| Travelling expenses: | | |
| Executive Committee ... ... | 463 4 7 | |
| Joint Commission on Rheology ... | 79 12 9 | |
| Joint Commission on Radio-Active Standards ... ... ... ... | 325 0 0 | |
| General expenses: | | |
| Executive Committee ... ... | 25 2 9 | |
| Bulletin of Solar Activity ... ... | 95 2 6 | |
| | | 988 2 7 |
| Balance in hand, 31 December 1949 ... | | 4,634 14 3 |
| | | £6,398 7 5 |

We have prepared the above account from the books and vouchers of the Council. In our opinion it summarizes fairly the recorded transactions of the Council in Sterling, for the year ended 31 December 1949, and its cash position at that date.

11 St Bride Street, London, E.C. 4
31 *July* 1950

HERBERT GIMSON AND SON
*Chartered Accountants*

## *Receipts and Payments Account (French currency) for the year ended 31 December 1949*

| Receipts | Fr. Français | Fr. Français |
|---|---|---|
| Subscriptions: Member Country ... ... | 89,498 | |
| Union ... ... ... | 6,000 | |
| | | 95,498 |
| Transfer from Belgian currency Account via U.N.E.S.C.O., Fr. Belges 227,140 ... | | 1,699,837 |
| Received from U.N.E.S.C.O. (Including Frs. 570,983 paid over direct to I.U.T.A.M.) | | 2,614,535 |
| Balance in hand, 1 January 1949 ... | | 409,750 |
| | | 4,819,620 |

| Payments | Fr. Français | Fr. Français |
|---|---|---|
| Travelling expenses ... ... ... | | 41,437 |
| Transfer to sterling account ... ... | | 47,958 |
| Expenses covered by grants from U.N.E.S.C.O. Administration: | | |
| Salaries of Liaison Officer and Secretary ... ... ... ... | 3,079,929 | |
| Travelling expenses ... ... ... | 20,631 | |
| Office expenses ... ... ... | 37,902 | |
| | 3,138,462 | |
| Travelling expenses: | | |
| Kruyt Commission ... ... ... | 47,736 | |
| I.U.T.A.M. ... ... ... ... | 570,983 | |
| Joint Commission for Solar and Terrestrial Relations ... ... ... | 53,731 | |
| Joint Commission on Rheology ... | 8,500 | |
| Executive Committee ... ... | 160,379 | |
| | | 3,979,791 |
| Balance in hand, 31 December 1949 ... | | 750,434 |
| | | 4,819,620 |

We have prepared the above account from the audited accounts of the Council's Liaison Officer. In our opinion it summarizes fairly the recorded transactions of the Council in French currency for the year ended 31 December 1949, and its cash position at that date.

11 St Bride Street, London, E.C. 4
31 *July* 1950

Herbert Gimson and Son
*Chartered Accountants*

## *Receipts and Payments Account (Dutch currency) for the year ended 31 December 1949*

| Receipts | Florins | Payments | Florins | Florins |
|---|---|---|---|---|
| Received from U.N.E.S.C.O ... ... ... ... | 661.71 | Joint Commission on Rheology: | | |
| | | Subsistence allowances ... ... ... | | 32.00 |
| | | Secretarial expenses ... ... ... | | 73.39 |
| | | Publication ... ... ... ... | 1,217.50 | |
| | | *Less* Grant from U.N.E.S.C.O. (see below) $250= ... ... ... | 661.71 | |
| | | | | 555.79 |
| | | | | 661.18 |
| Balance in hand, 1 January 1949 ... ... ... | 772.41 | | | |
| Balance owing to Dr Burgers, 31 December 1949 ... | 16.77 | Expenses covered by grants from U.N.E.S.C.O.: | | |
| | | Travelling expenses ... ... ... | 128.00 | |
| | | Publication—Grant of $250= ... ... | 661.71 | |
| | | | | 789.71 |
| | 1,450.89 | | | 1,450.89 |

We have prepared the above account from the latest information received from Dr Burgers and in our opinion it summarizes fairly the recorded transactions of the Council in Dutch currency for the year ended 31 December 1949, and its cash position at that date.

11 St Bride Street, London, E.C. 4
31 *July* 1950

HERBERT GIMSON AND SON
*Chartered Accountants*



## *Receipts and Payments Account (Belgian currency) for the year ended 31 December 1949*

| Receipts | Fr. Belges | Payments | Fr. Belges |
|---|---|---|---|
| Balance in hand, 1 January 1949 ... ... ... | 227,140.75 | Transfer to French Currency Account (via U.N.E.S.C.O.) Fr. Français 1,699,837 ... ... ... ... ... | 227,140.75 |
| | 227,140.75 | | 227,140.75 |

We have verified the transfer of Fr. Belges 227,140 and the payment of Fr. Français 1,699,837 by U.N.E.S.C.O. to I.C.S.U. in Paris on this account.

11 St Bride Street, London, E.C. 4
31 *July* 1950

HERBERT GIMSON AND SON
*Chartered Accountants*

## *Receipts and Payments Account (American currency) for the year ended 31 December 1949*

| Receipts | $ |
|---|---|
| Received from U.N.E.S.C.O. ... ... ... ... ... | 5,000.00 |
| Balance in hand 31 January 1949 ... ... ... ... | 90.14 |
| | 5,090.14 |

| Payments | $ | $ |
|---|---|---|
| Secretarial Expenses ... ... ... ... | | 15.00 |
| Expenses covered by grants from U.N.E.S.C.O. | | |
| Joint Commission on the Ionosphere, Grant for Publications ... ... ... ... | 1,400.00 | |
| Travelling Expenses—Executive Committee | 768.44 | |
| | | 2,168.44 |
| Balance in hand 31 December 1949: | | |
| At Riggs National Bank, Washington ... | 2,816.56 | |
| In hands of Secretary of Joint Commission on Radio-Meteorology ... ... ... | 90.14 | |
| | | 2,906.70 |
| | | 5,090.14 |

We have prepared the above account from correspondence shewn to us and have seen an endorsed cheque for the secretarial expenses. In our opinion it summarises fairly the recorded transactions of the Council in American Currency for the year ended 31 December 1949, and its cash position at that date.

11 St Bride Street, London, E.C. 4
31 *July* 1950

HERBERT GIMSON AND SON
*Chartered Accountants*

## *Income and Expenditure (all currencies) and Agreement of Free Balance, 31 December 1949*

| | | £ s. d. | £ s. d. | £ s. d. | £ s. d. |
|---|---|---|---|---|---|
| Receipts: | | | | | |
| Sterling ... ... ... ... ... ... ... ... | | | 1,354 4 3 | | |
| *Add* overpayment in Belgium in 1948, recovered in Sterling in 1949 ... ... ... ... ... ... ... ... | | | 49 18 0 | | |
| | | | | 1,404 2 3 | |
| French currency: Fr. Français 95,498 @ 980 ... ... ... | | | | 97 8 11 | |
| | | | | | 1,501 11 2 |
| Payments: | | | | | |
| Sterling ... ... ... ... ... ... ... ... | | | 775 10 7 | | |
| French Currency: | | | | | |
| Fr. Français 41,437 @ 980 ... ... ... ... ... | | | 42 5 8 | | |
| Dutch Currency: | | | | | |
| Florins 661.18 @ 10.69 ... ... ... ... ... ... | | | 61 17 0 | | |
| American Currency: | | | | | |
| Dollars 15.00 @ 2.80 ... ... ... ... ... ... | | | 5 7 2 | | |
| | | | | 885 0 5 | |
| *Add* | | | | | |
| Loss on Exchange: | Fr. Français | | | | |
| French currency held on behalf of U.N.E.S.C.O. 1 January 1949 | 646,519 | | | | |
| *Less* Actual balance on the Council's Paris account on that date | 409,750 | | | | |
| | 236,769 @ 980 | 241 11 10 | | | |
| | 236,769 @ 1,062 | 222 18 11 | | | |
| | | | 18 12 11 | | |
| Loss on Transfer from French currency account to Sterling account: | | | | | |
| Fr. Français 47,958 transferred at 980 (being rate of exchange on 31 December 1949) ... ... ... ... ... ... | | 48 18 9 | | | |
| *Less* Amount actually received in Sterling ... ... ... ... | | 47 10 0 | | | |
| | | | 1 8 9 | | |
| | | | 20 1 8 | | |
| *Deduct* | | | | | |
| Profit on Exchange: | | | | | |
| American Currency | Dollars | | | | |
| Balance in hand, 1 January 1949 ... ... ... ... | 90.14 @ 2.80 | 32 3 10 | | | |
| | 90.14 @ 4.035 | 22 6 9 | | | |
| | | | 9 17 1 | | |
| | | | | 10 4 7 | |
| | | | | | 895 5 0 |
| Excess of Receipts over Payments of the Council for the year 1949 ... | | | | | 606 6 2 |
| Free Balance as per Statement at 31 December 1949 ... ... | | | | | 2,086 3 2 |
| Free Balance as per Statement at 1 January 1949 ... ... ... | | | | | 1,479 17 0 |
| Increase in free balance over the year ... ... ... ... | | | | | £606 6 2 |

## *Statement of Balances in hand, 31 December 1949*

| | £ s. d. | £ s. d. | £ s. d. | £ s. d. |
|---|---|---|---|---|
| Balances in hand: | | | | |
| Sterling ... ... ... ... ... ... ... ... ... ... ... | | | 4,634 14 3 | |
| French currency: | | | | |
| Fr. Français 750,434 @ 980 | | | 765 15 0 | |
| American currency: | | | | |
| Dollars 2,906.70 @ 2.80 ... ... ... ... ... ... ... | | | 1,038 2 2 | |
| | | | 6,438 11 5 | |
| *Less* Dutch currency owing | | | | |
| Florins 16.77 @ 10.64 ... ... ... ... ... ... ... | | | 1 11 6 | |
| | | | | 6,436 19 11 |
| *Less* Balances held on behalf of U.N.E.S.C.O.: | | | | |
| Sterling: | | | | |
| Balance 1 January 1949 ... ... ... ... ... ... ... ... | 3,177 18 4 | | | |
| Received during year ... ... ... ... ... ... ... ... | 62 0 0 | | | |
| | 3,239 18 4 | | | |
| *Deduct* expended during year ... ... ... ... ... ... ... | 988 2 7 | | | |
| | | 2,251 15 9 | | |
| *Add* Transfer from Belgian currency balance: | | | | |
| Fr. Belges 63,445.25 @ 176⅝ ... ... ... ... ... ... | | 359 4 2 | | |
| | | 2,610 19 11 | | |
| *Deduct* Transfer from Dutch currency balance: | | | | |
| In respect of transactions completed before devaluation: | | | | |
| Fl. 2,896.73 @ 10.69 ... ... ... ... ... ... ... | 270 19 6 | | | |
| In respect of balance still owing to Dr Burgers: | | | | |
| Fl. 16.77 @ 10.64 ... ... ... ... ... ... ... | 1 11 6 | | | |
| | | 272 11 0 | | |
| | | | 2,338 8 11 | |

| | | | |
|---|---|---|---|
| French currency: | | | |
| | | Fr. Français | |
| Balance as at 1 January 1949 ... ... ... ... ... ... ... | | 646,519 | |
| Received during year ... ... ... ... ... ... ... ... | | 2,614,535 | |
| | | 3,261,054 | |
| *Add* Transferred from Belgian currency: | | | |
| Fr. Belges 227,140 ... ... ... ... ... ... ... ... | | 1,699,837 | |
| | | 4,960,891 | |
| *Deduct* Expended during year ... ... ... ... ... ... ... | | 3,979,791 | |
| | | 981,100 @ 980 | 1,001 2 5 |
| Belgian currency: | | | |
| | | Fr. Belges | |
| Balance, 1 January 1949 ... ... ... ... ... ... ... ... | | 290,586.00 | |
| Received during year ... ... ... ... ... ... ... ... | | — | |
| | | 290,586.00 | |
| *Deduct* Transferred to French currency: | | | |
| Fr. Français 1,699,837 ... ... ... ... ... ... ... | | 227,140.75 | |
| Transferred to Sterling balance ... ... ... ... ... ... ... | | 63,445.25 | |
| Dutch currency: | | | |
| | | Florins | |
| Balance overspent, 1 January 1949 ... ... ... ... ... ... | | 2,785.50 | |
| *Add* Expended during year ... ... ... ... ... ... ... | | 789.71 | |
| | | 3,575.21 | |
| *Deduct* Received during year ... ... ... ... ... ... ... | | 661.71 | |
| Dutch currency overspent transferred to Sterling balance ... ... ... | | 2,913.50 | |
| American currency: | | | |
| | | Dollars | |
| Balance, 1 January 1949 ... ... ... ... ... ... ... ... | | — | |
| Received during year ... ... ... ... ... ... ... ... | | 5,000.00 | |
| *Deduct* Expended during year ... ... ... ... ... ... ... | | 2,168.44 | |
| | | 2,831.56 @ 2.80 | 1,011 5 5 |
| | | | 4,350 16 9 |
| Free balance ... ... ... ... ... ... ... ... ... ... | | | £2,086 3 2 |

# Statutes of the Unions

The following changes in Statutes have been notified since the publication of vol. 5 of *Reports of Proceedings of the General Assembly*.

(*a*) Union Internationale des Sciences Biologiques. Le troisième paragraphe de l'Article 16 des statuts a été modifié comme suit:

'Le nombre de parts contributives à payer par chaque pays adhérent est de 1, 2, 4, 8 ou plus. Chaque pays est libre de s'inscrire dans une de ces catégories ou de changer ultérieurement de catégorie, en tenant compte de l'importance de ses établissements scientifiques et de celle qu'il attribue à l'Union ainsi que de ses possibilités financières.'

La part unitaire est fixée a partir de 1951 à 200 Francs Suisses.

(*b*) Union Radio-Scientifique Internationale.

At its meeting in 1950 the General Assembly appointed a committee to draft new Statutes for submission to the next General Assembly on the tenure of office of officers, national Delegates, on members of Commissions and on the frequency of meetings of the General Assembly.

As mentioned in the reports above the International Unions of Theoretical and Applied Mechanics and of the History of Sciences are also considering changes in their Statutes.

ICSU & INT.l UNION HIST SCI

INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

# REPORT OF THE EXECUTIVE COMMITTEE

1951

INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

# REPORT OF THE EXECUTIVE COMMITTEE

1951

edited by

F. J. M. STRATTON

*General Secretary*

CAMBRIDGE

PRINTED AT THE UNIVERSITY PRESS

1952

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# TABLE DES MATIERES


Comité Exécutif *page* v

Organisations adhérant au Conseil vii

Rapports:

Comité Exécutif 1
Union Astronomique Internationale 9
Union Internationale de Géodésie et Géophysique 11
Union Internationale de Chimie Pure et Appliquée 15
Union Radio-Scientifique Internationale 21
Union Internationale de Physique Pure et Appliquée 24
Union Internationale de Géographie 27
Union Internationale des Sciences Biologiques 30
Union Internationale de Crystallographie 35
Union Internationale de Mécanique Théorique et Appliquée 38
Union Internationale d'Histoire des Sciences 40
Commission Mixte sur les Stations de Haute Altitude 44
Commission Mixte sur l'Ionosphère 52
Commission Mixte sur la Microscopie Electronique 53
Commission Mixte sur l'Océanographie 54
Commission Mixte des Données et des Etalons Physico-Chimiques 57
Commission Mixte pour les Résumés de Physique 62
Commission Mixte sur la Radioactivité 63
Commission Mixte sur la Radiobiologie 65
Commission Mixte sur la Radiométéorologie 66
Commission Mixte sur la Rhéologie 68
Commission Mixte sur les Relations Solaires et Terrestres 68
Commission Mixte sur la Spectroscopie 69
Commission Mixte sur la Science et les Relations Sociales 71
Commission sur l'Année Internationale Géophysique 72

Rapport des Finances *page* 73

Accord entre l'Organisation des Nations Unies pour l'Education, la Science et la Culture et Le Conseil International des Unions Scientifiques 84

Règlement des Commissions Mixtes 87

Le Prix Kalinga 93

Nouveaux Statuts des Unions 95

# INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

## EXECUTIVE BOARD 1950–51

PRESIDENT: Professor A. von Muralt (berne)

VICE-PRESIDENTS: Professor E. Borel (paris)
Dr H. Solberg (oslo)

RETIRING PRESIDENT: Dr John A. Fleming (washington)

GENERAL SECRETARY: Professor F. J. M. Stratton (cambridge, england)

I. *Elected by the General Assembly*

Dr J. N. Mukherjee (roorkee (u.p.), india)
Colonel E. Herbays (brussels)

(The above form the Bureau of the Council)

II. *Representatives of International Unions*

[1951–1952]

Astronomy:

Professor B. Lindblad (saltsjöbaden)
Professor B. Strömgren (copenhagen)

Geodesy and Geophysics:

Dr F. A. Vening-Meinesz (de bilt)
Dr J. M. Stagg (london)
Professor S. Chapman (oxford)
Col. G. R. Laclavère (paris)

Pure and Applied Chemistry:

Dr H. R. Kruyt (the hague)
Professor R. Delaby (paris)
Professor A. Tiselius (uppsala)
Professor R. Delaby (paris)

Radio-Science:

Sir Edward Appleton (edinburgh)

Pure and Applied Physics:

†Professor H. A. Kramers (leiden)
Professor P. Fleury (paris)
Professor N. F. Mott (bristol)
Professor P. Fleury (paris)

Geography:

Professor George B. Cressey (syracuse, new york)

Biological Sciences:

Professor H. Munro Fox (london)
Professor P. Vayssière (paris)

Crystallography:

Dr R. C. Evans (cambridge, england)

Theoretical and Applied Mechanics:

Professor J. Pérès (paris)

History of Sciences:

Professor P. Sergescu (paris)

SECRETARIAT: Gonville and Caius College, Cambridge, England.

# ORGANISATIONS ADHERANT AU CONSEIL

| *Pays* | *Organisation Nationale* |
|---|---|
| Afrique du Sud | Council of Scientific and Industrial Research, Pretoria. |
| Argentine | Academia Nacional de Ciencias, Buenos Aires. |
| Australie | National Research Council, Sydney. |
| Autriche | Die Österreichische Akademie der Wissenschaften, Wien. |
| Belgique | Académie Royale de Belgique, Bruxelles. |
| Brésil | Conselho Nacional de Pesquisas, Rio de Janeiro. |
| Bulgarie | Gouvernement. |
| Canada | National Research Council, Ottawa. |
| Chine | Academia Sinica, Peking. |
| Etat de la Cité du Vatican | Pontifica Accademia delle Scienze i Nuovi Lincei, Città del Vaticano. |
| Cuba | Academia de Ciencias Medicas, Fisicas y Naturales, La Habana. |
| Danemark | Kongelige Danske Videnskabernes Selskab, Copenhague. |
| Egypte | Gouvernement. |
| Etats-Unis | National Research Council, Washington. |
| Finlande | Suomalainen Tiédeakatemia, Helsinki. |
| France | Académie des Sciences, Paris. |
| Grande-Bretagne | The Royal Society, London. |
| Grèce | Académie d'Athènes, Athènes. |
| Hongrie | Magyar Tudományos Akadémia, Budapest. |
| Inde | Department of Scientific Research, New Delhi. |
| Indonésie | Organisasi Penjelidikan dalam Ilmu Pengetalmar Alam, Djakarta. |
| Israel | The Research Council of Israel, Jerusalem. |
| Italie | Il Consiglio Nazionale di Ricerche, Roma. |
| Japon | The Science Council of Japan, Tokyo. |
| Maroc | Gouvernement. |
| Mexique | La Dirección de Estudios y Climatológicos, Tacubaya, D.F. |
| Norvège | Det Norske Videnskaps-Akademi, Oslo. |
| Nouvelle-Zélande | The Royal Society of New Zealand, Wellington. |
| Pakistan | Gouvernement. |
| Pays-Bas | Koninklijke Nederlandse Akademie van Wetenschappen, Amsterdam. |
| Pérou | Instituto Geografico Militar, Lima. |
| Îles Philippines | National Research Council, Quezon City. |
| Pologne | Polska Akademja Umiejetnosci, Cracovie. |
| Portugal | Gouvernement. |
| Roumanie | Academia Roumânâ, Bucuresti. |
| Suède | Kungl. Vetenskapsakademien, Stockholm. |

| | |
|---|---|
| Suisse | Société Helvétique des Sciences Naturelles, Genève. |
| Tchécoslovaquie | Conseil National de Recherches, Prague. |
| Thailand | Gouvernement. |
| Tunisie | Gouvernement. |
| Uruguay | Instituto Geográfico, Montevideo. |
| Yougoslavie | Akademski Savat F.N.R.J., Belgrade. |

Les organisations suivantes ont adhéré en 1952:

| | |
|---|---|
| La Republique Fédérale allemande | Deutsche Forschungsgemeinschaft, Bad Godesberg. |
| Espagne | Consejo Superior de Investigaciones Cientificas, Madrid. |

## UNIONS SCIENTIFIQUES INTERNATIONALES

Union Astronomique internationale.
Union internationale de Géodésie et Géophysique.
Union internationale de Chimie pure et appliquée.
Union Radio-Scientifique internationale.
Union internationale de Physique pure et appliquée.
Union internationale de Géographie.
Union internationale des Sciences biologiques.
Union internationale de Crystallographie.
Union internationale de Mécanique pure et appliquée.
Union internationale d'Histoire des Sciences.

# International Council of Scientific Unions

## REPORT OF THE EXECUTIVE BOARD TO ADHERING ORGANIZATIONS, 1951

The first item to record is the signing by the Director General of U.N.E.S.C.O. and the President of the Council of a revised agreement between the two bodies. The text will be found on pp. 84–86. The changes are mainly such as to bring the agreement into line with those made between U.N.E.S.C.O. and other organizations. No substantial modifications of the previously existing agreements are involved. The Council has also been granted consultative status by the Economic and Social Council (E.C.O.S.O.C.) of the United Nations. Further, it has, in accordance with a revised Belgian law, been granted legal status in Belgium by Royal Decree. This will involve certain modifications in the statutes of the Council, which will be laid before the General Assembly of the Council in 1952.

During the year Chile has withdrawn from adherence to the Council.

The Bureau has held two meetings during the year, in Paris on 19 and 20 May and in Washington on 15 October. The second meeting preceded the annual meeting of the Executive Board on 16 and 17 October, which was held by invitation in the rooms of the National Academy of Sciences, Washington. A number of members of the Board were represented by alternates mostly residing in the United States: Professor J. Murray Luck represented Professor A. Tiselius, Dr J. H. Dellinger represented Sir Edward Appleton, Professor H. A. Kramers represented Professor N. F. Mott, Professor P. P. Ewald represented Dr R. C. Evans, Dr H. L. Dryden represented Professor J. Pérès, Professor G. Sarton represented Professor P. Sergescu. In addition, the President invited a number of United States scientists to attend the meetings of the Executive Board as observers. These included Dr Detlev W. Bronk, President of the National Academy of Sciences, Dr R. C. Gibbs, Dr W. A. Noyes Jr., and Dr Wallace W. Atwood Jr., representing both the Academy and the National Research Council, Dr William W. Rubey, Chairman of the National Research Council and Dr C. J. Mackenzie, President of the National Research Council of Canada, Mr Donald Eddy, Mr William O. Hall, Dr J. Wallace Joyce, Dr Warren Kelchner, Dr J. B. Koepfli, Dr Walter

Kotschnig, Mr Max McCullough, Dr C. S. Piggot, Mrs Helen Putnam and Mr Walter Rudolph of the State Department, Dr Eugen Sunderlin and Dr Alan Waterman of the National Science Foundation, and Professor Walter Bucher, Dr C. R. Burrows, Dr K. K. Darrow, Dr Milislav-Demerec, Professor J. J. Nassau and Dr R. W. G. Wyckoff of U.S.A. National Committees.

Professor E. Borel and Colonel E. Herbays were unable to attend. An apology was also received from Dr Adams, Foreign Secretary of the National Academy. Dr Wang Ging-Hsi represented U.N.E.S.C.O. and Dr R. Fraser, I.C.S.U. liaison officer with U.N.E.S.C.O., was also present.

In opening the meeting the President thanked Dr Detlev Bronk and Dr Wallace Atwood, President and Secretary of the Academy, for the hospitality and very generous facilities offered to the Council. He said that the meeting was a very important one, and the Council had come over to strengthen the bonds which united scientists the world over. He referred with pride to the figure of Louis Agassiz on the wall, standing next to President Lincoln. Louis Agassiz had been the first Foreign Secretary of the Academy, but he had also founded the first international observatory in Switzerland on the Jungfrau.

Dr Bronk in his reply of welcome referred to his own personal debt of gratitude for many expressions of friendship in many countries. Professor von Muralt had continued the tradition of Louis Agassiz in carrying on high-altitude research in a country where he himself had spent some of his happiest days. Scientists had been among the first to recognize their dependence on the work of others. Benjamin Franklin, first a foreign member of several Academies and later an Ambassador, had set the pattern of what was to be important in science throughout the world. His scientific attainments had fitted him for world diplomacy, and made him a respected citizen of world science. His directive to the Navy recommending that, if Captain Cook's ship fell into their hands, it was not to be treated as an enemy but given all assistance, was in the spirit needed today. In these days we must be ever on our guard that the freedom of science be preserved. There was a danger of non-scientists desiring to control science, a danger in attempted governmental control of the course of development of science. In I.C.S.U. we saw science controlled by scientists in Unions of free investigators. He was sure that friendships would be formed at this meeting to help the international basis of science.

The decisions taken by the Bureau and the Executive Board are referred to later in this report. Here mention must be made of the hospitality

received from the National Academy of Sciences, from the Honourable James E. Webb, Under Secretary of State, and from Dr Wallace W. Atwood, and also of the visits arranged for the delegates to the National Bureau of Standards, the Naval Observatory, the Geophysical Laboratory and Department of Terrestrial Magnetism of the Carnegie Institution of Washington and the Library of Congress. A symposium was held under the presidency of Mr William W. Rubey, Chairman of the National Research Council, on the Development of International Co-operation in Science. This is being published under the auspices of the National Academy of Sciences.

As already mentioned, changes in the statutes will be submitted to the General Assembly in 1952. These have been drawn up by a sub-committee appointed by the Executive Board and have been approved by the Board. In addition to the legal points mentioned above, the draft revised statutes contain modifications to meet the recommendations (already communicated to adhering organizations) of the Policy Committee set up by the Bureau in 1949 on the instructions of the General Assembly. Advantage was taken of the necessary revision of the statutes to suggest an altered form, to simplify them and to remove a patchwork condition due to a series of disconnected changes in the past twenty years. The draft statutes will be submitted to all adhering organizations in time for examination before the General Assembly and in time for amendments to be submitted by adhering organizations.

Rules for Joint Commissions of the Council have been drawn up by the Bureau and approved by the Executive Board (see p. 87). These rules aim at a uniform procedure which has been found necessary, especially in dealing with applications for grants-in-aid.

Under the new rules the future status was discussed of five Joint Commissions, which had been in existence for over three years. The following decisions were made:

(*a*) Rheology. This Joint Commission was renewed for one year on the understanding that it would become a section of I.U.T.A.M.

(*b*) The Ionosphere. This was renewed for a further three years.

(*c*) Solar and Terrestrial Relationships. This was renewed for a further three years.

(*d*) Oceanography. This was renewed for a further three years, but its terms of reference were restricted to 'The Investigation of the Deep-Sea Floor'. The parent Union remained unchanged, U.G.G.I.

(*e*) Radiometeorology. This was renewed for another three years to carry out the programme outlined in their report.

It was agreed to change the title of the 'Commission Mixte des Etalons, Unités et Constantes de Radioactivité' into 'Commission Mixte sur la Radioactivité'.

Proposals to form two new Joint Commissions on 'Physics of the Solid State' and on 'Thermodynamic Constants' were rejected. In each case it was agreed that one Union should form a Commission and invite other Unions interested to nominate members.

A proposal to form a new 'Commission Mixte sur la Microscopie Electronomique' was approved. I.U.P.A.P. was named as the parent Union and membership was settled as I.U.P.A.P. (3), I.U.B.S. (3), I.U.P.A.C. (2), I.U.Cr. (1), with one place reserved for the International Union of Physiology when admitted as an adhering organization.

A proposal to form a new Joint Commission on a Polar Year was modified, and instead the Executive Board decided to ask the Bureau to form a Committee on an International Polar (or Geophysical) Year after consultation with the Unions interested. This provided a more elastic organization. The committee should be approved at the next meeting of the Board but might commence its deliberations without delay once it had been formed.

The Joint Commission on Physics Abstracting was dissolved at its own request. In its place the Board approved of the formation of an International Services of Science Abstracting. The proposal was made on the suggestion of the Joint Commission. Details are given on p. 62.

At the second annual meeting of the Co-ordinating Committee of International Councils it was agreed that C.S.S.R. should become a Joint Commission between I.C.S.U. and the *Conseil international de la Philosophie et des Sciences Humaines* (C.I.P.S.H.), with I.C.S.U. as the parent Council. It was also agreed that a joint symposium be held between I.C.S.U. and C.I.P.S.H. on 'Complementarity and Individuality in Biology and Sociology'. This symposium would probably take place in 1953, and it was hoped that Professor Niels Bohr would preside.

An application for admission as an adhering organization was received from the International Union of Biochemistry. In accordance with the Statutes, notice of this application was sent to all adhering organizations. Australia, Canada, India, Indonesia, Japan, Mexico, Pakistan, Philippines, Poland, South Africa, Yugoslavia and the Unions of Crystallography and Radio Sciences gave general support to the proposal. France, the United Kingdom and the Union of Pure and Applied Chemistry opposed it, the last named on the ground that there was already a section of biochemistry in the Union. At the meeting of the Executive Board Professors J. N.

Davidson, F. Dickens and J. T. Edsall attended to state the case for the acceptance of the Union. The main argument put forward was that biochemistry had now developed as an independent science. It had outgrown its chemical limitations, and its advance would be damaged if it was kept within the Union of Chemistry. The biochemist now used chemistry as a technique, but his outlook was that of a biologist and he had developed a new discipline. To be part of a body predominantly of chemists would not satisfy the biochemists. The section of biochemistry in I.U.P.A.C. was only set up after the decision of the Cambridge congress to form a Union was known. On the other hand, it was pointed out that recent changes of statutes in I.U.P.A.C. had given sections greater freedom both financially and in the matter of separate congresses. They had complete autonomy save in matters of policy, which affected other sections, or of finance as affecting Union funds. The general position taken up in the policy committee report was against the proposal. In the end, after a full discussion, the matter was deferred in the hope that an amicable solution could be found, it being understood that the application could be renewed without prejudice.

The International Union of Scientific Psychology renewed its application for admission as an adhering organization. Professor Herbert S. Langfeld attended to state the case. He explained that the suggestion made by the Board in 1950 that they should join another Union had not proved practicable. Their International Congress was an old-established body dating from 1889. They had something to contribute to the solution of present world tensions. The subject was one of the last to come out of the womb of philosophy, and they had a strong police force to keep the science free from non-scientific elements. In the course of the discussion it was pointed out that the Union covered a field of special interest not represented in the Council, which showed a weakness in leaving human beings outside its field. After some discussion about the relation of Experimental Psychology and Physiology it was agreed to ask the Psychologists to consult with the Physiologists and to defer the application for another year.

It was reported that the International Union of Physiology had not yet complied with the Statutes of the Council, as was necessary before they could be accepted. The Union of Nutritional Sciences had joined C.C.I.C.M.S. but still hoped to be admitted as an adhering organization of I.C.S.U. The Union of the Philosophy of Sciences had not so far come to terms with the Union of the History of Sciences in the matter of a joint Union. Hope was expressed in some quarters that the present clash of

opinion inside the Board on the admission of new Unions might be met by a proposed modification of the Statutes.

The Executive Board of U.N.E.S.C.O. has approached the Council in connexion with an annual Kalinga Prize for Science Writing offered by Sir B. Patnaik, of Cuttack, India, and has asked the aid of I.C.S.U. in administering the award. A scheme has been drawn up and approved by the Executive Board of I.C.S.U. (see p. 93), and the first award will be made in 1952.

The grants-in-aid from U.N.E.S.C.O. applied for by the Council and the Unions for 1952 amounted to $332,925. The total sum granted by U.N.E.S.C.O. was $189,200, divided as follows:

| | $ | $ |
|---|---|---|
| International Astronomical Union | | 17,900 |
| International Union of Biological Sciences | | 10,100 |
| International Union of Pure and Applied Chemistry | | 20,400 |
| International Union of Crystallography | | 8,500 |
| International Union of Geodesy and Geophysics | 22,150 | |
| Supplementary Grant | 250 | |
| | | 22,400 |
| International Geographical Union | | 6,000 |
| International Union of History of Science | | 6,500 |
| International Union of Theoretical and Applied Mechanics | | 3,500 |
| International Union of Pure and Applied Physics | 12,100 | |
| Supplementary Grant | 750 | |
| | | 12,850 |
| International Union of Radio Science | | 4,000 |
| Main Grant to the Council | | 43,600 |
| Supplementary Grant: | | |
| Centre for Culture of *Drosophila* (on behalf of I.U.B.S.) | 1,000 | |
| Land Use Survey (on behalf of I.G.U.) | 1,000 | |
| Symposia (on behalf of I.U.B.S.) | 1,200 | |
| | | 3,200 |
| Specialized Agencies: | | |
| I.C.S.U., High Altitude Research Station, Jungfraujoch | | 5,000 |
| I.C.S.U., Zoological Station, Naples | | 5,000 |
| I.C.S.U., Institute of Oceanography, Monaco | | 2,000 |
| I.U.B.S., International Association of Microbiologists (Type Culture Collections) | | 18,250 |
| | | 189,200 |

The total of $189,200 is broken down by U.N.E.S.C.O. as follows:

| | |
|---|---|
| Total Subvention to I.C.S.U. and its Unions | $173,000 |
| International Laboratories | 12,000 |
| Supplementary Grants | 4,200 |
| | $189,200 |

The 1951 Grant to the Council was allocated as follows:

| | $ |
|---|---|
| Executive Board, Travelling Expenses | 12,000 |
| Joint Commissions: | |
| (*a*) Oceanography | 2,100 |
| (*b*) Radio-Meteorology | 3,000 |
| (*c*) Solar and Terrestrial Relationships | 6,000 |
| (*d*) Rheology | 500 |
| (*e*) Physico-Chemical Constants and Data | 3,000 |
| (*f*) Physics Abstracting | 1,000 |
| Administration of Subventions to I.C.S.U. and the Unions | 16,000 |
| | 43,600 |

One item in the old grants-in-aid does not appear in the present allocation. At the General Conference of U.N.E.S.C.O. in Florence in 1950 a decision was made that grants for scholarships or bursaries for young students visiting or working in foreign countries should no longer figure in grants-in-aid. Under the present arrangements in U.N.E.S.C.O. scientists are no longer eligible for such aid, and the President has been asked to make representations to U.N.E.S.C.O. that young scientists should be included among the list of those helped by its service for the exchange of persons.

The audited accounts for 1950 are given separately. It was agreed by the Board not to print separately the audited accounts in the five different currencies in actual use. The overall account gives a clearer picture of the financial position of the Council. It will be noticed that the free balance held by I.C.S.U. at the end of 1950 has remained steady. But it must be stated that conditions are not so satisfactory as would appear. Heavy printing bills for the *Report of Proceedings of the General Assembly*, vol. v, and the *Descriptive Pamphlet* did not come in for payment until 1951, and it is clear that the report to be presented to the General Assembly in 1952 will point to the need for economies in the future. In order to facilitate the return of audited statements to U.N.E.S.C.O. at or near the end of the year, it has been agreed to close the accounts of I.C.S.U. and the Unions in future on 31 October each year.

As usual I.C.S.U. has been invited to send observers to a number of conferences and meetings. Among others mention must be made of the following: Professor J. Pérès and Professor P. Vayssière represented the Council at meetings of the Committee of U.N.E.S.C.O. on Arid Zones; Dr Kimble at an International Conference on Aeronautical Cartography; Professor Sergescu on the International Commission on the Scientific and Cultural History of Mankind; the General Secretary and Dr Fraser

attended by invitation the 20th Anniversary of the Foundation of the Hochalpinen Forschungsstation Jungfraujoch; Dr Fraser attended the meetings organized by U.N.E.S.C.O. for non-governmental organizations having consultative status, also the General Assembly of the World Federation of Scientific Workers and a number of meetings organized by the various Unions.

The next General Assembly of the Council has been fixed for 1–3 October in Amsterdam on the kind invitation of the Koninklijke Nederlandse Akademie van Wetenschappen. An earlier date had been arranged originally, but as this was too near the dates of meetings of General Assemblies of two Unions (in Australia and Istambul) the hosts kindly accepted a request for a change of date.

The Board, in conclusion, expressed their appreciation of the zealous and efficient way in which Dr Fraser and Miss Hermann had carried out their varied duties at the office in Paris; they also passed a resolution of thanks to U.N.E.S.C.O. for the generous way in which they had supported the work of the Council and its Unions, and to Dr Auger and Dr Wang Ging-Hsi for the ready assistance which they had throughout given to the Council and its officers.

# Rapports des Unions Internationales

## Report of the International Astronomical Union, 1951

During the year since the last report Germany has become an adhering country of the I.A.U., the Astronomische Gesellschaft having been recognized by the Executive Committee of the I.A.U. as the National Committee of Astronomy, Germany (East and West). The membership is now thirty-three countries.

The permanent services—the International Time Bureau, the International Latitude Bureau, the Bureau of Astronomical Telegrams and the Minor Planets Centre—have functioned as in previous years, and have been aided by grants from U.N.E.S.C.O.

The Executive Committee of the I.A.U. found it necessary to postpone the General Assembly which was to be held in Leningrad and Pulkovo, 1–8 August 1951. The Symposia scheduled to be held after the General Assembly were also postponed. A meeting of the Executive Committee was held September 1950 in Stockholm, and a meeting is scheduled for September 1951.

The work of the standing commissions of the I.A.U. has continued. Presidents of Commissions, with the collaboration of the members, have worked out reports that will serve as a basis for the discussion during the meetings of Commissions at the next General Assembly. Although the General Assembly was postponed, it has been decided to publish the Commission Reports in 1951.

The working out of the reports of the thirty-nine standing commissions constituted one of the most important activities of the I.A.U. during the year. Only examples illustrating the character of the reports can be given here. That of Commission 4, Ephemerides, includes reports from the following Offices publishing big Annual Ephemerides: France (*Conn. des Temps*), Germany (*Astr. Jahrb.*), Great Britain (*Naut. Alm.*), Spain (*Alm. Nautico*), U.S.A. (*Naut. Alm.*). The report of the sub-commission on Astronomical Constants contains the recommendations to the I.A.U. from the conference on The Fundamental Constants of Astronomy, organized by the Centre National de la Recherche Scientifique, held in Paris in March 1950. The report of Commission 12, Radiation Solaire et Spectroscopie Solaire, summarizes the research which has been done in this important field from 1948 to 1950, on the basis of publications and letters

from the members of the commission. It contains an extensive systematically arranged bibliography. The report of Commission 23, Carte du Ciel, gives a very full account of the work toward the completion of the various zones of the Catalogue Photographique, and detailed recommendations for future work. Commission 29, Spectres Stellaires, is one of the biggest commissions of the I.A.U., and a very extensive report on progress in the various fields of stellar spectroscopy has been worked out. The subjects covered include Spectral Classification, Chemical Composition and Physical Structure of Stellar Atmospheres, Molecular Bands in Stellar Spectra, and Spectra of Variable Stars. The report of Commission 32, Selected Areas, contains a summary of work done on the Plan of Selected Areas at a number of observatories, while the Commission 36 (Spectrophotometrie) report covers a wide and important field, both observational and theoretical, through progress reports and an extensive bibliography. The reports of Commissions 33 (Statistique Stellaire) and 34 (Matière Interstellaire) deal with fields in which progress has been particularly striking, and they include progress reports on very recent work on the exploration of our galaxy with the help of radio-frequency radiation, and on interstellar polarization. The report of the newly established Commission 42 (Etoiles Doubles Photométriques) contains progress reports, with bibliographies, and extensive tables of elements of eclipsing binaries and of absolute properties of such systems, as well as references to spectrographic orbits.

As in previous years Commission 38 (Echange des Astronomes) has arranged for the exchange of a number of astronomers with the aid of grants from U.N.E.S.C.O. The report of the commission lists 22 exchanges arranged in 1947–50.

The report of Commission 39 (Création d'Observatoires Internationaux) gives an account of the efforts that have been made toward the establishment of international observatories and laboratories. In this connexion it may be mentioned that the I.A.U. was represented at the meeting of experts organized by U.N.E.S.C.O. to study the question of an International Computation Centre (Paris, May 1951).

Works published under the auspices of the I.A.U., partly with aid from U.N.E.S.C.O. grants, include Minor Planets Circulars, Name-Lists of Variable Stars and Heliographic Charts.

The next meeting of the General Assembly is to be held in Rome, September 1952.

Dr P. Th. Oosterhoff, Leiden Observatory, has been appointed Assistant General Secretary. BENGT STRÖMGREN

# Report of the International Union of Geodesy and Geophysics, 1951

(1) *Membership.* U.G.G.I. has now thirty-seven member countries, and four additional members will probably be added at the Ninth Assembly in Brussels, August 1951. Of the thirty-seven present countries only three (Chile, Poland and Rumania) have not fulfilled their financial obligations to the Union.

(2) *International Co-operation.* International co-operation and collaboration in the collecting, digesting and disseminating of observations relating to the earth, its atmospheric envelope and its inner structure are the very life-blood and existence of U.G.G.I. The Union therefore has been grateful for the continued support of U.N.E.S.C.O. in helping to maintain the Permanent Services which the Union sponsors. Preliminary discussions have taken place with representatives of I.C.S.U., U.N.E.S.C.O. and the Union of Astronomy, with the object of simplifying the financial arrangements for those Permanent Services sponsored mutually by U.G.G.I. and I.A.U.

U.G.G.I. has been actively concerned in the activities of six Joint Commissions with other Unions. As Mother Union to the Joint Commission on Oceanography, U.G.G.I. has sought to have the terms of reference and scope of activity of that Commission clarified.

U.G.G.I. is actively considering proposals for two important world-wide projects, viz. a Third International Polar Year 1957–8, and 'World Days' for observations; the Associations within U.G.G.I. likely to be concerned will define their attitude for ratification at the Union Assembly in August 1951.

(3) Activities of the Scientific Associations within U.G.G.I.:

(*a*) Under the auspices of the Association of Geodesy the adjustment to a common basis of the primary triangulations in west Europe has been completed with important U.S. assistance; a geodetic junction is in process of being effected between the American and European continents through the Azores using lunar occulation of stars. This second project would also have been impracticable without substantial U.S. help. Geodesy has continued to publish the *Bulletin Géodésique*, which is the only

regular publication devoted to geodetic matters, and the 1940–5 volume of the *International Geodetic Bibliography* is ready to appear.

(*b*) In Seismology the office of the International Seismological Summary has worked under pressure to reduce and publish details of the world's earthquakes from all available observations. The monthly *Seismological Bulletin* published by the Bureau of the Association in Strasbourg is fast becoming a complete provisional catalogue. The *Bulletin* for August 1950 included a detailed study of seismic activity in the Himalayas.

(*c*) The investigation of the distribution of atmospheric ozone over the earth's surface has been actively pursued by the Ozone Commission within the Association of Meteorology, and plans are ready to hold important symposia in Brussels on the physics of cloud, the physics of the high atmosphere and ionosphere, radiation, micro-meteorology and ozone.

(*d*) The Association of Terrestrial Magnetism and Electricity has further extended its valuable programme of intercomparison of standard instruments for measuring the horizontal intensity of the geomagnetic field throughout the world's observatories; the peripatetic standard instruments used in this work are transported by air when distances more than a few hundred kilometres are involved. Special observations have been organized to extend the measurement of the daily variation in the geomagnetic field between the geographic and magnetic equators. Geomagnetic indices *K* and *C* for 1950 have been published.

(*e*) Oceanographers have been concerned, through their various Committees, with tides, with the variations of mean sea-level, the nomenclature of ocean-bottom features, geographical observations from Atlantic Weather Ships, preparation of a technical handbook on physical oceanography and the preparation of a bibliography.

(*f*) The Association of Hydrology has taken an active part in U.N.E.S.C.O.'s projects relating to arid zones, and has made progress in compiling a bibliography of papers on hydrological subjects.

(*g*) Another volume of the *Bulletin Volcanologique*, the fourth in the last three years, has been published by the Association of Vulcanology. This volume contains important studies by Japanese investigators. Preparations are being made for the formation of a Commission on Paléo-Vulcanology, and the first part (relating to Indonesia) of a world catalogue of active volcanoes has been published.

(4) In all the varied activities briefly referred to in this report financial assistance and sympathetic support given by U.N.E.S.C.O. have been of the greatest value, and the U.G.G.I. and its Associations and special

services take this opportunity of renewing their expressions of thanks to U.N.E.S.C.O.

The next meeting of the General Assembly will be held in Rome in September 1954.

The following are the officers of the Union and its Associations appointed at the last General Assembly, 1951.

*Président:* Professeur S. CHAPMAN, Queen's College, Oxford (Gde-Bretagne).
*Président Sortant:* Professeur F. A. VENING MEINESZ (Pays-Bas).
*Vice-Président:* Professeur GINO CASSINIS (Italie).
*Vice-Président:* Dr J. BJERKNES (Etats-Unis).
*Secrétaire-Général:* M. G. LACLAVÈRE, 30, Avenue Rapp, Paris.

*Association Internationale de Géodésie*

*Président:* Professeur C. F. BAESCHLIN, Dammstrasse 25, Zollikon-bei-Zürich (Suisse).
*Secrétaire:* M. le Professeur PIERRE TARDI, 19 rue Auber, Paris.

*Association Internationale de Magnétisme et Electricité Terrestres*

*Président:* Professeur JEAN COULOMB, Institut de Physique du Globe, 191 rue St-Jacques, Paris, 5°.
*Secrétaire:* Professeur V. LAURSEN, Meteorologisk Institut, Charlottenlund, Copenhague (Danemark).

*Association Internationale de Séismologie et de Physique de l'Intérieur de la Terre*

*Président:* Professeur BENO GUTENBERG, Seismological Laboratory, 220 North San Rafael Avenue, Pasadena, California (Etats-Unis).
*Secrétaire:* M. le Professeur J. ROTHE, 38 Boulevard d'Anvers, Strasbourg (Bas-Rhin).

*Association Internationale de Volcanologie*

*Président:* Professeur Dr B. G. ESCHER, Rijksmuseum van Geologie an Mineralogie, Dorpsstraat 15, Oegstgeest, Leiden (Pays-Bas).
*Secrétaire:* M. le Professeur F. SIGNORE, Via Tasso, n° 199, Naples (Italie).

*Association International d'Hydrologie*

*Président:* Professeur Ir. T. THIJSSE, Directeur Waterloopkundig Laboratorium, Raam 61, Delft (Pays-Bas).
*Secrétaire:* M. le Professeur L. J. TISON, 61 rue des Ronces, Gentbrugge (Belgique).

*Association Internationale de Météorologie*

*Président:* Dr K. R. Ramanathan, Physical Research Laboratory, Ahmedabad, Navrangpura (India).

*Secrétaire:* M. le Dr J. Van Mieghem, Observatoire royal Météorologique de Belgique, 3 avenue Circulaire, Uccle 3 (Belgique).

*Association Internationale d'Océanographie Physique*

*Président:* Professeur J. Proudman, The University, Liverpool (Gde-Bretagne).

*Secrétaire:* Professeur Dr Håkon Mosby, Geofysisk Institutt, Bergen (Norvège).

J. M. Stagg

# Rapport de l'Union Internationale de Chimie Pure et Appliquée, 1951

Depuis le précédent rapport (1er août 1950) le *Comité exécutif de l'I.U.P.A.C.* s'est réuni quatre fois: à Paris (5–7 octobre 1950), Londres (10–11 janvier 1951), La Haye (5–6 avril 1951) et de nouveau à Paris (27–28 juin 1951). Parmi les multiples questions administratives et financières qui ressortissent de sa mission, il s'est attaché à poursuivre l'organisation des six sections de l'Union entre lesquelles le vaste domaine de la Chimie se trouve désormais réparti. Les Présidents de ces sections furent d'ailleurs conviés à se joindre au Comité exécutif aux réunions de Paris (1950) et de la Haye (1951), pour établir les *statuts communs à toutes les sections*. Le projet ainsi élaboré est en cours d'examen par les Comités de section et il sera discuté lors de la XVIème Conférence (Assemblée Générale) qui se tiendra à New York et Washington du 8 au 16 septembre 1951. Chaque section pourra en outre établir un règlement intérieur plus spécialement adapté à la discipline chimique qu'elle représente au sein de l'Union.

La XVIème Conférence à laquelle il vient d'être fait allusion doit s'insérer dans une série de manifestations groupées sous le vocable '*International Chemical Conclave*' qui comprendra: le 75ème anniversaire de la fondation de l'American Chemical Society comportant un imposant ensemble de symposia, le 50ème anniversaire de la fondation du National Bureau of Standards avec visite détaillée de ses divers services, et le XXIème Congrès international de Chimie pure et appliquée. A ce Congrès, placé sous l'égide de l'Union et présidé par le Professeur James B. Conant (Harvard), 971 communications seront présentées par environ 2,000 auteurs devant 16 sections; parmi ces communications 329 seront faites par des chimistes non américains. Quatre réunions plénières sont prévues avec exposés des Professeurs V. Deulofeu (Argentine), K. Linderstrøm-Lang (Danemark), A. R. Todd (Grande-Bretagne) et E. W. R. Steacie (Canada). Un rassemblement d'une telle ampleur a été attentivement préparé par un Comité dirigé par le Professeur W. Albert Noyes, Chairman of the Division of Chemistry and Chemical Technology of the National Research Council et Vice-Président de l'Union. Pour parfaire les contacts, une trentaine de visites de laboratoires et d'usines sont organisées. D'un pareil ensemble favorisant de si nombreux échanges

de vues entre chimistes appartenant à 33 nations, on peut assurément escompter que de fructueux résultats seront enregistrés et que certaines discussions inspireront dans un proche avenir de nouvelles recherches.

Avant d'indiquer les principaux faits survenus dans chaque Section de l'Union, nous tenons à exprimer notre vive gratitude à l'U.N.E.S.C.O. Les subventions attribuées par ce centre d'action culturelle nous ont permis quelques entreprises importantes, notamment quant aux publications. C'est aussi grâce à la compréhension des dirigeants de cette organisation qu'un concours substantiel a été apporté pour le transport Europe-Amérique des participants de cette réunion, assurant ainsi partiellement son succès.

Bon nombre de décisions internationales seront prises au cours de la XVIème Conférence; un travail intense de préparation a été effectué par correspondance, au cours de l'année écoulée, dans la plupart des 26 Commissions actuellement en exercice. Certaines d'entre elles se sont même réunies depuis la XVème Conférence; d'autres sont convoquées aux Etats-Unis par leurs Présidents avant l'ouverture de la prochaine Conférence.

Le *Conseil* aura, entre autres questions, à se prononcer sur la réintégration du Japon, sur l'admission de l'Allemagne de l'Ouest, du Chili et de l'Egypte. En dépit des pourparlers engagés depuis plusieurs années avec neuf autres nations, le ralliement si souhaitable de celles-ci à l'Union se fait toujours attendre.

*Commissions hors sections.* La Commission des Encyclopédies et de la Documentation a continué son œuvre d'entraide pour la publication des Encyclopédies allemandes Gmelin et Beilstein; elle a même achevé cette œuvre puisque les Instituts correspondants se suffisent à eux-mêmes. Le Conseil aura à se prononcer sur sa suppression éventuelle, ou plutôt sur son remplacement par une Commission des Extraits, suggérée par l'U.N.E.S.C.O., dont une organisation provisoire présentera un projet. La Commission affiliée des Tables de Constantes a poursuivi ses travaux soit dans son Centre européen, soit dans son Centre américain, et la liste des publications figurera dans les rapports de ces Centres. Des difficultés financières se sont présentées pour l'impression de Tables sélectionnées par le Centre européen; l'aide précieuse de l'U.N.E.S.C.O. a permis d'envisager la reprise des publications et nous espérons que la Table sur les spectres des molécules diatomiques et l'atlas correspondant pourront être présentés au Conseil.

*Section de Chimie physique.* La Commission des symboles physico-chimiques considère les modifications ou extensions qui peuvent être

souhaitables dans les recommandations faites en 1949 et elle examine de nouvelles questions de terminologie. L'ordre du jour de la Commission de Thermochimie comporte treize articles constituant une véritable révision des principes et de la technique de la méthode thermochimique moderne. La Commission de Chimie macromoléculaire se préoccupe principalement de la nomenclature de cette discipline plus récemment apparue et de la comparaison très importante des déterminations effectuées dans trente laboratoires de douze pays différents sur des échantillons types d'une fraction de polystyrène: il s'agit de fixer une masse macromoléculaire étalon de l'ordre du million pour calibrer les instruments utilisés à cette fin dans les laboratoires spécialisés. La Commission rassemble aussi une liste des laboratoires de Recherches sur les macromolécules. A la Commission mixte des Données et des Etalons physico-chimiques, plusieurs rapports (Dr Wichers, Dr E. R. Smith, Dr E. A. Coulson, Professeur Timmermans, Professeur Wibaut) sont en circulation, notamment sur la caractérisation et l'identification des substances organiques. Enfin, la Commission mixte des Etalons, Unités et Constantes de Radioactivité envisage: la cession de l'étalon de Radium par l'Institut für Radiumforschung à Vienne, la préparation de nouveaux étalons, les symboles et la nomenclature en chimie nucléaire.

*Section de Chimie inorganique.* La Commission des poids atomiques examine de façon approfondie les modifications à faire depuis 1949 aux masses atomiques ou, pour certains éléments, aux nombres de masse des isotopes les plus stables; elle publiera ainsi son 14ème Rapport. D'autre part, la Commission de Nomenclature entreprend de fixer en un document important les règles de nomenclature dont l'avant-projet a déjà fait l'objet de discussions lors de la XVème Conférence et aussi au cours d'une réunion tenue depuis, en avril 1950 et subventionnée par l'U.N.E.S.C.O.; elle tiendra aussi des réunions mixtes, l'une avec la Commission des poids atomiques, l'autre avec la Commission de Nomenclature de Chimie organique. La Commission des métaux purs et leur protection démarre avec vigueur; elle a inscrit à son programme: la définition de la pureté des métaux par des méthodes chimiques et physiques, l'étude des méthodes d'affinage les plus poussées pour l'obtention des métaux de très haute pureté, l'examen des divers facteurs de corrosion des métaux ou d'altération des métaux purs, le rôle des états de surface sur les propriétés des métaux dans la protection contre la corrosion, etc. Enfin, les programmes des travaux à entreprendre feront l'objet de plusieurs séances à la Commission des Hautes Températures et des Réfractaires aussi bien qu'à celle de la Localisation géochimique des éléments.

*Section de Chimie organique.* Les ordres du jour de la Commission de Nomenclature et de la Commission de Codification, Chiffrage et Triage des Combinaisons organiques sont si chargés que le Président Verkade compte les réunions plusieurs jours avant l'ouverture de la XVIème Conférence. La première complète les documents déjà si importants publiés à l'issue de la précédente Conférence, entre autres les règles sur les 'extra hydrogènes'; elle examinera en outre: la nomenclature des isomères cis et trans en série éthylénique et d'autres problèmes de nomenclature stéréochimique, celle des terpènes et des systèmes polycycliques, etc. La seconde discutera les recherches que son actif secrétaire J. W. Perry a effectuées à l'aide des appareils de l'International Business Machines sur les systèmes de codification et de chiffrage qui lui ont été présentés. Pratiquement les travaux de ces deux Commissions se sont poursuivis sans arrêt depuis l'Assemblée de septembre 1949.

*Section de Chimie biologique.* Avec le concours de la Commission de Nomenclature de Chimie organique, celle de Nomenclature de Chimie biologique traite des stéroïdes, des glucides et elle compte mettre un point final à la nomenclature des amino-acides dont certaines règles avaient été différées en 1949. Elle examine la nomenclature des vitamines à la suite de la consultation faite auprès des Organismes adhérents nationaux et elle se propose de discuter quelques remarques énoncées au sujet de la nomenclature des caroténoïdes. La résolution de ces questions aussi délicates qu'importantes montre que des liaisons constantes entre les sections de l'Union apparaissent indispensables.

*Section de Chimie analytique.* Nous avons indiqué l'an dernier la parution en 1950 du 4ème Rapport des Réactifs recommandés pour l'analyse qualitative minérale et découverts dans la période 1937–47, issu de la Commission des nouveaux réactifs analytiques et dont la traduction anglaise est envisagée. Cette même Commission examinera un premier rapport de colorimétrie (bibliographie) et se partagera le travail pour l'examen critique des réactions en vue d'un second rapport. La Commission des Données physico-chimiques analytiques a créé trois Sous-commissions: données polarographiques, données potentiométriques, données optiques. Les deux dernières Commissions de la Section (Microchimie et Terminologie analytique) s'organisent et elles établiront à New York leurs programmes d'activité future.

*Section de Chimie appliquée.* Les Sous-sections dont on envisage la création ont été légèrement modifiées; elles sont actuellement au nombre de six: matières plastiques et hauts polymères, peintures et vernis, papier et carton, phytopharmacie, eaux, huiles et graisses. Pourvues chacune d'un

Président et d'un Secrétaire provisoires, elles nous feront bientôt connaître leurs organisations et leurs sujets d'études. En attendant les quatre Commissions rattachées à cette Section ont affirmé leur activité. En toxicologie et hygiène industrielle, la Commission met la dernière main à la révision de bon nombre de méthodes unifiées pour le dosage de certains toxiques. Publiées en anglais et en français, elles formeront deux ouvrages diffusés par l'Union dont il semble qu'avec l'aide sollicitée de l'U.N.E.S.C.O. la vente couvrirait les frais d'impression. La Commission de normalisation de la pureté des produits chimiques s'est réunie à Londres en novembre dernier; elle continue d'examiner diverses techniques générales de contrôle qui, mises définitivement au point, pourront faire également l'objet d'une publication bien utile. La Commission de normalisation du matériel de laboratoire est en relations constantes, à l'égal de la précédent, avec le Comité technique correspondant de l'International Standardizing Organization (I.S.O.); elle examine les projets élaborés par ce Comité dans la mesure où ils intéressent l'Union; d'autres questions notamment sur les joints rodés interchangeables, sur les erreurs et tolérances dans les appareils de mesure en volumétrie font aussi l'objet de ses préoccupations. Enfin, la Commission affiliée pour l'étude des Matières grasses qui deviendrait une Sous-Section dans la nouvelle organisation de la Section de Chimie appliquée s'est réunie à Paris fin septembre 1950. Un compte rendu des travaux 1949–50 a été diffusé et l'apport nouveau de méthodes unifiées pour l'analyse des matières grasses a été jugé suffisamment important pour qu'une 4ème édition de la brochure les contenant soit imprimée prochainement.

La prochaine Assemblée Général se réunira à Stockholm, septembre 1953.

## *COMITE EXECUTIF (1951–5)*

Professeur A. Tiselius, Université d'Uppsala, *Président* (Suède).
Professeur A. Stoll, *Vice-Président* (Suisse).
Dr L. H. Lampitt, Président de la Section de Chimie Appliquée, *Vice-Président et Trésorier* (G.B.).
Professeur A. Nasini, *Membre* (Italie).
Professeur R. Delaby, 4 avenue de l'Observatoire, Paris, *Secrétaire-Général* (France).

*MEMBRES ADDITIONNELS DU BUREAU*

Professeur E. C. Dodds, Président de la Section de Chimie Biologique, *Vice-Président* (G.B.).

Professeur P. Jolibois, Président de la Section de Chimie Inorganique, *Vice-Président* (France).

Professeur P. Karrer, Président de la Section de Chimie Organique, *Vice-Président* (Suisse).

Professeur C. J. van Nieuwenburg, Président de la Section de Chimie Analytique, *Vice-Président* (Pays-Bas).

Dr E. W. R. Steacie, Président de la Section de Chimie-Physique, *Vice-Président* (Canada).

Professeur R. Adams, *Vice-Président* (Etats-Unis).

Professeur E. Berner, *Vice-Président* (Suisse).

Dr J. Ancizar Sordo (Colombie).

Professeur G. Chaudron (France).

Professeur H. W. Melville (G.B.).

Professeur K. Venkataraman (Inde).

Dr E. H. Volwiler (Etats-Unis).

Professeur M. T. Bogert, *Ancien Président* (Etats-Unis).

Professeur H. R. Kruyt, *Ancien Président* (Pays-Bas).

R. Delaby

# Rapport de l'Union Radio-Scientifique Internationale, 1951

## (1) *Activité Scientifique*

Depuis la dernière réunion du Comité Exécutif du Conseil International des Unions Scientifiques, l'Union Radio-Scientifique Internationale a tenu sa IXe Assemblée Générale à Zurich, en septembre 1950.

A cette occasion, 37 Rapports furent présentés par les Comités Nationaux et 242 Communications par des auteurs appartenant à ces Comités.

Suivant la tradition établie à l'U.R.S.I. depuis sa fondation, le principal objet de cette Assemblée, outre la discussion de questions internes d'ordre purement administratif, consista dans l'examen des recherches effectuées depuis la dernière Assemblée Générale (1948) et dans l'établissement de programmes de travail jusqu'à la prochaine Assemblée Générale qui doit avoir lieu en 1952.

Les programmes des différentes Commissions sont résumés dans les résolutions et recommandations adoptées par l'Assemblée Générale et publiées dans le Compte rendu de cette réunion.

Toutes ces résolutions et recommandations ont un caractère international mais il en est certaines qui, de plus sont de nature à intéresser d'autres sciences. Parmi elles, nous pouvons citer:

la collaboration envisagée par la Commission II (Troposphère et Propagation des Ondes) avec l'Union Internationale de Géodésie et de Géophysique et avec l'Union Astronomique Internationale pour l'étude des influences des conditions climatiques et météorologiques sur la propagation des ondes radioélectriques dans la troposphère;

l'intérêt que porte l'U.R.S.I. et plus particulièrement sa Commission III (Ionosphère et Propagation des Ondes) à l'organisation d'un réseau international de stations d'observations radioélectriques pour l'éclipse de soleil du 25 février 1952 ainsi qu'à l'organisation d'une Année Polaire en 1957–8;

l'étude par la Commission V (Radio-Astronomie) de l'organisation d'une chaîne mondiale d'observations radioélectriques, des phénomènes solaires;

la rédaction du Rapport Spécial no. 3 sur la 'Dynamique des milieux ionisés'.

Il convient de signaler également la collaboration avec le Comité Consultatif International des Radiocommunications pour lequel l'U.R.S.I. étudie un certain nombre de problèmes scientifiques intéressant les radiocommunications.

(2) *Publications*

Depuis le dernier rapport présenté au Conseil International des Unions Scientifiques en 1950, l'U.R.S.I. a publié outre son *Bulletin d'Information* bi-mensuel en anglais et en français:

le Rapport Spécial no. 1—en anglais et en français—sur *Les Bruits Radioélectriques d'origine solaire et galactique*;

la première partie—en anglais et en français—du Compte rendu de sa IXe Assemblée Générale, tenue en 1950, volume de près de 500 pages et formant le Volume VIII du *Recueil des Comptes rendus des Assemblées Générales de l'U.R.S.I.*

D'autre part, les publications ci-après sont sous presse:

la deuxième partie du Compte rendu de la IXe Assemblée Générale contenant les communications scientifiques présentées à cette réunion;

le Rapport Spécial no. 2—en anglais et en français—sur *Les Phénomènes de Marée dans l'Ionosphère*;

le Compte rendu de la 2ème réunion de la Commission Mixte de l'Ionosphère, tenue à Bruxelles en 1950.

(3) *Administration*

(*a*) *Bureau de l'Union:*

*Président:* Sir Edward V. Appleton (Royaume-Uni).
*Vice-Présidents:* Dr J. H. Dellinger (Etats-Unis).
R. P. P. Lejay (France).
Dr D. F. Martyn (Australie).
*Trésorier:* Professeur Ch. Manneback (Belgique).
*Sécrétaire:* Ing. E. Herbays (Belgique).

(*b*) *Présidents des Commissions:*

Commission I. Méthodes de Mesures et Etalonnages: Dr J. H. Dellinger (Etats-Unis).

Commission II. Troposphère et Propagation des Ondes: Dr Ch. R. Burrows (Etats-Unis).

Commission III. Ionosphère et Propagation des Ondes: Sir Edward V. Appleton (Royaume-Uni).

Commission IV. Atmosphériques d'origine terrestre: Professeur H. Norinder (Suède).

Commission V. Radio-Astronomie: Dr D. F. Martyn (Australie).

Commission VI. Ondes et Circuits: Professeur Dr B. van der Pol (Pays-Bas).

Commission VII. Electronique: Dr G. Lehmann (France).

(*c*) *Secrétariat de l'Union:* 42, Rue des Minimes, Bruxelles, Belgique. Téléphone: 12.88.65.

La prochaine Assemblée Générale se réunira à Sydney, Australie, Août 1952.

E. Herbays

# Rapport de l'Union Internationale de Physique Pure et Appliquée, 1951

(1) L'adhésion des physiciens d'Israel vient de porter à 26 le nombre des *pays participants*. Plusieurs Comités Nationaux de Physique ont été réorganisés, notamment celui des Etats-Unis d'Amérique, qui a tenu en septembre 1950 à Cambridge (Mass.) une réunion commune avec le Comité exécutif de notre Union.

(2) L'Union a tenu sa septième Assemblée Générale à Copenhague du 11 au 13 juillet 1951, sous la présidence du professeur H. A. KRAMERS; 17 pays adhérents y étaient représentés.

Ont été élus ou réélus:

*Président* de l'Union, le Professeur N. F. MOTT (Bristol);

*Vice-Présidents:* E. AMALDI (Rome), G. BORELIUS (Stockholm), HEYROWSKY (Prague), P. HUBER (Bâle), K. S. KRISHNAN (New-Delhi), M. L. OLIPHANT (Canberra), J. C. SLATER (Cambridge, Mass.) et J. A. WHEELER (Princeton, N.J.).

*Secrétaire-Général:* P. FLEURY (Paris).

Une nouvelle commission spécialisée, pour l'Acoustique, a été créée.

L'Assemblée a adopté diverses recommandations, proposées par la Commission: *Symboles*, *Unité*, *Nomenclature*, et concernant: l'emploi du mot billion (à éviter); les indices affectant les symboles de éléments; le terme nuclide (recommandé); le système pratique d'unités (M.K.S.A.); l'adoption de *quatre* unités principales pour les systèmes CGS e et CGS m; l'emploi éventuel de *grandeurs* rationalisées.

L'Assemblée a autorisé la publication d'une nouvelle liste de symboles recommandés par la Commission S.U.N.

Elle a fait sienne la proposition de la Commission mixte pour les Résumés de physique, concernant l'établissement d'un service international de résumés, sous les auspices de l'I.C.S.U.

(3) Des Comités locaux ont organisé avec le patronage de notre Union et l'aide financière de l'U.N.E.S.C.O., divers Colloques dont la liste suit:

Septembre 1950, *Amsterdam*. Spectroscopy at radio frequencies; nuclear magnetic, paramagnetic and ferro magnetic resonance, analysis of atomic hyperfine structure and of molecular spectra. (Professor C. J. GORTER.)

Décembre 1950, *Bombay*. Particules élémentaires: électrodynamique quantique, forces nucléaires, théorie des mésons, origine des rayons cosmiques. (Professeur H. J. BHABHA.)

Mai 1951, *Paris*. Contraste de phase et contraste par interférences: principe et comparaison des deux méthodes, études théoriques et réalisations expérimentales nouvelles, applications diverses. (Professeur M. FRANCON.)

Juin 1951, *Bruxelles*. Ultrasons: absorption dans les liquides purs, les solutions électrolytiques, l'hélium liquide. (Professeur VAN ITTERBECK.)

Juillet 1951, *Copenhague*. Problèmes de la physique quantique: mesons and cosmic rays; artificial mesons; nuclear forces; nuclear structure; nuclear reactions; field theory; theory of information; complementarity. (Professeurs N. BOHR et S. ROZENTAL.)

La participation à ces Colloques a été nombreuse et brillante; dans chaque cas, un résumé des principaux exposés a été communiqué à l'avance aux participants,—un compte rendu sommaire a été ou sera publié dans les circulaires de notre Union,—et le texte détaillé des mémoires et discussions a été ou sera édité.

*Prochains Colloques prévus:*

22 au 31 août 1951, *Oxford* (U.K.). Très basses températures. (Professeurs F. E. SIMONS et C. S. GORTER.)

*Liste provisoire pour* 1951:

Structure et propriétés des surfaces solides (U.S.A.);
Spectroscopie des rayons (Amsterdam);
Thermodynamique des changements d'état (Paris?);
Connexions entre l'optique et l'étude des ondes courtes (à fixer).

(4) *Commissions*. La Commission Internationale d'Optique a édité un numéro d'essai d'une publication internationale (*Optica Acta*) contenant en anglais et en français, avec des mémoires originaux, les procès-verbaux des réunions de Londres (juillet 1950).

La Commission des Publications s'est réunie à Londres en Septembre 1950, celle des Symboles et Unités à Copenhague pendant l'Assemblée Générale, celle des Rayons cosmiques s'est partiellement réunie à Bombay en décembre 1950, celle des Très basses températures doit se réunir à Oxford en août 1951.

L'Union a été ou sera représentée aux réunions des Commissions mixtes suivantes:

Spectroscopie (Cambridge, septembre 1950; Rome, septembre 1952);
Résumés analytiques en Physique (Paris, juillet 1951);

Unités et étalons en radioactivité (Amsterdam, septembre 1949; Paris, juillet 1950);

Rhéologie (Lund, juillet 1950);

Stations de haute altitude (Bagnères de Bigorre, août 1950; Colorado, 1952).

Ionosphère (Bruxelles, septembre 1950);

Radiométéorologie (Bruxelles, août 1951);

Radiobiologie (Paris, juillet 1950);

Données physicochimiques (New-York, septembre 1951);

L'Union a été ou sera représentée à des réunions de l'U.N.E.S.C.O. concernant la fertilisation des zônes arides, et les projets de laboratoires internationaux de calcul mécanique, et de physique corpusculaire.

(5) *Publications*. En plus des habituelles circulaires d'information, et de celles spéciales à la Commission Internationale d'optique, nous signalons les mémoires et discussions concernant les colloques de Reading (récemment parus), d'Amsterdam, de Bombay et de Paris (en préparation) ainsi que le Répertoire des Sociétés de physique (édition provisoire).

P. Fleury

# Report of the International Geographical Union, 1951

The work of the Union continued to gather momentum during the past year. Thanks to the financial aid received from U.N.E.S.C.O. and the gratifyingly large revenue from national dues, the Executive was able to make substantial grants in furtherance of the research and publication programme embarked upon in Lisbon in 1949, to subsidize the travels of the President and the Secretary, and to contribute to the budget of the 17th Congress to be held in Washington next August.

### *Membership of the Union*

Since our last report, additional requests for membership have been received from Colombia, Finland, Indonesia, Israel, Pakistan and Uruguay. Assuming that these nations will be admitted when the General Assembly meets next August, the number of adhering nations will then be forty-five, that is, ten more than at the time of the 16th Congress. The number of countries 'in good standing' at the present time is twenty-six; those in arrears are mostly located in east and south-east Europe, though it is heartening to report that Czechoslovakia has recently remitted its dues for 1951, and that Yugoslavia is one of the Union's most active supporters. The income from dues in 1951 was $8260, or more than twice what it was in 1949.

### *Research Work*

With the 17th Congress looming large on their horizon, most Commissions showed a lively desire to get their reports completed and printed by August 1952. It must be regretfully admitted, however, that the Union is not without its laggards. Two, if not three, Commissions are seemingly moribund and unlikely to survive the forthcoming General Assembly. With a view to preventing a repetition of this unfortunate state of affairs during the next inter-Congress period, the Executive Committee has appointed a sub-committee to scrutinize all requests for new Commisssions and the continuance of existing ones.

The Committee on the Arid Zone continued to be very active, and to co-operate with U.N.E.S.C.O.'s Arid Zone Research Council. The series

of homo-climatic maps prepared by Dr Meigs at the behest of the Natural Sciences Division of U.N.E.S.C.O. was completed, and is shortly to be published. I.G.U. observers attended the Arid Zone Research Council meetings held at Algiers and Paris.

*Publications*

During the year the Union published volume 58 of the *Bibliographie Géographique Internationale* (covering the year 1948) under the editorship of Professor A. Libault, and the third volume of the *Bibliographie Cartographique Internationale* (for the year 1949), edited by Madame Sommer and Mademoiselle Foncin. For assistance in the publication of both these volumes the I.G.U. is indebted, as in previous years, to U.N.E.S.C.O. As reference works and aids to research, these Bibliographies have come to assume a place of unique importance to the geographer, and it is our earnest hope that U.N.E.S.C.O. will continue to share with the Union the financial cost of the undertaking.

The Union likewise continued publication of its bilingual Newsletter series. Two new issues (Nos. 3 and 4) appeared during the year, each in an edition of more than 4000 copies. Through this medium we have been able to apprise member nations of developments in their field throughout the world, and to keep them informed of the Union's many-sided activities, as well as plans for the forthcoming Congress. In addition, the Union was able to begin preparation of a *World Directory of Geographers*. This work is being carried out by an especially appointed Committee under the chairmanship of Professor George Kish. It is hoped to have the Directory printed in time for the Congress.

*Travel*

Early in the year the President toured the Middle and Far East on behalf of the Union, to the evident satisfaction of the geographers in all the countries concerned, and to the singular advantage of the Union as a whole. The Secretary, after attending the 75th Anniversary Celebration of the Royal Geographical Society in Egypt with the President, was able to visit the leading colleges and research institutions in tropical Africa, and to stimulate interest in the World Land Use Survey recently launched by the Union.

*Seventeenth Congress*

The United States National Committee has made excellent progress during the year with its plans for this Congress. Some 300 registrations have already been received, and there is a confident expectation that the

number of Congressistes will exceed 1000. To assist geographers in the dollar-short countries, the Committee has generously undertaken to provide between 100 and 150 bursaries. In addition, it has succeeded in placing a number of distinguished scholars as visiting professors in American and Canadian universities.

With the assurance of very substantial support forthcoming from U.N.E.S.C.O. in the Congress year, the Union has high hopes of being able to bring to Washington all the far-flung members of its Executive Committee and the Chairmen (or Secretaries) of its Commissions. It also expects to contribute a total sum of $5000 to the Congress budget.

The news that Dr Fraser is planning to be present in his capacity as I.C.S.U.-U.N.E.S.C.O. Liaison Officer has been received with general satisfaction. The Union is deeply appreciative of his services, and welcomes every opportunity of counselling with him.

GEORGE H. T. KIMBLE

# Rapport de l'Union Internationale des Sciences Biologiques, 1951

*Administration*

Au cours de la dernière Assemblée Générale tenue à Stockholm en juillet 1950, la composition du Bureau a été modifiée: le professeur H. Munro Fox fut élu Président, à l'unanimité, en remplacement du professeur M. J. Sirks démissionnaire. Le professeur J. Runnström fut élu à la vice-présidence, comme successeur du nouveau Président.

*Fonctionnement*

La Xe Assemblée Générale réunit 31 représentants de 16 Nations et 64 délégués des 9 Sections et des Commissions.

Elle fut précédée et suivie, à Stockholm, d'une réunion du Comité Exécutif qui n'avait pas été convoqué depuis plus de 10 ans. Plusieurs décisions importantes furent prises et des vœux furent adoptés:

(*a*) Le principe de réunir le Comité exécutif entre deux Assemblées Générales, à peu près à mi-temps de l'une et de l'autre. La prochaine réunion se tiendrait dans les premiers mois de 1952.

(*b*) Établir un calendrier des Congrès biologiques internationaux, en accord avec les Comités permanents de ces Congrès ou les Sections qualifiées.

(*c*) Inviter les responsables des Congrès internationaux à ne publier qu'un court résumé de leurs réunions et le titre des communications qui y sont présentées; celles-ci pouvant être publiées in-extense dans des périodiques appropriés.

(*d*) Soutenir les Commissions de Nomenclature botanique et zoologique dans leurs demandes de subventions spéciales.

(*e*) Créer, au sein de l'Union et indépendemment des Sections, deux Commissions poursuivant des buts précis: la Commission pour les recherches sur la lutte biologique contre les ennemis des plantes et la Commission internationale d'Ecologie appliquée.

(*f*) Modifier l'article 16 des statuts afin de laisser les Pays adhérents libres de payer une cotisation en rapport avec l'importance de leurs établissements scientifiques et de celle qu'ils attribuent à l'Union, en même temps que de leurs possibilités financières.

*Travaux scientifiques*

(1) *Publications*

Depuis un an l'U.I.S.B. a publié et diffusé:

(*a*) les comptes-rendus de l'Assemblée Générale tenue en juillet 1950;

(*b*) C.R. du colloque réuni en 1947 à Rothamsted: *Trace Elements in Plant Physiology*, 144 pp., 10 pl.;

(*c*) C.R. du colloque réuni en 1950: *Les bases écologiques de la régénération de la végétation des zones arides*, 150 pp.;

(*d*) *Catalogue des échantillons types des collections de Paléontologie du Museum de Paris: Mammifères*, 58 pp. (publié par la Section de Zoologie);

(*e*) *Catalogue systématique des types de Trochilidés du Museum de Paris*, 28 pp. (publié par la Section de Zoologie).

(2) *Sections*

Etant donnée la réduction considérable de la subvention attribuée par l'U.N.E.S.C.O. à l'Union, celle-ci s'est vue dans l'obligation de diminuer de façon sensible les indemnités réparties aux Sections pour leur permettre d'entreprendre ou de continuer des travaux déterminés. Toutefois, les Sections de *Botanique*, *Génétique et Zoologie* ont poursuivi la préparation des index de leurs spécialistes respectifs et l'Index des Généticiens paraîtra sans doute avant la fin de la présente année. Le travail de l'Index herbariorum se poursuit également mais sa publication a été retardée par la nécessité d'imprimer rapidement le 'Synopsis proposals', ouvrage de Taxonomie de près de 300 pages, qui put être distribué au Congrès international de Botanique.

La *Section de Génétique* a, encore, en cours de rédaction un catalogue des Types génétiques du Maïs, et en préparation une liste des institutions et laboratoires de Génétique existant dans le monde entier, qui comprendra également des renseignements sur les recherches, le personnel, l'outillage de chacun d'eux. La Section poursuit, par ailleurs, une enquête sur l'enseignement de la Génétique dans les établissements d'enseignement secondaire.

La *sous-Section de Génétique humaine* a entrepris la constitution d'une bibliographie aussi complète que possible et la centralisation de tout ce qui concerne l'étude des cas très rares héréditaires de Génétique humaine (jumeaux).

La *Section de Limnologie* s'efforce d'obtenir une standardisation des méthodes de recherches et elle a constitué un Comité de trois membres qui est chargé de faire des propositions à cet égard. Des notices seront rédigées et diffusées, aussi largement que possible, dans ce but.

La *Section de Microbiologie* met au point le programme de travail d'une nouvelle commission pour la Nomenclature et la Taxonomie de sa spécialité; un code de Nomenclature bactérienne a été publié en allemand, anglais, espagnol et français. Grâce à une subvention spéciale de l'U.N.E.S.C.O. la Fédération internationale des Collections de culture de micro-organismes continue à fonctionner de façon satisfaisante. Ce groupement représente actuellement 65 institutions, ou collections, réparties dans 30 pays. Le rôle éminemment utile de ces laboratoires n'est plus à souligner, il a été mis en valeur ces dernier mois par la publication des catalogues des Cultures Types conservées par un grand nombre de ces établissements scientifiques. L'année 1950 a vu l'organisation d'un nouveau service relié à l'U.I.S.B.; le Centre de culture des Types de Drosophiles sauvages, installé à Pallanza sous la direction du Professeur A. Buzzati-Traverso. L'U.N.E.S.C.O. a bien voulu le faire bénéficier d'une subvention particulière et, actuellement, le laboratoire entretient les souches de 200 espèces américaines et européennes.

Dans le domaine de la *Botanique* les spécialistes ont été répartis en 26 commissions qui, malheureusement, faute d'un budget approprié, ne peuvent avoir une aussi grande activité qu'il serait désirable. Toutefois plusieurs publications sont en cours d'impression par les soins de *Chronica Botanica*.

La *Section de Biométrie* prépare la réunion d'un colloque sur 'Les problèmes biométriques en relation avec la croissance des Plantes' à Delhi au cours de la présente année.

La *Section de Cytologie* prépare également la réunion du colloque sur la Cytochimie qui n'a pu se tenir en 1950.

La *Section d'Entomologie* réunira elle aussi, en 1951, un colloque sur les 'Symbientes chez les Insectes'.

La *Section d'Embryologie* (Laboratoire Hubrecht) continue ses études avec le *Xenopus laevis* et à en publier les résultats dans des périodiques spécialisés. Le laboratoire a reçu 5 travailleurs de 4 nations (Afrique du Sud, Italie, Israël, Suède) pour y poursuivre des recherches en embryologie animale. Un service d'information a été créé en même temps qu'une bibliothèque centrale d'embryologie. Un catalogue des collections a été commencé.

(3) *Autres organismes*

(*a*) *Dépôt international de Préparations microscopiques de Cytologie:* poursuit ses buts initiaux de constituer une collection internationale, mais il est bien difficile de faire admettre aux intéressés l'intérêt incontestable d'une telle collection; il faut peu à peu éliminer le sentiment individualiste qui

veut que chacun hésite à se dessaisir au profit de tous de ce qu'il croit être sa seule propriété. L'idée fait son chemin, la patience fera aboutir certainement cette heureuse initiative.

(*b*) *Station zoologique de Naples:* a continué à montrer une grande vitalité aussi bien en recevant de nombreux chercheurs des différents pays qui contribuent financièrement à son entretien, qu'en améliorant les moyens de travail à mettre à leur disposition. Les divers aspects des sciences biologiques ont été abordés au cours des derniers mois: sexualité, physiologie générale et comparée, biochimie, histologie descriptive, cytologie et, surtout, écologie. A noter que la collection systématique de la faune du Golfe de Naples est en cours de reconstitution. En outre, un nouveau bateau moteur vient d'être construit avec l'aide financière de l'U.N.E.S.C.O.

Malheureusement pour l'U.I.S.B., la Station zoologique de Naples passant dans la catégorie des organismes internationaux relevant directement de l'I.C.S.U., elle se détache entièrement de l'Union qui n'aura plus à intervenir en aucune manière dans ce qui la concerne.

(4) *Commissions*

(*a*) *Commission pour les recherches sur la lutte biologique contre les ennemis des plantes:* créée en 1950 par l'U.I.S.B. elle s'est réunie pour la première fois fin septembre de la même année. Après avoir constitué son bureau elle posa les bases de ses travaux futurs immédiats. L'installation de deux centres fut envisagée: l'un de documentation, de systématique et de formation de spécialistes à Genève, l'autre, expérimental, sous forme d'insectarium, à Menton. M. Ferrière, directeur scientifique de la commission, fut chargé d'organiser le premier, tandis que M. J. Ghesquière, président de la Commission, dirigera le second. Ce dernier est entré dans sa phase active: un jeune entomologiste suisse, spécialiste en Hyménoptères parasites, y entreprend les élevages prévus au programme de travail. Les premiers problèmes que l'Insectarium se propose de résoudre sont relatifs à la lutte biologique contre les Mouches des fruits et contre la Tordeuse orientale du pêcher.

En mai 1951, les membres du Bureau de la Commission furent invités par le Gouvernement espagnol pour exposer à leurs collègues d'outre-Pyrénées le rôle qu'elle doit jouer sur le plan international dans le cadre de sa spécialité. Les échanges de vues furent très fructueux et à leur suite l'Espagne a accepté de participer au fonctionnement de la Commission. Acuellement la Belgique et le Congo belge, l'Algérie, la Tunisie, le Maroc, le Portugal ont souscrit des 'tables de travail'. Des promesses ont été faites par l'Egypte et l'Afrique occidentale française.

(*b*) *Commission internationale d'Ecologie appliquée:* sous la présidence du professeur Boyko, appartenait à la section de Botanique. Elle est devenue récemment une commission autonome de l'Union dont la mission a été résumée ainsi: les applications des recherches écologiques étant aujourd'hui reconnues comme très importantes, il est admis que tout aménagement forestier et agricole doit, pour réussir, être fondé sur des recherches écologiques. Il en est de même pour ce qui concerne les ressources alimentaires et pour les matières premières des industries biologiques. La mise en valeur de nouvelles zones de production prélevées sur les déserts et les semi-déserts demande également des recherches écologiques, la végétation étant le meilleur indicateur du climat. Les projets d'aménagement hydraulique doivent, eux aussi, reposer sur certaines études écologiques. La coordination des observations climatiques sur de larges zones ne peut être obtenue que par la coopération internationale et c'est dans cet esprit que la nouvelle commission entend poursuivre l'accomplissement de son programme. Dès le début, il semble indispensable d'envisager la constitution de sous-commissions: écologie forestière, écologie des prairies, écologie des régions arides et semi-arides.

*Subventions diverses*

(*a*) *Bourses.* Pour l'année 1950 l'U.I.S.B. put distribuer des subsides à trois chercheurs (1 brésilien, 1 italienne, 1 hongrois) pour leur permettre de pursuivre leurs travaux, les deux derniers en France, le premier dans plusieurs laboratoires européens. A partir de 1951, l'U.I.S.B. n'a plus qualité pour distribuer des bourses de voyage et d'études et n'a plus de moyens financiers à cet effet.

(*b*) *Organismes de bibliographie.* Comme les années précédentes l'U.I.S.B. participa à la publication de plusieurs périodiques internationaux de bibliographie: *Resumption génética*, *Année biologique*, *Zoological Record.*

(*c*) *Congrès.* Un représentant de l'Union assista à chacun des grands congrès internationaux suivants: Botanique, Cytologie, Limnologie, Microbiologie, Entomologie.

Toutes ces activités ont été rendues possible pour la plus grande part, grâce au concours de l'U.N.E.S.C.O. et nous lui devons notre reconnaissance.

P. Vayssière

# Report of the International Union of Crystallography, 1951

1. During the year under review the Union has continued the programme of activities initiated at the First General Assembly in 1948 and has completed preparations for the Second General Assembly and International Congress to be held at Stockholm from 27 June to 3 July 1951, by kind invitation of the Swedish National Committee for Crystallography. A further two countries adhered to the Union making a total of 17 Adhering Bodies.

2. *Acta Crystallographica* has continued to appear regularly and volume 3 was completed in December 1950. The rapid growth of this journal is reflected in the number of pages in the first four volumes:

| Volume 1 | Volume 2 | Volume 3 | Volume 4 |
|---|---|---|---|
| 1948 | 1949 | 1950 | 1951 |
| 348 | 425 | 490 | 576 |

These figures leave no doubt that the journal satisfies a very real need in this field of scientific literature, but they are also, unfortunately, a source of some embarrassment to the publishers who find difficulty in handling such a volume of highly technical material in several languages. The problem is under active consideration by the Executive Committee.

3. The first volume of *Structure Reports* to be prepared under the auspices of the Union has now been published by Messrs A. Oosthoek Publishing Company of Utrecht. This work contains detailed and critical descriptions of some 800 crystal-structure investigations published during the years 1947–8. Further volumes are in course of preparation, those for 1949 and for 1945–6 being nearly ready for press.

4. The first volume of *International Tables for X-ray Crystallography* is in the hands of the printer, and publication is expected late in 1951. Editorial preparation of the remaining two volumes is in progress.

5. All the above-mentioned publications have received very generous financial support from U.N.E.S.C.O. and from British and American industrial and other sources, and the warm thanks of the Union are due to all these bodies for their assistance. The Executive Committee hopes that *Structure Reports* will in future be nearly self-supporting, now that one

volume has been published, and that expenses of preparing subsequent volumes will be covered by receipts from sales. The Executive Committee also feels that *Acta Crystallographica* should be more nearly self-supporting now that it is well established; an increase in subscription is proposed to make this possible.

*Second General Assembly and International Congress and Symposia*

The Second General Assembly and International Congress was held in Stockholm during the period 27 June to 3 July 1951, under the patronage of His Majesty the King of Sweden, who attended the opening session, and with Sir Lawrence Bragg as President. About 380 Crystallographers and 60 passive members, representing 24 countries, were present. Following the Congress two symposia were held on 4 and 5 July, with kind financial support by U.N.E.S.C.O.; one was on Advanced Techniques of Crystal Structure Determination, the other on Electric Diffraction in Gases. Altogether 229 papers were read at Stockholm.

The following is a summary of the business transacted at the sessions of the General Assembly.

*Constitution.* By-Law 6 was amended as follows: for 'three ordinary members' substitute 'four ordinary members'.

*Adhering bodies.* The adhesion of 14 countries which had joined the Union since the First General Assembly was formally approved.

*Acta Crystallographica.* It was agreed to increase the price of *Acta Crystallographica* to £5 per volume because of the rapid growth of the journal and rising costs of production.

*Structure Reports.* The publication of the first volume of *Structure Reports* to be produced under the auspices of the Union was noted with satisfaction.

*International Tables.* An advance copy of volume 1 of *International Tables for X-ray Crystallography* was displayed and it was announced that publication would follow later in the year.

*Other Commissions.* The work of the other Commissions was discussed and a number of recommendations of a technical character were approved.

*Officers.* Officers were elected as follows:

*President:* J. M. Bijvoet (Netherlands).
*Vice-Presidents:* G. Hagg (Sweden).
J. Wyart (France).
*General Secretary:* R. C. Evans (U.K.).
*Editor:* P. P. Ewald (U.S.A.).

*Ordinary members of the Executive Committee:* J. D. Bernal (U.K.).
Sir K. S. Krishnan (India).
E. Onorato (Italy).
A. L. Patterson (U.S.A.).

*Third General Assembly.* It was agreed that the Third General Assembly should be held in 1954 in some country on the continent of Europe.

At the closing session of the Congress U.N.E.S.C.O. was warmly thanked for its continued support of the publishing programme and other activities of the Union and particularly for financial assistance towards the expenses of the present General Assembly and Symposia. This assistance had made it possible to bring together the largest and most distinguished gathering of crystallographers ever held.

R. C. Evans

# Rapport de l'Union Internationale de Mécanique Théorique et Appliquée, 1951

Dr Th. von Karman a été élu Président honoraire de l'Union.

La réunion du Bureau de I.U.T.A.M. prévue pour juin 1951 a été différée à septembre 1951. Elle se tiendra à Porquerolles (Iles d'Hyères, France) en même temps qu'un colloque sur les vibrations non linéaires organisé par le Comité suivant:

J. Pérès (Paris) *président*; W. T. Koiter (Delft) *secrétaire*; N. Minorsky (Aix-en-Provence); J. Valensi (Marseille); B. van der Pol (Genève); R. Grammel (Stuttgart); J. J. Stoker (New York); C. Ferrari (Torino).

Depuis la réunion de la 2e Assemblée Générale, en juin 1950, les membres suivants ont été admis:

Gesellschaft für angewandte Mathematik und Mechanik (Stuttgart),
Israel Society for Theoretical and Applied Mechanics (Haïfa),
Instituto de Técnica aeronautica (Madrid),
Oesterreichische Akademie der Wissenschaften (Wien),
National Committee for Theoretical and Applied Mechanics (Tokyo),

ce qui porte à 19 le nombre des organisations adhérentes.

La Commission pour l'étude de l'amortissement interne des matériaux a publié deux premiers rapports critiques et bibliographiques, l'un se rapportant aux recherches effectuées aux U.S. et l'autre aux publications en langue allemande.

Les travaux de la Commission mixte de Rhéologie feront l'objet d'une délibération de la prochaine réunion du Bureau de I.U.T.A.M.

La troisième Assemblée Générale se tiendra fin août 1952 à Istanbul.

F. H. van den Dungen

The following further details have been supplied by Dr J. M. Burgers on his return from the United States.

*Resolution of the General Assembly at Pallanza* (27 *June* 1950)

In confirmation of the views already expressed at the General Assembly of September 1948 when the present statutes were framed:

1. The General Assembly expects that in these countries where more than one national organization is active in theoretical and applied mechanics, a national co-ordinating committee will be formed. In general, it is expected to recognize only one adhering body in each country.

2. The General Assembly believes that a gradual transition should be made in its composition, so that ultimately it will consist mainly of representatives of organisations adhering to the Union with the category of elected members reserved for exceptional and unusual cases. To this end it gives notice of its intention to reduce the number of elected members when the terms of the present elected members expire in 1952.

*Members of General Assembly for* 1948–52. Members of the General Assembly are (*a*) representatives of adhering organizations and (*b*) the following scientists elected according to Article IV (*b*) of the Statutes for 1948–52 (omitting the names of those who since have been appointed as representatives of adhering organizations and of those whose death has been announced):

J. Ackeret (Switzerland).
C. B. Biezeno (Netherlands).
J. M. Burgers (Netherlands).
A. Caquot (France).
P. Y. Chou (China).
S. A. Christianovitch (U.S.S.R.).
G. A. Crocco (Italy).
H. L. Dryden (U.S.A.).
H. Favre (Switzerland).
S. Goldstein (Israel).
B. Hostinsky (Czechoslovakia).
J. C. Hunsaker (U.S.A.).
Th. von Kármán (U.S.A.).
A. N. Kolmogoroff (U.S.S.R.).
Y. H. Ku (U.S.A.).
R. von Mises (U.S.A.).
J. Nielsen (Denmark).
J. Pérès (France).
K. Popoff (Bulgaria).
W. Rubinowicz (Poland).
R. V. Southwell (England).
H. U. Sverdrup (Norway).
G. I. Taylor (England).
S. P. Timoshenko (U.S.A.).
H. Villat (France).
W. Weibull (Sweden).

# Rapport de l'Union Internationale d'Histoire des Sciences, 1951

*Rapport d'Activité du* 1 *août* 1950 *au* 1 *août* 1951

(1) Le VIme Congrès International d'Histoire des Sciences qui a eu lieu à Amsterdam du 14 au 21 août 1950, a été un grand succès pour notre Union. Il a réuni 420 membres, appartenant à 33 nations et ayant présenté 120 communications. Le XIIme Congres de la Société Internationale d'Histoire de la Médecine a fonctionné comme Section IV de notre Congrès. On a commencé l'impression des Actes du Congrès. 200 pages sont déjà tirées, mais il est probable que le volume aura environ 1000 pages. L'U.N.E.S.C.O. nous a aidé à organiser ce Congrès en nous accordant 1500 dollars pour les frais de voyages des membres de quatre commissions et du Symposium d'Histoire de la Médecine, réunis à Amsterdam. De leur côté, les autorités locales et les membres du Congrès ont contribué environ 4000 dollars pour l'organisation matérielle des manifestations.

(2) Grâce aux subventions généreuses de l'U.N.E.S.C.O., notre Union a pu continuer ses efforts de resserrement des liens scientifiques internationaux par des publications collectives. Entre le 1 août 1950 et le 1 août 1951, nous avons fait paraître les *Archives Internationales d'Histoire des Sciences*, Nr. 13 (tome III), 14, 15, et 16 (tome IV), qui représentent ensemble 1182 pages in-8vo. On y a inséré 40 mémoires originaux, 235 comptes-rendus critiques, la revue des revues, des documents officiels, des notes et informations. Plus de 100 auteurs y ont collaboré; ils appartenaient à 27 pays, dont 16 européans, plus: Afrique du Sud, Argentine, Chine, Egypte, Inde, Iran, Israël, Japon, Malaisie, U.S.A., Viet-Nam. Environ 20 de ces collaborateurs sont membres de l'Institut de France, de la Royal Society, de l'Académie dei Lincei, de l'Académie Royale de Belgique et d'autres Académies nationales des Sciences. Cette statistique sommaire montre combien nos *Archives* servent de lieu scientifique international et d'instrument de travail pour le progrès de notre discipline.

Dans la *Collection de Travaux Scientifiques de l'Académie*, on a publié le Nr. 5, Mmes. Dorothée Waley Singer et Annie Anderson, *Catalogue of Latin and Vernacular Plague Texts in Great Britain and Eire in Manuscripts written before the XVIth Century*, 269 pages, litogr. in-fol.

Le numéro 6 de la Collection *Actes du Congrès d'Amsterdam* est sous presse, et 200 pages sont déjà tirées. Le Nr. 7 est un *Traité akkadien de Pronostics*, par R. Labat, environ 300 pp., et se trouve en ce moment composé en épreuves.

L'Union n'a publié aucune brochure durant cette année, mais on prépare une plaquette concernant la commémoration du bi-centenaire de P. S. Laplace.

En tous on a publié cette année 1451 pages.

(3) La Commission mixte, organisée par l'Académie des Sciences de Paris, et par notre Union, en vue de la publication de la *Correspondance de Lavoisier*, s'est réuni le 2 novembre 1950, sous la présidence de M. Gabriel Bertrand. Le matériel recueilli est presque prêt pour l'impression et on compte pouvoir commencer en 1951–2 la composition typographique du premier fascicule.

En collaboration avec le Palais de la Découverte de Paris l'Union a organisé la commémoration du cinquième centenaire de la naissance de Christophe Colomb, le 19 et 26 mai 1951. Il y eut des exposés de MM. T. Almagia, A. Cortesao, A. Metraux, et Lucien Guyot. D'ailleurs l'Union collabore étroitement avec le Palais de la Découverte et a pris part à l'organisation de l'exposition l'Œuvre Scientifique de Blaise Pascal, ainsi qu'à la préparation mensuelle d'une conférence sur l'histoire des sciences. Les conférenciers en 1951 ont été MM. A. Reymond, M. Daumas, R. Taton, H. Bernard-Maitre.

L'Union et l'Académie ont également organisé des séances à Paris où on a entendu des conférences de MM. F. S. Bodenheimer (Israël), A. N Singh (Inde) et d'autres.

L'Union a pris part aux commémorations de P. S. Laplace et Descartes, faite par la Radiodiffusion Française, ainsi qu'aux manifestations scientifiques qui ont eu lieu dans les cadres du Bi-millénaire de Paris. Elle a organisé les travaux d'histoire des sciences au IXme Congrès International des Sciences Historiques (Paris, 28 août–3 septembre 1950): on y a écouté le rapport de M. H. Guerlac: une quinzaine de savants ont pris la parole.

L'Académie et l'Union prennent une part active aux travaux du Centre International de Synthèse, dirigé par M. H. Berr. L'Union a été représentée à la réunion de Paris (3–4 juillet 1951) de la Commission mixte des Compte-rendus analytiques, ainsi qu'aux Congrès de British Association for the Advancement of Science de 1950 et 1951.

(4) Deux problèmes importants nous obligent à envisager la modification de nos statuts: (*a*) l'Union Internationale de Philosophie des Sciences

a demandé à se fédérer avec notre Union; (*b*) La Royal Society demande que dans nos assemblées générales seuls les représentants des Comités Nationaux aient le droit de vote, à l'exclusion des membres de l'Académie Internationale d'Histoire des Sciences. La IIme Assemblée Générale de l'Union (Amsterdam, 14 août 1950) a nommé une Commission des Statuts, présidée par M. A. Reymond, en vue de rédiger les modifications nécessaires. La commission a travaillé par correspondance durant toute l'année et se réunit à Paris, le 4 Septembre 1951 afin de rédiger le nouveau projet de Statuts.

(5) Quatre de nos cinq commissions scientifiques se sont réunies à Amsterdam en août 1950. La Commission III (Bibliographie) se réunit de nouveau à Londres en octobre 1951. La Commission I (Relations Sociales de la Science) a terminé la rédaction de son ouvrage collectif qui est en train d'être édité en Grande Bretagne. La Commission II (Enseignement) a étudié le manuscrit dactylographié, préparé par M. A. Reymond. On espère pouvoir commencer son impression en 1951. La Commission III (Bibliographie) a établi les règles pour un Catalogue Historique des Globes Anciens (célestes et terrestres). M. R. A. Skelton a établi un projet de catalogue et de modèle de la déscription scientifique de chaque globe. Ce projet a été envoyé à tous les spécialistes du monde entier. Les Commissions I, II, III, ont rédigé leurs règlements de fonctionnement. La Commission IV (Publications) a établi son programme d'activité pour 1951–2 et a examiné les manuscrits proposés pour nos collections.

Le Comité permanent de la Societé Internationale d'Histoire de la Médecine, section de notre Union, s'est réuni le 18 août 1950 à Amsterdam et le 2 juin 1951 à Paris. On a commencé la préparation du XIIIme Congrès qui aura lieu à Nice en 1952.

(6) Notre Union se compose actuellement de 21 Groupes ou Comités Nationaux et de deux Sections Internationales. D'après les rapports, encore incomplets, leur activité du 1 août 1950 au 1 août 1951 peut se résumer ainsi: 3 Congrès Nationaux d'Histoire des Sciences avec 28 communications; préparation (pour 1952) de 2 autres congrès nationaux; publication des *Actes* du Congrès de Bruxelles en 1950; 44 séances publiques avec 83 communications; 8 Périodiques d'Histoire des Sciences. Publication des Notes bibliographiques; Organisation de Séminaires et de Cours libres d'Histoire des Sciences dans les différents pays.

(7) L'U.N.E.S.C.O. a généreusement accordé à notre Union une subvention de $6500 en 1951. Elle est consacrée exclusivement aux publications: *Archives*, *Actes* d'Amsterdam, Monographies, etc.

Nous ne pouvons pas donner une évaluation exacte des revenus

propres de notre Union en 1950–1. En effet, les éditions Hermann qui ont le dépôt général de nos publications, ont fait un versement en juillet 1950, versement consigné dans notre rapport précédent, mais ont décidé—pour des raisons de comptabilité—de ne plus faire de versements qu'aux mois de décembre, donc à la fin de 1951. Ces revenus seront dons inscrits dans notre prochain rapport. (Or, il s'y trouve plus de cent abonnements aux *Archives*, etc.) Abstraction faite des sommes que nous toucherons en décembre 1951 des éditions Hermann, nos revenus propres (cotisations, abonnements directs par les groupes nationaux, etc.) représentent environ 200,000 frs. fr. Les revenus propres sont employés pour frais de sécrétariat, administration et correspondance.

(8) Les Conseils de l'Union et de l'Académie se réunissent le 4 et le 5 septembre 1951 à Paris.

L'Assemblée Générale se réunira à Jérusalem, en août 1953.

*Conseil* (1950–3)

*Président:* Professeur G. Sarton (Cambridge, Etats-Unis).

*Vice-Présidents:* Mme. D. Waley Singer (G.B.).
Professeur H. J. Forbes (Pays-Bas).

*Assesseurs:* Professeur J. Pelseneer (Belgique).
Professeur R. Taton (France).

*Trésorier:* Professeur J. A. Vollgraff (Pays-Bas).

*Secrétaire-Général:* Professeur P. Sergescu, 7 Rue Daubenton, Paris 5 (Roumanie).

P. Sergescu

# JOINT COMMISSION ON HIGH ALTITUDE RESEARCH STATIONS

The Joint Commission on High Altitude Research Stations was established by I.U.B.S., I.U.P.A.P., I.A.U. and I.U.G.G. The first meeting was held at Bagnères-de-Bigorre near the French high altitude station of the Pic-du-Midi from 23 to 26 August 1950.

The Commission was constituted under Professor Carlos Monge, Lima, Peru (I.U.B.S.), as Honorary President. Professor Donald H. Menzel, Cambridge, Mass. (I.A.U.) was elected President, and Dr R. Stämpfli, Bern, Switzerland (I.U.B.S.), was elected Secretary of the Commission.

Eleven of the fourteen members representing the I.U.B.S., I.U.G.G., I.A.U. and I.U.P.A.P. participated. Reports were presented by the members of the Commission describing the different fields of high altitude research and the facilities available throughout the world. The Commission members discussed at some length the objectives of the Commission and the programme which it should pursue. The Commission proposed for consideration by U.N.E.S.C.O. the following matters:

(1) U.N.E.S.C.O. is urged to draw the attention of medical and university authorities of high-altitude countries of South America to the opportunity they have for co-operation in the important field of physiology of men accustomed to live at high altitudes which is already being studied on the plateaus of Peru.

(2) U.N.E.S.C.O. is further recommended to give favourable consideration to requests of the Peruvian Government for the provision of technical assistance to prosecute research in high altitude physiological and veterinary biology.

(3) U.N.E.S.C.O. is urged to assist in the establishment of a high altitude research station in the Himalayas, for which a committee has already been set up in India. This region offers unique opportunities for high-altitude studies in the fields of cosmic rays, astrophysics and biology, to scientific workers from all parts of the world.

(4) U.N.E.S.C.O. can assist in establishing 'World Days' for upper atmosphere research in order to provide concentrated data at special times.

(5) U.N.E.S.C.O. is requested to consider seriously aiding the Cosmic Ray Committee of the I.U.P.A.P. to support the project of the Pic-du-

Midi Observatory, co-operating with the Universities of Brussels, Manchester and Toulouse in the establishment of unusual facilities for the study of nuclear tracks in emulsions in intense magnetic fields.

(6) U.N.E.S.C.O. is requested to urge the continued support of the Mt Sinai Cosmic Ray Station by the Farouk I University in Alexandria.

Action has been taken by U.N.E.S.C.O. on all these proposals except No. 5.

The Governments of Bolivia, Colombia and Venezuela have all given favourable answers to proposal No. 1 asking for increased co-operation in physiology of men living at high altitudes.

The Peruvian Government has not so far made the requests mentioned in proposal No. 2.

Proposal No. 3, concerning the establishment of high-altitude stations in the Himalayas, has been sent to the U.N.E.S.C.O. Field Science Co-operation Office for East Asia with the request to take the necessary steps for furthering the proposal of the Joint Commission.

The establishment of 'World Days' for upper atmosphere research (proposal No. 4) is at present under consideration by the Associations within I.U.G.G. which would be concerned in the project, namely, the Associations of Meteorology, Terrestrial Magnetism and Electricity, and Hydrology. On the other hand, positive suggestions have already been made by the Harvard Observatory to choose dates of major photographic meteor showers and solar eclipses as well. It is hoped to draft a list of 'World Days' before the end of 1951 for submission to the scientific institutions concerned.

Proposal No. 5 has been rejected by Professor Auger, Director of the Department of Natural Sciences, as the cost of the experiment is too high, so that U.N.E.S.C.O. will not be able to support it financially.

U.N.E.S.C.O. has finally brought the recommendation to reactivate the Cosmic Ray Station on Mt Sinai (proposal No. 6) to the attention of her Field Science Co-operation Office for the Middle East at Cairo and asked for appropriate action.

The Secretariat of the Commission has gathered information about existing high altitude research stations and the research facilities offered by them. A list of these stations will be made available to research workers interested in the field of high altitude together with a short summary on present high altitude work as reviewed by the members of the Commission at the meeting of Bagnères-de-Bigorre.

The next meeting of the Commission is planned for the summer 1952 in Colorado, U.S.A.

R. STÄMPFLI

(i) *Consequences of the Proposals issued by the Commission's meeting at Bagnères-de-Bigorre*

Proposal I: Co-operation among South American Countries in Physiology of Men living at High Altitudes:

This proposal has led to the invitation of September 20th, 1950 by the director-general of U.N.E.S.C.O., Dr James Torres Bodet, sent to the governments of Bolivia, Colombia, Venezuela, Ecuador and Mexico to participate in the important field of physiology of men living at high altitudes.

*Bolivia*

The government of Bolivia has transmitted our proposal to the Bolivian universities. There was one answer from the Mayor of San Andrés University of La Paz, informing the Ministerio de Relaciones Exteriores y Culto that the said university was 'organizing an institute of biology in high altitudes, whose initial budget will be Bs. 200,000. This institute will function in La Paz, a center which constitutes a vast experimental laboratory with a permanent urban population of 321,000 inhabitants of diverse racial types, who live together 3600 metres above sea level and with the possibility of completing observations in the proximity, at a height of 5000 and 1200 metres, with excellent conditions of study which, possibly, cannot be found in any other country. Therefore it is our desire that the new Institute should work in close collaboration and contact with similar establishments abroad. We have already obtained the co-operation of the Andine Institute of Biology, which has obtained so much credit under the direction of Professor Monge in Peru. When we begin our formal work, we shall be happy to receive the visit of any foreign research workers who are interested in working with us and desirous of favouring us with the experience they have acquired in the service of such an important branch of science. Unfortunately, the reduced resources at our disposal for this project compel us to limit our activities proportionally and to leave the material collaboration to such international bodies as U.N.E.S.C.O. For these reasons we can only undertake our own original studies and work in the subject which can be of immediate interest to U.N.E.S.C.O.'

*Colombia*

The government of Colombia has replied to the same letter, stating that the Department of Chemical and Biological Sciences of the Ecole Normale Supérieure 'is preoccupied with the study of man in our country; its

director, Dr J. Estiliano Acosta, was present as Colombia's delegate at the Symposium on Biology at the end of last year; since then it has organized a centre of investigation on this subject and is now receiving instructions to continue this work. We should be extremely grateful here for all kinds of suggestions which would go towards the success of the initiative which U.N.E.S.C.O. recommends so earnestly.'

*Venezuela*

The government of Venezuela informed the director-general of U.N.E.S.C.O. that the University of the Andes of this country had started some scientific work under the supervision of Dr Vladimiro Ivanoff Buikliski, entitled 'The effects of height on the human organism in the Venezuelan Andes' (Mal de Paramo), which will be sent to our organization as soon as it is published. The faculty of medicine of the university mentioned above will offer its collaboration towards the work founded by our commission.

*Ecuador and Mexico*

The governments of Ecuador and Mexico have not answered our proposal. Through Professor Monge, however, the secretary has been informed that in Mexico a high altitude research station for physics is planned under the direction of Professor Manuel Sandoval Vallarta. On the medical side there is an excellent institute for cardiology in Mexico with the professors Ignacio Chavez, Wiener, Arturo Rosenblueth. This institution gives fellowships to foreign students.

*Peru*

It may be added that, since our meeting in the Pyrenees, considerable progress has been realized in the field of high altitude research in Peru. The laboratory of Morococha has been finished with governmental subsidies only. Due to the leadership of Dr Alberto Hurtado, director of research, Rockefeller Foundation has given a $60,000 grant for equipment and the Institute of Public Health of the United States the same amount for studying acclimatization at 15,000 ft. altitude of 15 young sailors, during 2 years. A scientific group from Berkeley, California, headed by Professor Lawrence, has already worked in the new laboratories of Morococha.

A further improvement of international co-operation in high altitude research is due to the arrival in Lima of two investigators from São Paulo, Mr Schwachheim and Mr A. Wataghin, who intend, in accordance with

the office of co-operative scientific development in Latin America (Dr Angel Establier, U.N.E.S.C.O., at Montevideo), to open a high altitude station for the study of cosmic rays in Morococha. The Institute of Andine Biology has provided working space and accommodation to both scientists. Our member Professor Clay, Amsterdam, will probably send one of his assistants to Peru for participation in cosmic ray work in Morococha.

It should be stressed that in Huancayo (10,600 ft. altitude) the Instituto Geofisico of Peru (formerly Terrestrial Magnetism Observatory of the Carnegie Institution of Washington) receives frequently foreign investigators and gives fellowships for short periods, where maintenance expenses are granted.

*Summary*

From the above it may be seen that high altitude research in South America tends to become international and it seems admissible that this increase of international activity has been considerably stimulated by the proposal of our commission and the great efforts of our member Professor Monge.

Proposal II: Technical Assistance to develop and extend Research in Physiological and Veterinary Biology in Peru:

The request of the Peruvian Government for technical assistance has been considerably delayed owing to political reasons. Recently however Mr Luis Dibos, Minister of Agriculture, has received our member, Professor Monge, and approved the project of the commission. Professor Monge submitted a complete project for technical assistance in view of further scientific research in the highly important field of animal fertility and breeding at high altitudes. The project requests scientific aid given by two experts and their assistants during one year, with a total expense of $13,200. The secretary has no further information whether the Peruvian government has actually submitted this request to U.N.E.S.C.O. It can be expected that U.N.E.S.C.O. will call on our commission if the project had to be modified or carried out according to the original plan.

Proposal III: Establishment of Research Centres in the Himalayan Region for Physics and Biology:

This proposal has been sent to the U.N.E.S.C.O. Field Science Co-operation Office for East Asia at New Delhi with the request to take the necessary steps for furthering it. Unfortunately no reply has reached the secretary concerning this question.

Proposal IV: World Days in Upper Atmosphere Research:

This proposal was transmitted through the general secretary of I.C.S.U. in October 1950 to the interested International Unions, such as I.U.G.G., I.A.U., I.U.P.A.P., etc. The secretary of J.C.H.A.R.S. has received a list of eclipses from Professor Menzel and a list of maximum activity of photographic meteor showers from Dr Whipple, Harvard College Observatory. Dr Whipple states that the dates of meteoric activity change very slightly over a considerable number of years so that therefore it would be possible to use them for perhaps a ten year period. He points out that it is desirable to choose other days than those of strong meteor showers as well, as possibly conditions of the upper atmosphere might be slightly affected by very strong meteoric activity, particularly at night. Hence, not all the world days should be concentrated at these times, but a number of them should coincide with meteor showers. It would further be good to include a date near the summer solstice, approximately 22 June, for a very high activity of daylight meteors not observable by radar technics. Dr A. C. B. Lovell, England, has been asked to give his advice on this matter. I.U.G.G., through its secretary, transmitted our proposal to the international associations within I.U.G.G., who would be concerned in the project, namely the Associations of Meteorology, Terrestrial Magnetism and Electricity, and Hydrology. As the project had originated in J.C.H.A.R.S., the secretary of the Association of Meteorology (Professor van Mieghem, Belgium) was asked to co-ordinate the views of the other associations concerned and communicate them to the secretary of I.U.G.G., so that he might forward a co-ordinated Union reply to I.C.S.U. As was to be expected in consideration of such an important matter, the associations decided that the matter should have discussion and that the most appropriate opportunity for discussion and decision would be the Brussels assembly of I.U.G.G. in August 1951.

Since the Brussels meeting no other statement about the decisions of I.U.G.G. on 'World Days' has been obtained, except the I.C.S.U. report in the monthly *Bulletin* of information stipulating that a Joint Committee within the Union made recommendations on the project for world days on upper air observation proposed by J.C.H.A.R.S. The agreed recommendations as approved by the Assembly are being submitted to I.C.S.U.

The report of the I.C.S.U. monthly *Bulletin* about the VIIth General Assembly of I.U.P.A.P. in Copenhagen, where Professor Slater from the M.I.T. represented our commission, does not mention the 'World Days' at all. It is at present not yet known whether I.U.P.A.P. has discussed the

matter or taken any resolution in this matter. The general secretary of I.U.P.A.P. has been asked to inform J.C.H.A.R.S.

The experts on cosmic rays who gathered in Bombay (December 1950), and who have discussed our proposal, have not considered it as being of primary importance to cosmic ray work.

The 'Arbeitsgemeinschaft Ionosphäre' of the German Geophysical Institute, Darmstadt, was informed of our proposal and manifested considerable interest. This organization would be willing to co-operate and to broadcast eventually these dates through Norddeich Radio in the daily transmissions about German results on ionospheric research. (The president of our commission holds a time schedule of these transmissions.)

It may finally be stated that our project of 'World Days' has not yet found the response which might have been expected according to its importance. The secretary still tries to organize a better international co-operation and hopes to be able to present a definite list of 'World Days' for discussion at the next meeting.

Proposal V: Experiments with Magnetic Fields of 100,000 Gauss at the Pic-du-Midi Observatory, has been rejected by Professor Auger, director of the department of natural sciences of U.N.E.S.C.O., as the cost of the experiment is too high, so that U.N.E.S.C.O. will not be able to support it financially.

### (ii) *Other Activities of the Commission based on the Decisions of the Bagnères Meeting*

*Mt Sinai Research Station*

U.N.E.S.C.O. has, according to our decision, taken the necessary steps to reactivate the Mt Sinai Research Station in Egypt. The science co-operation office of U.N.E.S.C.O. in Cairo took action to further the revival of the Cosmic Ray Station on Mt Sinai and informed us through Dr Wang that the head of the department of physics at King Farouk I University had been changed, and for this reason the plans for the revival of the station could not be realized in 1950. There were also certain physical difficulties, as lack of a good road, which involves transport by donkeys, camels, etc. There seems also to be some reluctance on the part of scientists to stay very long at the station, and the university authorities are naturally inclined to hesitate to allocate funds for the project. It seems therefore that a reactivation of Mt Sinai Research Station is not only difficult for political reasons, but for practical ones, such as accessibility and financial support. On the other hand, there is no doubt that inter-

national expeditions planning to work at Mt Sinai could get the necessary permission with the aid of our commission, provided that a sufficient amount of money would be made available for transport and maintenance at the station.

*Reviews*

Another decision of the Bagnères meeting was to publish the reviews presented by the members at the meeting. The secretary regrets not to have published these reviews long ago. Most of the members have very rapidly sent in an abstract of their reviews, but considerable difficulties were met when condensing the biological section into one report. It is hoped to present the draft of this booklet to the members in a short time.

*Existing Stations*

According to another decision of the Bagnères meeting, the secretariat has gathered much information about existing high altitude research stations by sending out questionnaires to the members and through them to the directors of research stations. The secretary wishes to thank all members for providing the wanted information so rapidly. It is planned to present a draft of a complete list of existing high altitude research stations together with the booklet mentioned above. The secretary draws the attention of the members to the fact that publishing such booklets and lists means a tremendous amount of extra work and he hopes that they will excuse the long delays in carrying out these decisions.

The members, who have not yet received a reprint of Prof. Korff's article on high altitude research stations published in *Physics Today*, November 1950, will find it annexed to this circular.

The secretary sends to all members and advisory councillors the best wishes for Christmas and for a peaceful and productive new year.

To reduce the membership of the Commission to the number laid down by the new rules governing Joint Commissions, Professors Emberger, Götz and Waldmeier have become advisory councillors.

R. STÄMPFLI

# JOINT COMMISSION ON THE IONOSPHERE

The Second Meeting of the Commission was held at the Académie Royale de Belgique, Brussels, on 4–6 September 1950. Nine members of the Commission attended, with one other member officially represented. In addition, ten visiting scientists were present at the Meeting.

Discussions were centred around the following specific topics:

(i) The formation of the ionosphere.
(ii) Movements in the ionosphere.
(iii) Ionospheric disturbances and solar phenomena.
(iv) Sporadic E ionization.
(v) Magnetic storms and aurorae.

Some twenty-six written contributions were received, and copies of these papers were circulated to Commission members prior to the Meeting.

A brief preliminary report on the Meeting was prepared in October 1950 and circulated to members, I.C.S.U., U.N.E.S.C.O., and interested Scientific Unions.

As a result of the discussions a number of resolutions were formulated and later forwarded to the Unions concerned. Two of these resolutions are of special interest and may be mentioned here.

(*a*) The Commission has put forward a proposal that the Third International Polar Year be nominated for 1957–8. It has prepared and circulated a short memorandum on this proposal. The proposal was also submitted to the IXth General Assembly of U.R.S.I. at Zürich in September 1950 and adopted by that Assembly.

(*b*) A special Sub-Committee of the Commission was appointed to promote ionospheric and other observations during the solar eclipse of 25 February 1952. It is the intention of the Mixed Commission that the 1952 eclipse should be studied from a large number of stations suitably chosen, and that close co-operation be established between the various observing parties in order to gain the maximum possible information on the various eclipse phenomena. The Sub-Committee has prepared two reports. The first, setting out preliminary plans, has been published in the U.R.S.I. *Information Bulletin*, Number 65, and the second, dealing with 'Planning of Observations and Reduction of Data' will shortly also be printed in the U.R.S.I. *Bulletin*.

The full report of the Brussels Meeting is now in course of printing and has reached the proof-reading stage.

The Commission proposes to hold its third meeting in Australia in 1952, and has accepted an invitation from the Australian National Committee to hold it in Sydney, prior to the Xth General Assembly of the International Scientific Radio Union in August 1952. It is expected that the success of this meeting will be considerably helped by the presence in Australia during August 1952 of delegates from the several interested Scientific Unions to the Xth General Assembly of U.R.S.I. An application for a grant-in-aid for this Meeting has been submitted to the Executive Board of U.N.E.S.C.O.

The Commission wishes to acknowledge the financial assistance already received from the Executive Board of U.N.E.S.C.O. enabling publication of the Proceedings of the Second Meeting and for a grant towards the expenses of that Meeting.

W. J. G. Beynon

## JOINT COMMISSION ON ELECTRON MICROSCOPY

This Joint Commission was approved by the Executive Board at Washington and I.U.P.A.P. was made its parent Union. The membership agreed on was as follows: I.U.P.A.P. (3), I.U.B.S. (3), I.U.P.A.C. (2), I.U.Cr. (1) while one vacancy was left for the International Union of Physiology.

The Commission has not yet met.

The Provisional Secretary appointed by I.U.P.A.P., the parent Union, is

Dr F. W. Cuckow, The Chester Beatty Research Institute, The Royal Cancer Hospital, Fulham Road, London, S.W. 3.

The members nominated by the Unions are as follows:

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| I.U.P.A.C.: | Professor E. Signer (Switzerland). |
| | Dr A. G. Ogston (G.B.). |
| I.U.B.S.: | Professor I. Manton (G.B.). |
| | Professor J. Weigle (U.S.A.). |
| | Professor Francis O. Schmitt (U.S.A.). |
| I.U.Cr.: | Professor R. W. G. Wyckoff (U.S.A.). |
| I.U.P.A.P.: | Professor G. Dupouy (France). |
| | Professor J. B. Le Poole (Pays-Bas). |

# JOINT COMMISSION ON OCEANOGRAPHY

At the present time the whole future of the International Joint Commission on Oceanography is under consideration. At the last Meeting of the Commission in Newcastle-on-Tyne in 1949, it was decided to explore the possibility of the Joint Commission being expanded either into a new Union of Oceanography or into a Bureau with a Head Office and a Secretarial Staff. Letters were sent to the Secretary-General of the International Council of Scientific Unions, and to our two founding Unions, The International Union of Biological Sciences and the International Union of Geodesy and Geophysics, as well as to U.N.E.S.C.O.

The Liaison Officer I.C.S.U.-U.N.E.S.C.O., replied that U.N.E.S.C.O. had referred the whole question of the proposed change back to our Mother Union (I.U.G.G.) through the Council of I.C.S.U. for comments; since then we have had no further notice from U.N.E.S.C.O.

The Secretary-General of I.C.S.U. wrote that 'I.C.S.U. has recently turned down several suggestions for the formation of additional Unions, and they would undoubtedly do the same for Oceanography....Further, the introduction of a new name "Bureau" would also be opposed.'

The Secretary of our Mother Union, I.U.G.G., after consultation with the Officers of the International Association of Physical Oceanography, wrote in reply: 'It seems to me that the solution of your problem does not lie in forming a new Union of Oceanography, nor in forming a Bureau, which would itself consume a considerable part of the funds for administration. I believe, with the Officers of the International Association of Physical Oceanography, that the answer lies in making the existing Joint Commission on Oceanography a more representative body.'

The Vice-Presidents of I.U.B.S. wrote: 'The Bureau of the Executive Committee of I.U.B.S. has every sympathy with the desire of the Mixed Commission to develop its projects and to establish a permanent office.... It should be realized, however, that there are already so many Unions in existence that I.C.S.U. will only allow the formation of new Unions if very strong reasons are put forward.'

I.C.S.U. has recently issued a new set of 'Rules for Joint Commissions', which come into force after the next meeting of our Mother Union, I.U.G.G., in Brussels in August of this year. Under these Rules, a Commission is set up in the first instance for a period of three years, at the expiration of which the Executive Bureau of I.C.S.U. will decide whether its existence as an independent body shall be extended for a further period of three years or, alternatively, whether it shall become a sub-committee

under its Mother Union or be dissolved. The International Joint Commission on Oceanography has been in existence since 1947, and we have been invited to state a case for the continuation of our existence for a further period of three years and to put forward a definite programme of work.

The same set of Rules has necessitated a change in the appointment of Secretary. I was co-opted at the first Meeting of the Commission and was appointed Secretary, but according to the rules about to come into force either the Secretary or the President must be a nominee of the Mother Union and be a full Member of the Commission. Our President, Dr Boschma, is a nominee of the other Union, I.U.B.S., and so the Secretary must be one of the four nominees of I.U.G.G.

During the past year the following additional *Liaison Officers* have been appointed;

*For Japan:* Professor Koji Hidaka of the Geophysical Institute, Tokyo University.

*For the U.S.A.:* Dr Richard Fleming, Hydrographic Office of the Navy Department, Washington 25, D.C.

Information has been received from several bodies regarding the progress that they are making or are contemplating in the study of Oceanography.

*The Pacific Science Council* has recently undertaken a 'Pacific Scientific Expeditions Survey'. In this it is intended to incorporate information under the following heads:

(1) Names of Expeditions.
(2) Dates.
(3) Ship or ships.
(4) Sponsors.
(5) Leader.
(6) Other scientific personnel.
(7) Funds supplied by.
(8) Area covered.
(9) Scientific purpose.
(10) Accomplishments.
(11) Location of collections.
(12) Bibliography.

It was suggested that work on similar lines might be undertaken for the Atlantic and Indian Oceans by the Joint Commission on Oceanography.

*New Zealand*

An Oceanographic Committee, on which all oceanographic interests are represented, has been set up under the auspices of the New Zealand Council of Industrial and Scientific Research, for the purpose of co-ordinating the Oceanographic work being carried on in New Zealand and

for the sponsoring of research projects, including the publication of results. The Chairman of this Committee is Mr A. W. B. Powell, Auckland Institute and Museum, and the Secretary is Mr J. W. Brodie.

*India*

An Oceanographic Committee was set up by the Central Board of Geophysics in April 1949, to study the possible development of Oceanographic studies in India. At its last Meeting, held in New Delhi, in September 1950, the following Resolution was adopted:

The Committee is definitely of the opinion that the establishment of an Institute of Oceanography is essential as a long range programme in the interest of the development of marine biology and fisheries, meteorology, geology, geodesy, etc. The development of these sciences in relation to seas round India will have important bearing on defence problems. However, in view of the non-availability of technical personnel for the Institute and the lack of equipment in the country, and the heavy cost which is likely to be involved in immediately setting up an Institute, the Committee consider that the time is ripe when at least some aspect of Oceanography should be introduced in such Universities as are suitably situated along the sea-coast, and that for starting such courses of studies in the Universities subsidies required by them may have to be provided by the Government of India.

I understand that in the Andhra University, courses of Instruction in Oceanography have already been started.

The question of obtaining facilities for a Marine Biologist to work on board the Survey Ship of the Indian Navy is also being studied and the Naval Authorities have agreed to give all possible facilities to the Naturalist.

R. B. Seymour Sewell

The Commission was radically reorganized at Brussels, August 1951, both as regards membership and purpose.

As regards membership the following were approved:

*I.U.G.G.*

Dr J. D. H. Wiseman (President), British Museum (Natural History), London, S.W. 7 (Great Britain).
Professor M. Ewing (U.S.A.).
Professor Ph. Kuenen (Holland).
Professor Hans Pettersson (Sweden).
Professor H. U. Sverdrup (Norway).

*I.U.B.S.*

Professor L. Fage (France).
Professor R. Revelle (U.S.A.).
Dr M. Sears (U.S.A.).
Professor A. F. Bruun (Denmark).

*Provisional Secretary:* Mr C. D. Ovey, British Museum (Natural History), London, S.W. 7 (G.B.).

*Advisory Councillor:* The President, International Hydrographic Bureau, Monaco.

The programme of work which the Joint Commission would set itself is restricted to the *investigation of the deep-sea floor* as follows:

The morphology and stratigraphy of the deep-sea floor.
The general properties of the sediment carpet and its substratum.
The properties of the water layer next the deep-sea floor.
The abyssal fauna inhabiting the deep-sea floor.
The organisms and processes important to deep-sea sediments.

## COMMISSION MIXTE DES DONNEES ET DES ETALONS PHYSICO-CHIMIQUES

La Commission a tenu 3 séances sous la présidence de M. Wibaut, le lundi 10 septembre 1951 à 15 hrs. et le mercredi 12, à 9 et à 13½.

*Sont présents:* MM. Bartow, Brode, Coulson, Egerton, Rees, Moles, Smith, Volet, Wichers et Timmermans, Secrétaire.

*Se sont excusés:* MM. Beckers, Borelius, Lind, Swietoslawski.

### A. *Partie administrative*

(1) M. le Président salue les membres présents et leur souhaite la bienvenue.

(2) M. le Président annonce que M. Timmermans, Secrétaire de la Commission depuis sa création, lui a demandé de bien vouloir accepter sa démission, à raison de son âge; M. le Président estime qu'étant donné la raison invoquée par M. Timmermans, il n'avait pu que s'incliner devant son désir, mais qu'il tenait à le remercier des longs services qu'il avait rendus à l'œuvre poursuivie par la Commission depuis 30 ans.

(3) La Commission désigne comme secrétaire nouveau M. Smith, qui accepte à la condition que M. Beckers accepte, de son côté, les fonctions de secrétaire adjoint.

(4) M. le Président annonce que M. Borelius a démissionné; la Commission demande à l'Union Internationale de Physique de lui donner comme successeur un spécialiste des questions étudiées par la Commission.

(5) M. le Président met la Commission au courant de certaines propositions faites le matin même à la réunion du Comité de la Section de Chimie Physique. M. Rossini a proposé de remplacer dans le titre de la Commission, le mot 'données' par le terme 'mesures'; la Commission estime qu'il est préférable de conserver son titre actuel qui la place sur le même rang que d'autres Commissions (thermo-chimie, radioactivité etc.) qui s'occupent également de l'étude d'autres '*données*' physico-chimiques.

La Commission propose également que l'intitulé du groupe d'experts qui en font partie, sans être membres titulaires, soit réduit à l'expression: Advisory Committee, de manière à ce qu'il en résulte clairement que ceux-ci sont invités à s'intéresser à l'ensemble du travail de la Commission, et non pas seulement au Bureau des Etalons Physico-chimiques.

(6) M. le Président signale également que l'on proposera à la Section de répartir ses travaux entre 9 Commissions: la Commission de la Pile Weston serait élargie et transformée en Commission d'Electro-Chimie; il serait créé une Commission supplémentaire s'occupant de l'étude des constantes physico-chimiques fondamentales.

(7) MM. Coulson et Wichers attirent l'attention sur les inconvénients que présente la désignation de certains membres de droit de la Commission, comme étant les *directeurs* de certains laboratoires nationaux; il est bien convenu que dans la pratique on continuera à suivre l'usage qui vient de s'établir, et suivant lequel ces directeurs seraient éventuellement remplacés par des spécialistes de leur choix, mieux habilités à suivre utilement les travaux de la Commission.

A cette occasion la Commission propose qu'une démarche soit faite auprès de quelques-uns de ces membres, que leur âge empêche depuis longtemps de prendre part à ses travaux, pour savoir s'ils désirent continuer à en faire partie: les noms de MM. Delépine, Keesom et Lind sont notamment cités; une question analogue devrait être posée à l'Union Internationale de Physique concernant le Laboratoire de Recherches du Conservatoire National des Arts et Métiers, qui jusqu'ici s'est complètement désintéressé de nos travaux.

(8) La Commission détermine enfin l'ordre dans lequel seront discutés les rapports scientifiques qui lui sont présentés.

(9) Il est pris acte ensuite du court rapport de M. Timmermans sur l'activité de la Commission pendant les deux années qui viennent de s'écouler.

B. *Discussion des Rapports Scientifiques, distribués aux membres à l'avance*

(1) Rapport de M. WICHERS: M. le Président félicite M. Wichers des importants résultats qu'il a déjà obtenus dans la détermination du triple point de quelques composés organiques, destinés à servir de repères thermométriques internationaux; il est décidé d'encourager l'échange de tels repères entre les divers laboratoires intéressés, de manière à s'assurer, le mieux possible, de leur constance et du degré de concordance des échelles employées dans les différents pays.

(2) Rapport de M. SMITH: Il est décidé de communiquer également ce rapport à d'autres Commissions de l'Union, notamment la nouvelle Commission d'Electro-chimie et la Commission concernant l'emploi des méthodes physiques en analyse.

(3) Rapport de M. COULSON: Ce rapport oral est résumé dans l'annexe C; la Commission en prend acte ainsi que du programme de recherches prévues à Teddington.

(4) Rapport de M. TIMMERMANS: Les conclusions de ce rapport sont adoptées; M. Timmermans communique en outre une note reproduisant une partie de son rapport à l'Union en 1933, avec la liste des substances étalons proposées à ce moment pour la thermométrie, la manométrie, la mesure de la viscosité, des tensions superficielles et des indices de réfraction et qui pourrait servir de point de départ à l'étude comparative de tels repères.

M. le Président saisit cette occasion de féliciter M. Timmermans de la publication de son ouvrage: Physico-chemical Constants of Pure Organic Compounds. Il propose que la Commission recommande à la Section de Chimie Physique d'appuyer la demande du renouvellement annuel de la subvention de $300, accordée jusqu'ici par l'Union au Laboratoire du Bureau International des Etalons Physico-Chimiques, en témoignage de l'intérêt que la Commission porte à celui-ci, qui a fait œuvre de pionnier dans le domaine des travaux poursuivis par la Commission. M. Wichers, tout en appuyant la demande, signale les mesures prises au Conseil de l'Union concernant le danger des subventions accordées à des organismes particuliers.

(5) Rapport de M. VOLET:

(*a*) M. Volet consulte la Commission sur l'intérêt que présenterait une révision de la décision du Comité International des Poids et Mesures, qui a choisi comme densité du mercure la valeur établie par Regnault, il y a près d'un siècle. La Commission est d'accord pour encourager de nouvelles expériences dans ce domaine; en attendant, il y aurait lieu de modifier le texte de la décision discutée par M. Volet en définissant le mercure, non par sa densité, mais comme étant du mercure *pur*, et de

demander à la Commission compétente du Bureau International des Poids et Mesures de préciser dans un appendice aux décisions, les conditions à remplir pour obtenir du mercure pur, notamment en ce qui concerne le mode de purification, le dosage des impuretés et le pourcentage des divers isotopes présents; en outre, la Commission propose de renvoyer l'étude de ce problème à la nouvelle Commission prévue pour l'étude des constantes fondamentales.

(*b*) M. Volet entretient la Commission des difficultés que soulève l'existence simultanée du décimètre cube et du litre, qui diffèrent l'un de l'autre de 27 à 28 millionièmes; ne serait-il pas souhaitable de définir le litre comme à l'origine, c'est-à-dire comme rigoureusement équivalent au décimètre cube, et de rechercher, d'une manière indépendente, par de nouvelles recherches expérimentales, quelle est la masse spécifique exacte de l'eau dans des conditions de température, de pression et de composition isotopique convenables. La question est renvoyée à l'étude de la nouvelle Commission des Constantes Physico-chimiques fondamentales; notre Commission souligne à cette occasion l'intérêt qu'il y aurait à ce que l'un de ses représentants siège au sein de la nouvelle Commission.

(6) Rapport de M. Moles: La densité normale d'un gaz dépend de la valeur donnée à la pression normale et à l'intensité de la gravitation. M. Moles propose qu'on abandonne à ce sujet les valeurs indiquées par Guye, pour en revenir à celles résultant des décisions, encore récemment confirmées, du Comité International des Poids et Mesures: cette proposition approuvée par la Commission augmentera l'homogenéité des données numériques dans ce domaine de la science.

(7) Rapport de M. Wibaut:

(*a*) M. Wibaut rappelle que l'objet de ses préoccupations est bien moins la préparation d'étalons métrologiques que la standardisation des méthodes d'un usage courant. La Commission est d'accord pour affirmer que la standardisation des méthodes est indispensable, à côté de la préparation de substances étalons; les deux problèmes sont essentiellement interdépendents.

(*b*) Le Président rappelle quelques-uns des points qui seront au programme des préoccupations de la Commission au cours des prochaines années, notamment la nécessité des déterminations plus exactes de la densité de l'eau et de celle du mercure, ainsi que de la préparation de nouveaux étalons thermométriques; quant aux étalons de pH, cette question peut être renvoyée à l'examen de la nouvelle Commission d'Electrochimie, ainsi que celle concernant le potentiel d'électrodes et les constantes de piles.

(*c*) M. Egerton signale qu'il a communiqué à la Commission de Thermodynamique et de Thermochimie les désiderata de ses collègues anglais qui souhaitent des nouvelles études sur la valeur des constantes thermodynamiques des gaz et des vapeurs.

La Commission charge son Président d'écrire à M. Swietoslawski pour lui exprimer ses vœux de bonne santé et de bon travail, et le remercier de nouveau de l'œuvre importante qu'il a accomplie en sa qualité de premier Président de la Commission.

M. Wibaut remercie les membres de leur assiduité et leur donne rendez-vous à la prochaine réunion de la Commission, qui aura probablement lieu à Stockholm, dans deux ans.

J. TIMMERMANS

*Members of the Commission* (1952–5)

J. P. WIBAUT, *President* (Netherlands).
E. R. SMITH, *Secretary*, Bureau of Standards, Washington 25, D.C. (United States).
M. BECKERS, *Assistant Secretary* (Belgium).
G. BORELIUS, I.U.P.A.P. (Sweden).
E. Z. COULSON (England).
H. KÖNIG, I.U.P.A.P. (Switzerland).
E. MOLES (Spain).
W. SWIETOSLAWSKI (Poland).
J. TIMMERMANS (Belgium).
C. S. VOLET (France).

*Members of the Advisory Committee*

E. BARTOW (United States).
Sir ALFRED EGERTON (England).
F. GIORDANI (Italy).
P. JOLIBOIS (France).
D. A. MACINNES (United States).
J. N. MUKHERJEE (India).
G. NATTA (Italy).
A. L. G. REES (Australia, but now in England).
J. SMITTENBERG (Netherlands).
E. WICHERS (United States).

# JOINT COMMISSION ON PHYSICS ABSTRACTING

1. The U.N.E.S.C.O. Committee on Physics Abstracting met in London 26–27 September 1950. They recommended the following:

The Committee recommends to I.C.S.U. that abstracting services should receive the official recognition of the Council.

This recognition might take the form of permitting the abstracting service to describe itself, in prescribed terms, as so recognized.

2. The Bureau of I.C.S.U. considered this resolution at its third meeting in Paris, 19–20 May 1951, and agreed to accept an International Abstracting Service as a normal permanent scientific activity of the Council.

3. The Joint Commission on Physics Abstracting, which entirely supersedes the U.N.E.S.C.O. Committee in the field of Physics Abstracting, met in Paris, 3–4 July 1951, and adopted the following Resolutions:

1. La Commission prend connaissance de la collaboration déjà établie entre *Science Abstracts* et le *Bulletin Analytique*, exprime sa satisfaction et sa reconnaissance aux Rédacteurs en Chef de ces deux périodiques.
2. Il a été convenu que pour les publications non périodiques françaises le Rédacteur en Chef du *Bulletin Analytique* fera de son mieux pour faire parvenir à *Science Abstracts* les informations désirables, pendant que l'éditeur de *Science Abstracts* fera de même pour les publications analogues paraissant au Royaume Uni.
3. La Commission recommande que, par l'intermédiaire de ses Unions constituantes, les rédacteurs des périodiques soient priés de veiller à ce que les titres des articles soient aussi explicites que possible.
4. The Joint Commission on Physics Abstracting took note that the Bureau of I.C.S.U. accepts an International Abstracting Service as a normal permanent scientific activity of the Council. After full discussion of the implications of this decision, the Commission decided unanimously to ask the Council of I.C.S.U. to dissolve the present Joint Commission and to constitue a Board for the International Abstracting Service. On this Board, which would be small, would be represented:

   (*a*) the Council of I.C.S.U.;

   (*b*) the Abstracting Journals admitted as members (initially *Science Abstracts* and *Bulletin Analytique*).

   A Secretary should be designated by I.C.S.U.

   La Commission souhaite que des dispositions soient prises pour tenir les Unions régulièrement au courant du Service.

5. The Commission recommends to I.C.S.U. that a grant of not less than $2000 should be paid to the Board for 1952.
6. La Commission demande à son Secrétaire de prier les Unions constituantes de la Commission Mixte d'intervenir énergiquement par l'intermédiaire de leurs Comités Nationaux auprès des éditeurs de périodiques pour obtenir, au bénéfice du Service Général des Résumés, la transmission rapide et aux conditions les plus favourables des journaux dès leur publication.

These resolutions were accepted by the Executive Board in Washington. Professor G. A. Boutry was appointed Secretary. Although in the first instance the work of the new service would be confined to physics it was pointed out that abstracting journals in any scientific field were eligible for membership. The Bureau has, however, ruled that the International Abstracting Board—a new agreed title for the service—should not extend its range of activities too rapidly and should not accept fresh subjects until the experimental stage with Physics is complete and the Board well established in that field.

## JOINT COMMISSION ON RADIOACTIVITY

The third meeting of the Joint Commission on Radioactivity was held at New York, 8 September 1951, in connexion with the XVIth Conference of the International Union of Pure and Applied Chemistry. The meeting was attended by F. A. Paneth (I.U.P.A.C.), *President*; G. J. Sizoo, *Secretary*; R. D. Evans (I.U.P.A.P.), J. C. Jacobson (I.U.P.A.P.), W. C. Johnson (I.U.P.A.C.), G. T. Seaborg (I.U.P.A.C.), *Members*; G. T. Manov, representative of the absent member L. F. Curtiss (I.U.P.A.P.); S. C. Lind and B. Karlik, advisory councillors.

With the consent of the surviving members of the now defunct International Radium Standard Commission—all of whom are now advisory councillors of the Joint Commission on Radioactivity—the International Radium Standard in Paris has been transferred into the ownership of the Joint Commission.

The I.C.S.U., as well as the U.N.E.S.C.O., have been requested to buy for the Joint Commission the Vienna Radium Standard from the Austrian Academy of Sciences; however, neither of these two organizations was able to find the money for this purpose. Professor Karlik, the present Director of the Vienna Radium Institute, has declared that, nevertheless, this Standard will always be at the disposal of the Joint Commission in the

same way and under the same regulations as it had been previously at the disposal of the International Radium Standard Commission.

On the basis of the available information, the Commission came to the conclusion that there is no reason at this time for the preparation of new international radium standards. The Commission has expressed, however, the opinion that the fact that the curie has now been defined as a number of disintegrations per second does not diminish in any respect the necessity of having international standards of radium, determined by their weight, as well as standards of other nuclides which are suitable as gamma- and beta-ray standards.

Sir John Cockcroft has prepared for the Commission a report on the work which has been done in the United Kingdom, concerning gamma- and beta-ray standards of artificial radio-nuclides. A report of the corresponding work in the United States on standardization of radio-isotopes has been prepared by G. T. Manov, chairman of the Sub-commission on beta- and gamma-ray standards of the Commission on Nuclear Sciences of the National Bureau of Standards. Both reports were discussed at the meeting of the Commission in New York. The discussion resulted in the conclusion that cobalt-60 and sodium-24 are now very near to being designated as international gamma-ray standards. The Commission recommended a further international exchange of samples of these nuclides in an attempt to set up the definitive international standards.

It was felt by the Commission that the time was not yet ripe for an international decision on beta-ray standards, though also in this respect considerable progress has been obtained. The Commission recommends, and will promote, the continuation of the work in this field.

The Commission has approved the proposal of the I.U.P.A.C., that the original name—Joint Commission on Standards, Units and Constants of Radioactivity—should be changed into Joint Commission on Radio-activity, without changing the task and programme of work.

G. J. Sizoo

# COMMISSION MIXTE SUR LA RADIOBIOLOGIE

Depuis sa dernière réunion (16 juillet 1950), l'activité de la Commission Mixte de Radiobiologie a eu pour objet les questions suivantes:

(1) *Mise sur pied des Sous-Commissions dont la création a été décidée lors de la dernière séance de la Commission, à savoir:*

(*a*) Sous-Commission destinée à étudier les possibilités de *création de bourses et d'un Institut International de Radiobiologie.* La direction de cette Sous-Commission a été proposée au Dr G. Failla (de New York), lequel n'a pas encore fait connaître sa décision à ce sujet.

(*b*) Sous-Commission destinée à passer en revue la littérature sur la *radio-sensibilité,* en vue de l'établissement d'un rapport sur l'état actuel de la question de la définition et de la mesure de la radio-sensibilité. La direction de cette Sous-Commission a été proposée au Dr L. H. Gray (de Londres), lequel étudie actuellement les possibilités de limitation de la définition même de cette Sous-Commission, afin de permettre un travail efficace.

(2) Sur la proposition du Professeur A. Lacassagne (de Paris), *projet d'établissement d'une liste des laboratoires possédant des races pures, avec les caractéristiques génétiques de celles-ci, dans chaque pays.* Le Professeur A. Lacassagne se charge d'établir une telle liste pour la France. Des démarches sont en cours afin de déterminer les chercheurs qui assumeront la même tâche dans les pays étrangers.

(3) Préparation d'un rapport destiné aux Ministères de l'Education Nationale et aux Recteurs d'Universités des différents pays, en vue de favoriser la *création de Chaires spécialisées de Radiobiologie et l'extension de l'enseignement de la Radiobiologie.*

(4) Préparation de la *prochaine réunion de la Commission.* Le lieu prévu pour cette réunion est Stockholm, et la date envisagée comprise entre le 15 et le 31 août 1952.

(5) Sur la proposition du Professeur C. Chagas (de Rio de Janeiro), projet d'organisation d'un *symposium de Radiobiologie* à Rio de Janeiro. L'époque prévue pour ce Symposium, juillet 1953, ne peut encore être considérée comme définitive.

P. Bonet-Maury

# JOINT COMMISSION ON RADIO-METEOROLOGY

The Commission met in Brussels on 16, 17 and 18 August 1951.

The following members were present:

Chas. R. Burrows (*President*), Edw. G. Bowen, Wm. E. Gordon (*Secretary*), Jean Lugeon, Harald Norinder, André Perlat, P. A. Sheppard, Jean Voge.

The following administrative and organizational decisions were reached:

(1) It was agreed that the Joint Commission should direct its attention, as opportunity arose, to the theoretical and experimental determination of those properties of the troposphere which affect radio propagation.

(2) It was agreed that the Joint Commission should foster the development not only of those aspects of meteorology required for radio science but also radio techniques which can be used as aids in meteorology.

(3) As of 1951 it appears that the following phases of radio-meteorology need attention:

(*a*) Factors controlling temperature and humidity profiles;

(*b*) temporal and spacial variations of temperature and humidity of a random nature;

(*c*) radio climatology;

(*d*) reflection and scattering from particles and other inhomogenies;

(*e*) gaseous absorption;

(*f*) instrument for measuring temperature, humidity, total water content, drop size, drop density, etc.

(*g*) radar investigation of clouds and precipitation;

(*h*) storm detection and analysis by spherics.

(4) The following resolutions were passed unanimously:

A. The Joint Commission on Radio-Meteorology, recognizing the need for wide dissemination of the results of spherics observations, recommends that the W.M.O. take steps for their regular publication and distribution. It was agreed that U.R.S.I., U.G.G.I. and I.U.P.A.P. be advised of this recommendation.

B. Considering the urgency expressed by the C.C.I.R. concerning the study of the relationship between atmospheric radio noise level and thunderstorm activity, the Joint Commission on Radio-Meteorology will plan a symposium on this subject to be held at the earliest possible time.

C. Considering the fact that the work of the Joint Commission on Radio-Meteorology is not completed and the importance of the work in progress, the Joint Commission on Radio-Meteorology recommends to the International Council of Scientific Unions that this Commission be continued.

(5) It was agreed to ask U.R.S.I. to publish the proceedings of this meeting in its *Bulletin* and to supply reprints for circulation and to request U.N.E.S.C.O. to provide funds for this publication.

(6) It was agreed that the type of symposium held in Brussels was eminently satisfactory. The President was requested to organize the next symposium along the same lines.

(7) It was agreed that the next meeting of the Commission be convened in three years at an appropriate time and place.

The scientific sessions were attended by the members listed above and the following: L. J. Anderson, J. Bertrand, R. Bureau, P. V. Grosjean, H. Natakeyama, E. Herbays, J. S. Marshall, L. Poncelet, R. Rigby, R. Rivault.

The scientific sessions included active discussions of the following topics. The names of the discussion leaders are indicated:

P. A. Sheppard, Meteorological Processes Controlling the Refractive Index of the Atmosphere.
E. H. Norinder, Thunderstorms.
J. Lugeon, Spherics.
J. S. Marshall, Precipitation Echoes.
E. G. Bowen, Radar Observations of Natural Rain.
L. J. Anderson, Attenuation of Microwaves by Atmospheric Gases and Rainfall.
W. E. Gordon, Statistical Fluctuation in the Atmosphere.

W. E. Gordon

# JOINT COMMISSION ON RHEOLOGY

The Joint Commission on Rheology had no opportunity of arranging a meeting, although correspondence was carried on between members and some personal contacts could be arranged. Work is in progress for the formation of some form of international Association of Rheological Societies, which eventually may take over the Commission's task with reference to Rheological Nomenclature.

At the meeting of the Executive Board of I.C.S.U. in Washington, October 1951, it was requested to keep the Joint Commission in existence for a further period of three years, in the expectation that the association then will be at work. The commission was renewed for one year pending the meeting of I.U.T.A.M.

J. M. BURGERS

# COMMISSION MIXTE SUR LES RELATIONS ENTRE LES PHENOMENES SOLAIRES ET TERRESTRES

Le septième Rapport de la Commission est actuellement en cours de distribution. Conformément à la décision prise dans la dernière réunion de la Commission, tenue à Zurich en 1948, ce rapport est constitué, non plus par des notes individuelles concernant principalement les travaux personnels de leurs auteurs, mais par douze articles de synthèse correspondant chacun à une des questions qui se rapportent à l'activité de la Commission. Ces articles, suivis d'un index bibliographique et rédigés par les spécialistes les plus qualifiés, constituent ainsi un exposé substantiel des recherches poursuivies et des résultats obtenus depuis la publication du dernier rapport. Ils sont réunis dans un volume de 208 pages in-8° carré; les références bibliographiques sont au nombre de 554. Les frais d'impression ont été couverts à l'aide d'une subvention accordée par l'U.N.E.S.C.O.

Divers membres de la Commission ont émis le vœu que la publication du *Quarterly Bulletin on Solar Activity* soit mise à jour aussi rapidement que possible. Ce vœu a été transmis au Directeur de l'Observatoire fédéral de Zurich, qui édite le Bulletin. En fait, un gros effort a déjà été réalisé pour en accélerer la publication de celui-ci et on peut espérer que les données relatives aux observations solaires du premier semestre 1951, seront imprimées avant la fin de l'année.

Aucun changement n'est survenu depuis l'année dernière parmi les membres de la Commission, qui est toujours constituée comme il a été indiqué dans le Rapport présenté à la 5me Assemblée générale du C.I.U.S., en 1949, p. 100.

*Membres de la Commission*

Professeur G. Abetti (Italie).
Dr L. d'Azambuja, Observatoire de Paris (France), *Secrétaire*.
Mr H. W. Newton (G.B.).
Professeur M. Waldmeier (Suisse).
Professeur S. Chapman (G.B.).
Professeur M. Nicolet (Belgique).
Professeur E. Vassy (France).
Professeur C. W. Allen (Australie; maintenant G.B.).
Dr R. Bureau (France).
Dr J. S. Hey (G.B.).

*Conseillers*

Dr C. G. Abbot (Etats-Unis).
M. B. Lyot (France).
Dr S. B. Nicholson (Etats-Unis).
Dr J. A. Fleming (Etats-Unis).
Dr D. H. Menzel (Etats-Unis).

L. d'Azambuja

## JOINT COMMISSION ON SPECTROSCOPY

The Joint Commission for Spectroscopy had its first meeting on 25–29 September 1950 in Cambridge (G.B.) in conjunction with the Faraday Society Discussion on Molecular Spectra. The Commission elected Dr W. F. Meggers as President and Professor Bakker as Secretary. Furthermore, it was decided to invite Professor H. N. Russell, Princeton, to join the Commission as Honorary Member, and Professor J. E. Mack, Madison, and Professor R. S. Mulliken, Chicago, to be Advisory Councillors. All three have accepted meanwhile.

At the meeting the general goals of the Commission were thoroughly discussed, and the wishes of a European group of spectrochemists towards the incorporation of applied spectroscopy in the work of the Commission were considered.

Agreement was obtained on the following points:

(1) The Commission restricts its work primarily to spectroscopic research which is of importance to astrophysics, but hyperfine structure included. Other fields, like microwaves, X-rays, will not be dealt with for the moment.

(2) The Commission recognizes the desirability of having the extensive field of spectrochemistry internationally organized under the auspices of some Commission, but prefers to restrict itself to *pure* spectroscopy only, leaving applied spectroscopy to the care of the International Union of Pure and Applied Chemistry. The Secretary is charged to bring this viewpoint to the notice of I.U.P.A.C., and to recommend this Union to consider the possibility of forming such a Commission.

(3) In order to enable the Commission to co-ordinate spectroscopic research it is necessary that the Commission disposes of information as complete as possible concerning spectroscopic work in progress and the spectroscopic equipments available in all institutes. This information shall be gathered by diffusing a few questionnaires to be prepared by sub-committees and to be co-ordinated and multiplied by the secretariat.

(4) The Commission can do valuable work in questions of notation; these shall be handled also by sub-committees.

In accordance with point 2 the secretariat approached Professor DELABY, General Secretary of I.U.P.A.C., who presented the matter to the Executive Board of I.U.P.A.C.

In connexion with point 3 the following sub-committees were appointed:

(*a*) For listing of Institutes and Equipments: JACQUINOT.
(*b*) For atomic spectra: MEGGERS, and Mrs MOORE-SITTERLY.
(*c*) For spectra of diatomic molecules: PEARSE.
(*d*) For spectra of poly-atomic molecules which are of interest to the astronomers: HERZBERG.

The sub-committees under (*a*), (*c*) and (*d*) have prepared draft questionnaires which the secretariat is going to diffuse. The sub-committee under (*b*) is regarded as being sufficiently informed about spectroscopic work in progress so that a separate questionnaire is not thought necessary; but all institutes will be stimulated to send any information, which might be of use, directly to the sub-committee Meggers-Moore.

It is expected that reports of the sub-committees regarding their respective tasks will be ready for discussion at the following meeting of the

Joint Commission for Spectroscopy, planned for September 1952 in Columbus, Ohio.

After having obtained a good survey about the work in progress and the technical possibilities the Commission will be able to formulate *wishes* with regard to specified spectra, atoms, molecules or nuclei to be studied. To handle this point there was formed a sub-committee

(*e*) for supply of wishes: SWINGS and MACK.

In connexion with point 4 the following sub-committees were appointed:

(*f*) For notation in atomic spectra: MEGGERS and Mrs MOORE-SITTERLY.

(*g*) For notation in spectra of diatomic molecules: JENKINS.

(*h*) For notation in spectra of poly-atomic molecules: MULLIKEN.

It is expected that these sub-committees will revise existing notations and propose new nomenclatures where necessary. Their proposals will be discussed in the next meeting.

The secretariat issued three circulars, one in November 1950 containing the Draft Minutes of the meeting in September, one in February 1951 containing the Final Minutes, and one in July 1951 informing the members of the work done by the secretariat and by the sub-committees since the meeting.

Notwithstanding the relatively short time of preparation the Joint Commission for Spectroscopy succeeded in organizing a small symposium during the Cambridge meeting. The symposium was attended by 35 persons outside the Commission. The speakers were Dr W. F. Meggers, Professor R. W. B. Pearse, and Professor P. Swings. Their very instructive lectures have been published since in the *Journal of the Optical Society of America*, volume 41 (1951), pp. 143, 148 and 153.

C. J. BAKKER

## JOINT COMMISION ON SCIENCE AND SOCIAL RELATIONS

At the request of the Committee on Science and Social Relations this body has now ceased to be a Committee of the Council and has, with the consent of the International Council for Philosophy and Humanistic Studies (C.I.P.S.H.), become a Joint Commission of the two Councils (I.C.S.U. and C.I.P.S.H.). The parent Council is I.C.S.U.

There are eight members appointed, four by each Council.

The following have been nominated and have agreed to serve on the Committee:

| | |
|---|---|
| I.C.S.U. | J. M. Burgers (Netherlands). |
| | P. Brandt Rehberg (Denmark). |
| | M. Florkin (Belgium). |
| C.I.P.S.H. | G. Allport (U.S.A.). |
| | L. Febvre (France). |
| | J. Piaget (Switzerland). |

## COMMITTEE FOR THE INTERNATIONAL POLAR (GEOPHYSICAL) YEAR

Nominations to the above Committee have been received from all interested Unions. These nominations are:

*International Astronomical Union*

*Representative:* Professor N. E. Nørlund (Denmark).
*Alternate:* Professor M. Nicolet (Belgium).

*International Union of Geodesy and Geophysics*

*Representative:* Professor J. Coulomb (France).
*Alternate:* Professor V. Laursen (Denmark).

*International Geographical Union*

*Representative:* Dr J. M. Wordie (Great Britain).

*International Union of Radio Science*

*Representative:* Dr Lloyd V. Berkner (U.S.A.).
*Alternate:* Dr W. J. G. Beynon (Great Britain).

Colonel E. Herbays, 42 rue des Minimes, Bruxelles, has been appointed Convenor, and all questions or suggestions affecting the Committee should be addressed to him.

Ronald Fraser

# Rapport des Finances

## Subscriptions received during 1950

(Expressed in Sterling)

| Countries | Subscription years | £ | s. | d. |
|---|---|---|---|---|
| Argentine | — | | — | |
| Australia | 1949 | 40 | 0 | 0 |
| Austria | 1950 | 58 | 7 | 0 |
| Belgium | 1950 | 58 | 6 | 9 |
| Brazil | — | | — | |
| Bulgaria | — | | — | |
| Canada | 1950 | 58 | 7 | 0 |
| Chile | — | | — | |
| China | — | | — | |
| Cuba | — | | — | |
| Czecho-Slovakia | 1948/49 | 79 | 19 | 0 |
| Denmark | 1950 | 58 | 7 | 0 |
| Egypt | 1948/49/50 | 121 | 5 | 3 |
| Esthonia | — | | — | |
| Finland | 1950 | 58 | 7 | 0 |
| France | 1950 | 58 | 4 | 4 |
| Great Britain | 1950 | 58 | 7 | 0 |
| Greece | — | | — | |
| Hungary | — | | — | |
| India | 1950 | 58 | 7 | 0 |
| Indonesia | — | | — | |
| Israel | — | | — | |
| Italy | — | | — | |
| Japan | 1950 | 58 | 7 | 0 |
| Latvia | — | | — | |
| Mexico | — | | — | |
| Morocco | 1950 | 60 | 1 | 3 |
| Netherlands | 1950 | 58 | 7 | 0 |
| New Zealand | 1950 | 58 | 7 | 0 |
| Norway | 1949/50 | 98 | 7 | 0 |
| Pakistan | 1950 | 58 | 7 | 0 |
| Peru | — | | — | |
| Philippine Islands | 1950 | 58 | 7 | 0 |
| Poland | 1948/49/50 and part of 1951 | 150 | 0 | 0 |
| Portugal | 1950 | 58 | 7 | 0 |
| Roumania | — | | — | |
| South Africa | 1950 | 58 | 7 | 0 |
| Sweden | — | | — | |
| Switzerland | 1950 | 58 | 2 | 9 |
| Thailand | 1950 | 58 | 7 | 0 |
| Carried forward | | £1,541 | 4 | 4 |

| Countries | Subscription years | £ | s, | d. |
|---|---|---|---|---|
| | Brought forward | £1,541 | 4 | 4 |
| Tunis | — | | — | |
| U.S.A. | 1950 | 58 | 3 | 2 |
| Uruguay | — | | — | |
| Vatican City | 1950 | 58 | 7 | 0 |
| Yugo Slavia | 1950 | 40 | 0 | 0 |
| | | £1,697 | 14 | 6 |

| Unions | | | | |
|---|---|---|---|---|
| I.A.U. | 1947/48/49 | 66 | 13 | 4 |
| I.G.G.U. | 1949 | 76 | 0 | 0 |
| I.U.B.S. | — | | — | |
| I.U.C. | 1949 | 41 | 3 | 11 |
| I.U.Cryst. | 1950 | 10 | 4 | 0 |
| I.U.G. | 1949 | 4 | 9 | 6 |
| I.U.H.S. | 1950 | 4 | 15 | 11 |
| I.U.P.A.P. | 1947/48/49 | 9 | 2 | 6 |
| I.U.T.A.M. | 1949 | 3 | 17 | 6 |
| U.R.S.I. | 1947/48/49/50 | 94 | 7 | 7 |
| | | £310 | 14 | 3 |

# Balance Sheets

*Receipts and Payments in all Curriencies expressed in Sterling* *For the year ended 31 December 1950*

*Other than Receipts from and Payments on behalf of U.N.E.S.C.O.*

## Receipts

| | £ | s. | d. | £ | s. | d. |
|---|---|---|---|---|---|---|
| Subscriptions: | | | | | | |
| Member Countries ... ... ... | 1,697 | 14 | 6 | | | |
| Unions ... ... ... ... ... | 310 | 14 | 3 | | | |
| | | | | 2,008 | 8 | 9 |
| Sales of Reports ... ... ... ... | | | | 1 | 2 | 6 |
| Bank deposit interest ... ... ... | | | | 21 | 4 | 2 |

## Payments

| | £ | s. | d. | £ | s. | d. |
|---|---|---|---|---|---|---|
| Subsistence allowances: | | | | | | |
| General Secretary at U.N.E.S.C.O. Conference ... ... ... ... | 53 | 11 | 5 | | | |
| Executive Committee ... ... ... | 413 | 3 | 9 | | | |
| Meeting of Bureau ... ... ... | 51 | 8 | 7 | | | |
| Policy Committee ... ... ... | 32 | 2 | 3 | | | |
| Inter Council Coordinating Committee | 14 | 5 | 9 | | | |
| Statutes Committee ... ... ... | 32 | 2 | 10 | | | |
| Oceanographic Institute of Monaco ... | 14 | 5 | 9 | | | |
| Joint Commission on Rheology ... | 80 | 6 | 3 | | | |
| Joint Commission on High Altitude Research Stations ... ... ... | 107 | 2 | 10 | | | |
| Joint Commission on the Ionosphere ... | 114 | 5 | 9 | | | |
| Joint Commission on Radiobiology ... | 53 | 11 | 5 | | | |
| Committee on Science and its Social Relationships ... ... ... ... | 78 | 11 | 5 | | | |
| Joint Commission on Radio-active Standards and Units ... ... | 78 | 11 | 5 | | | |
| Joint Commission on Spectroscopy ... | 108 | 1 | 2 | | | |
| | | | | 1,231 | 10 | 7 |
| Travelling expenses: | | | | | | |
| Policy Committee and Inter-Council Coordinating Committee ... ... | 60 | 17 | 11 | | | |
| Statutes Committee ... ... ... | 83 | 3 | 7 | | | |
| Oceanographic Institute of Monaco ... | 40 | 8 | 3 | | | |
| History of Mankind ... ... ... | 17 | 16 | 2 | | | |
| | | | | 202 | 5 | 11 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | 2,030 | 15 | 5 |
| Free balance at 1 January 1950 ... ... | 2,086 | 3 | 1 | | | |
| *Add* Adjustment of balance held on behalf of U.N.E.S.C.O. arising out of devaluation, etc. ... ... ... | 365 | 17 | 1 | | | |
| | | | | 2,452 | 0 | 2 |
| | | | | £4,482 | 15 | 7 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Secretarial expenses: | | | | | | | |
| Executive Committee ... ... ... | 14 | 16 | 2 | | | | |
| Joint Commission on Oceanography ... | 15 | 10 | 10 | | | | |
| Joint Commission on Rheology ... | 15 | 12 | 9 | | | | |
| Joint Commission on High Altitude Research Stations ... ... ... | 67 | 9 | 0 | | | | |
| Joint Commission on the Ionosphere ... | 41 | 15 | 7 | | | | |
| Joint Commission on Radio-active Standards and Units ... ... | 31 | 8 | 8 | | | | |
| Joint Commission on Spectroscopy ... | 35 | 10 | 7 | | | | |
| | | | | 222 | 3 | 7 | |
| Publications: | | | | | | | |
| *Quarterly Bulletin of Solar Activity* ... | | | | 29 | 15 | 10 | |
| Administration: | | | | | | | |
| Staff Provident Fund ... ... ... | 255 | 8 | 4 | | | | |
| Payments in excess of grant ... ... | 215 | 0 | 11 | | | | |
| Losses on exchange ... ... ... | 4 | 9 | 10 | | | | |
| | | | | 474 | 19 | 1 | |
| | | | | 2,160 | 15 | 0 | |
| Free balance at 31 December 1950 ... | | | | 2,322 | 0 | 7 | |
| | | | | £4,482 | 15 | 7 | |

We have prepared the above account from the books and vouchers of the International Council of Scientific Unions and from the audited accounts of the Paris Office and statements from the Secretaries of Joint Commissions in Belgium and Holland. In our opinion, it summarizes fairly the transactions of the Council, other than receipts from U.N.E.S.C.O. and payments on their behalf, for the year ended 31 December 1950, including certain transactions in Belgian and Dutch currencies which took place during 1949 but were not included in the accounts of the Council for that year, as the accounts received by the Council from Belgium and Holland for 1949 were made up to a date earlier than 31 December. The free balance as at 31 December 1950 represents the total cash resources of the Council at that date after deducting the amount held on behalf of U.N.E.S.C.O. which tallies with the sum in American dollars agreed by them.

11 St Bride Street, London, E.C. 4
26 *September* 1951

HERBERT GIMSON AND SON
*Chartered Accountants*

*Statement showing the Utilization of U.N.E.S.C.O. Funds* *For the year ended 31 December 1950*

*All curriences expressed in Sterling*

| Receipts | £ | s. | d. | £ | s. | d |
|---|---|---|---|---|---|---|
| Receipts from U.N.E.S.C.O. (including refunds of amounts charged against U.N.E.S.C.O. in previous accounts) ... | | | | 9,302 | 7 | 8 |
| Payments made direct by U.N.E.S.C.O. chargeable against grants to I.C.S.U. | | | | 2,555 | 1 | 3 |

| Payments | £ | s. | d. | £ | s. | d. |
|---|---|---|---|---|---|---|
| Payments on behalf of U.N.E.S.C.O.: | | | | | | |
| Travelling Expenses: | | | | | | |
| Executive Committee ... ... | 847 | 11 | 5 | | | |
| Executive Committee (1949 meeting) | 26 | 10 | 8 | | | |
| Meeting of Bureau ... ... ... | 87 | 5 | 9 | | | |
| Joint Commission on Rheology ... | 452 | 3 | 6 | | | |
| Joint Commission on High Altitude Research Stations ... ... ... | 1,403 | 13 | 4 | | | |
| Joint Commission on the Ionosphere | 237 | 15 | 6 | | | |
| Joint Commission on Radiobiology | 47 | 4 | 11 | | | |
| Committee on Science and its Social Relationships ... ... ... | 74 | 5 | 4 | | | |
| Joint Commission on Radioactive Standards and Units ... ... | 464 | 10 | 8 | | | |
| International Symposium on Fundamental Particles ... ... ... | 252 | 0 | 0 | | | |
| Joint Commission on Spectroscopy | 897 | 1 | 9 | | | |
| | | | | 4,790 | 2 | 10 |
| Purchase of Equipment: | | | | | | |
| Oceanographic Institute of Monaco | | | | 701 | 1 | 11 |
| Publications: | | | | | | |
| Joint Commission on Rheology ... | 1 | 7 | 3 | | | |
| Joint Commission on the Ionosphere | 387 | 1 | 10 | | | |
| Joint Commission on Solar and Terrestrial Relationships ... ... | 357 | 2 | 10 | | | |
| | | | | 745 | 11 | 11 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | 11,857 | 8 11 |
| Balance held on behalf of U.N.E.S.C.O. 1 January 1950 as per 1949 published accounts ... ... ... ... ... | 4,350 | 16 9 | | | | |
| *Less* Adjustment arising from devaluation, etc. ... ... ... ... | 365 | 17 1 | | | | |
| | | | | | 3,984 | 19 8 |
| | | | | | £15,842 | 8 7 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Administration: | | | | | | |
| Salaries of Liaison Officer and Secretary ... ... ... ... | | | 4,152 | 4 11 | | |
| Travelling Expenses of Liaison Officer and Secretary ... ... ... | | | 260 | 10 9 | | |
| Travelling Expenses—General Secretary to U.N.E.S.C.O. Conference | | | 47 | 6 1 | | |
| Subsistence Allowances of Liaison Officer and Secretary ... ... | | | 302 | 19 10 | | |
| Printing and stationery ... ... | | | 118 | 15 6 | | |
| General office expenses ... ... | | | 226 | 1 0 | | |
| | | | 5,107 | 18 1 | | |
| *Less* Payments in excess of grant ... | | | 215 | 0 11 | | |
| Total of U.N.E.S.C.O. grant ($13,700) | | | | | 4,892 | 17 2 |
| | | | | | 11,129 | 13 10 |
| Balance held on behalf of U.N.E.S.C.O. at 31 December 1950: | | | | | | |
| Commitments for 1951 ($12,507.50) ... | | | 3,511 | 3 9 | | |
| Balance unspent and uncommitted as agreed with U.N.E.S.C.O. ($3,364.34) | | | 1,201 | 11 0 | | |
| | | | | | 4,712 | 14 9 |
| | | | | | £15,842 | 8 7 |

We have prepared the above account from the books and vouchers of the International Council of Scientific Unions and from the audited accounts of the Paris Office and statements from the Secretaries of Joint Commissions in Belgium and Holland. In our opinion it summarizes fairly the transactions of the Council on behalf of U.N.E.S.C.O. for the year ended 31 December 1950, including certain transactions in Belgian and Dutch currencies which took place during 1949 but were not included in the accounts of the Council for that year, as the accounts received by the Council from Belgium and Holland for 1949 were made up to a date earlier than 31 December.

11 St Bride Street, London, E.C. 4
28 *September* 1951

HERBERT GIMSON AND SON
*Chartered Accountants*

## *Make up of Adjustment to Balance held on behalf of U.N.E.S.C.O. on 31 December 1949*

| | £ s. d. | £ s. d. | £ s. d. | £ s. d. | £ s. d. |
|---|---|---|---|---|---|
| Profit on transfer from Belgian currency to French currency in 1949 (This was a profit on transfer of funds held on behalf of U.N.E.S.C.O., and the amount of the profit was included in the funds held on their behalf at 31 December 1949, as shown on the I.C.S.U. accounts for that year, but it now appears to have been intended that this profit should accrue to I.C.S.U.) ... ... ... ... ... ... | | | | | 295 11 3 |
| *Less* Amounts which could have been recovered from U.N.E.S.C.O. but were not claimed: | | | | | |
| Travelling expenses, Executive Committee, 1949 (paid in 1950 and shown in the 1950 Accounts as a payment on behalf of U.N.E.S.C.O., but never actually claimed) ... ... ... ... ... ... | | | 26 10 8 | | |
| *Deduct* Amounts shown as committed at 31 December 1949 but never spent: | | | | | |
| Joint Commission on Rheology: | | | | | |
| Travelling Expenses—Scott Blair to Holland ... ... ... | | 16 9 9 | | | |
| Publications—Printing of an Erratum Sheet ... ... ... | | 9 19 1 | | | |
| | | | 26 8 10 | | |
| Amounts omitted from claim for loss owing to devaluation: | | | | 1 10 | |
| Loss on devaluation of French Francs from 263.5 to 272.10 ... | | 55 2 7 | | | |
| Loss on devaluation in respect of receipts in French currency omitted from the schedule ... ... ... ... ... ... ... | | 74 12 1 | | | |
| | | | 129 14 8 | | |
| *Deduct* loss on devaluation recovered from U.N.E.S.C.O. in respect of the profit on the transfer from Belgian currency to French currency ... | | | 84 12 5 | | |
| | | | | 45 2 3 | |
| | | | | 45 4 1 | |
| *Deduct* adjustment required to agree the balance held on behalf of U.N.E.S.C.O. at 31 December 1949, as per I.C.S.U. accounts, with the amount deducted by U.N.E.S.C.O. from the 1949 grant (possibly due to items shown as committed at 31 December 1948 which were never spent) ... ... ... ... ... ... ... ... ... | | | | 30 0 7 | |
| Net amount underclaimed from U.N.E.S.C.O. ... ... ... ... | | | | | 15 3 6 |
| Net profit on transactions in U.N.E.S.C.O. funds after deduction of amounts not claimed ... ... ... ... ... ... ... ... ... | | | | | 280 7 9 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Items which appear to have been wrongly recorded in previous accounts of I.C.S.U.: | | | | | | | | |
| Amounts recovered from U.N.E.S.C.O. on the revised schedule for 1949 which were not shown on the 1949 Accounts as being recoverable: | | | | | | | | |
| General office expenses: French account ... ... ... ... | | | | | | 59 | 17 | 0 |
| Sterling account ... ... ... ... | | | | | | 104 | 8 | 8 |
| | | | | | | 164 | 5 | 8 |
| *Less* Amount by which Administration Grant was overspent ... ... | | | | 85 | 16 | 7 | | |
| From which *deduct* amounts charged by U.N.E.S.C.O. against the administration grant, but which really related to Dr Fraser's private travelling expenses and were refunded by him to I.C.S.U.: | | | | | | | | |
| Amount refunded by Dr Fraser in November 1949 and shown by Price Waterhouse as a receipt from U.N.E.S.C.O. ... ... ... | 43 | 8 | 0 | | | | | |
| Amount shown by Price Waterhouse as owing by him at 31 December 1949 and deducted by them from administrative travelling expenses | 42 | 4 | 3 | | | | | |
| | | | | 85 | 12 | 3 | | |
| | | | | | | 4 | 4 | |
| | | | | | | | 164 | 1 4 |
| Joint Commission on Rheology—Publications ... ... ... ... | | | | | | | 52 | 3 7 |
| | | | | | | | 216 | 4 11 |
| *Less* Amounts charged against U.N.E.S.C.O. in the 1949 Accounts which were not covered by any grant: | | | | | | | | |
| General Expenses, Executive Committee ... ... ... ... | | | | | | 25 | 2 | 9 |
| *Bulletin of Solar Activity* ... ... ... ... ... ... ... | | | | | | 95 | 2 | 6 |
| Payment to I.U.T.A.M. (excess of amount paid to them over amount shown by Price Waterhouse as received from U.N.E.S.C.O. on their behalf) ... ... ... ... ... ... ... ... ... | | | | | | 10 | 18 | 9 |
| | | | | | | | 131 | 4 0 |
| | | | | | | | | 85 0 11 |
| Net adjustment in respect of items incorrectly shown in the 1949 accounts | | | | | | | | 8 5 |
| Sundry trivial adjustments on exchange ... ... ... ... ... | | | | | | | | |
| Total adjustment of balance held on behalf of U.N.E.S.C.O. at 31 December 1949 to agree I.C.S.U. Accounts with the dollar figures agreed by U.N.E.S.C.O. ... ... ... ... ... ... ... ... ... | | | | | | | | 365 17 1 |

## *Statement of Balances in hand at 31 December 1950*

| | $ | £ s. d. | £ s. d. | £ s. d. |
|---|---|---|---|---|
| Balances in hand: | | | | |
| Sterling | | | 4,065 13 3 | |
| French currency—Fr. Français 743,380 @ 980 | | | 758 11 0 | |
| American currency—$3,455.71 @ 2.80 | | | 1,230 12 3 | |
| Belgian currency—Fr. Belges 3,269.75 @ 140 | | | 23 7 1 | |
| Dutch currency—Fl. 2,057.77 @ 10.64 | | | 193 8 0 | |
| Various currencies: | | | | |
| Plant Physiological Laboratory | 500.00 | | | |
| Joint Commission on Solar and Terrestrial Relationships, Prof. D'Azambuja | 1,000.00 | | | |
| Oceanographic Institute of Monaco | 636.93 | | | |
| | $2,136.93 @ 2.80 | | 763 3 9 | |
| | | | | 7,034 15 4 |
| | £ s. d. | | | |
| *Less* Balances held on behalf of U.N.E.S.C.O.: | | | | |
| Balance at 31 December 1949 as per published Accounts | | 4,350 16 9 | | |
| *Deduct* adjustments arising from devaluation etc. | | 365 17 1 | | |
| | | | 3,984 19 8 | |
| *Add* Receipts from U.N.E.S.C.O.: | | | | |
| Sterling (amount refunded by I.U.P.A.C. which had been shown in the 1949 Accounts as a payment on behalf of U.N.E.S.C.O.) | | 325 0 0 | | |
| French currency—Fr. Français 4,003,668 @ 980 | | 4,085 7 6 | | |
| American currency—$11,581.04 @ 2.80 | | 4,136 1 8 | | |
| Belgian currency (amount transferred from American Currency Account in December 1949 and shown thereon as a payment on behalf of U.N.E.S.C.O.) $1,400 @ 2.80 | | 500 0 0 | | |
| Dutch currency (receipts taken at sterling equivalent of dollars, transferred) | | | | |
| Before devaluation: $175 @ 4.03 | 43 8 6 | | | |
| After devaluation: $595 @ 2.80 | 212 10 0 | | | |
| | | 255 18 6 | | |
| Various currencies: $7,154.18 @ 2.80 | | 2,555 1 3 | | |
| | | | 11,857 8 11 | |
| | | | 15,842 8 7 | |
| *Deduct* payments on behalf of U.N.E.S.C.O.: | | | | |
| Sterling | | 1,870 5 9 | | |
| French currency—Fr. Français 3,608,638 @ 980 | | 3,682 5 8 | | |
| American currency—$8,933.12 @ 2.80 | | 3,190 8 0 | | |
| Belgian currency—Fr. Belges 58,087.55 @ 140 | | 414 18 3 | | |
| Dutch currency—Fl. 14.50 @ 10.64 | | 1 7 3 | | |
| Various currencies $5,517.25 @ 2.80 | | 1,970 8 11 | | |
| | | | 11,129 13 10 | |
| Balance held on behalf of U.N.E.S.C.O. at 31 December 1950 | | | | 4,712 14 9 |
| Free balance at 31 December 1950 | | | | 2,322 0 7 |
| Free balance at 31 December 1949 | | | | 2,086 3 1 |
| Increase in free balance | | | | £235 17 6 |

## *Agreement on Receipts and Payments (other than Receipts from and Payments on behalf of U.N.E.S.C.O.) with Increase of Free Balance over the Year.*

| | £ s. d. | £ s. d. |
|---|---|---|
| Receipts: | | |
| Sterling | 1,873 7 7 | |
| French currency—Fr. Français 61,750 @ 980 | 63 0 3 | |
| Belgian currency—Fr. Belges 13,213.00 @ 140 | 94 7 7 | |
| | | 2,030 15 5 |
| Payments: | | |
| Sterling | 378 5 4 | |
| French currency—Fr. Français 719,528 @ 980 | 734 4 3 | |
| American currency—$2,324.07 @ 2.80 | 830 0 6 | |
| Belgian currency—Fr. Belges 21,649.70 @ 140 | 154 12 10 | |
| Dutch currency—Fl. 523.05 @ 10.64 | 59 2 3 | |
| Losses on Exchange | 4 9 10 | |
| | | 2,160 15 0 |
| Excess of payments over receipts for the year | | 129 19 7 |
| Adjustment of Balance held on behalf of U.N.E.S.C.O. at 1 January 1950 arising out of devaluation, etc. | | 365 17 1 |
| Increase in free balance over the year | | £235 17 6 |

## *Agreement of Balance held on behalf of U.N.E.S.C.O. with amount deducted by U.N.E.S.C.O. from the 1951 Grant*

| | | £ s. d. |
|---|---|---|
| Balance unspent and uncommitted at 31 December 1950 as agreed with U.N.E.S.C.O. | $3,364.34 | |
| *Add* Commitments at 31 December 1950, as per schedule | 9,831.33 | |
| Balance held by I.C.S.U. on behalf of U.N.E.S.C.O. at 31 December 1950 | 13,195.67 @ 2.80 | 4,712 14 9 |

*NOTE.* The above figures of receipts and payments are for the year 1950 except in the case of the Belgian and Dutch currencies, which include certain transactions of Joint Commissions for 1949, which were not recorded in the accounts of I.C.S.U. for that year, as the accounts received by the Council from Belgium and Holland for 1949 were made up to a date earlier than 31 December.

# Accord entre l'Organisation des Nations Unies Pour l'Education, la Science et la Culture et le Conseil International des Unions Scientifiques

Considérant qu'aux termes de son Acte constitutif, l'Organisation des Nations Unies pour l'Education, la Science et la Culture doit, entre autres tâches, 'aider au maintien, à l'avancement et à la diffusion du savoir'.

Considérant que les Unions scientifiques internationales constituent une forme naturelle et appropriée pour l'organisation internationale de la science, et que le Conseil international des Unions scientifiques est l'organisme compétent pour les représenter et coordonner leurs activités,

Considérant que les tâches du Conseil international des Unions scientifiques sont en harmonie avec celles de l'Organisation des Nations Unies pour l'Education, la Science et la Culture,

Considérant que le Conseil international des Unions scientifiques exerce son activité dans un domaine qui intéresse un large secteur du programme de l'Organisation des Nations Unies pour l'Education, la Science et la Culture, et qu'il est ainsi en mesure de fournir à cette dernière une contribution importante à la réalisation de son programme et de ses objectifs,

Considérant que le Conseil international des Unions scientifiques bénéficie des arrangements consultatifs auprès de l'Organisation des Nations Unies pour l'Education, la Science et la Culture,

Considérant les termes de l'accord en due forme signé entre l'Organisation des Nations Unies pour l'Education, la Science et la Culture et le Conseil international des Unions scientifiques le 16 décembre 1946, ainsi que la résolution 33.31 adoptée par la Conférence générale de l'Organisation des Nations Unies pour l'Education, la Science et la Culture, lors de sa cinquième session, et conformément aux dispositions des Directives concernant les relations avec les organisations internationales non gouvernementales,

Le Directeur général de l'Organisation des Nations Unies pour l'Education, la Science et la Culture, désignée ci-après sous le nom d'U.N.E.S.C.O., et

Le Président du Conseil international des Unions scientifiques désigné ci-après par les initiales I.C.S.U.,

sont convenus de ce qui suit:

*Article* 1. L'U.N.E.S.C.O. et l'I.C.S.U., outre les obligations et privilèges réciproques qui découlent de l'admission de ce dernier au bénéfice des arrangements consultatifs auprès de l'U.N.E.S.C.O., se prêteront mutuelle assistance en vue de faciliter l'exécution de leur programme commun dans le domaine de la coopération scientifique internationale.

*Article* 2. L'U.N.E.S.C.O. et l'I.C.S.U. se consulteront sur toutes les questions de leur compétence commune. A cet effet:

(*a*) l'I.C.S.U. désignera une ou plusieurs personnes chargées de le représenter et d'assurer une liaison permanente entre l'I.C.S.U. et l'U.N.E.S.C.O.; de même, un représentant de l'U.N.E.S.C.O. pourra assurer la liaison au siège de l'I.C.S.U.;

(*b*) le Directeur général de l'U.N.E.S.C.O. se fera représenter aux sessions des organes directeurs de l'I.C.S.U.

*Article* 3. L'U.N.E.S.C.O. s'engage:

(*a*) sous réserve d'approbation par la conférence générale et dans le cadre des Directives concernant les relations avec les organisations internationales non gouvernementales, à accorder à l'I.C.S.U. une subvention annuelle destinée à faciliter la coordination des activités de ses organisations membres et à compléter le financement des projets scientifiques d'intérêt international conformes aux objectifs de l'U.N.E.S.C.O. inscrits au programme de l'I.C.S.U.;

(*b*) conformément aux dispositions des Directives concernant les relations avec les organisations internationales non gouvernementales, et dans la mesure compatible avec la satisfaction de ses propres besoins, à mettre à la disposition de l'I.C.S.U., en vue de faciliter la liaison entre son Secrétariat et celui de l'U.N.E.S.C.O., deux bureaux meublés, ainsi que l'usage du téléphone local, à la Maison de l'U.N.E.S.C.O.;

(*c*) dans la mesure compatible avec la satisfaction de ses propres besoins, à mettre à la disposition de l'I.C.S.U., contre une rémunération calculée suivant ses barèmes, les services techniques et matériels propres à en faciliter le fonctionnement.

*Article* 4. L'I.C.S.U. s'engage:

(*a*) à fournir à l'U.N.E.S.C.O., sur sa demande, des conseils techniques quant à l'élaboration de son programme dans le domaine de la co-

opération scientifique internationale, ainsi qu'à conseiller l'U.N.E.S.C.O. en ce qui concerne ses relations de travail avec les organisations travaillant dans ce même domaine;

(*b*) à porter une attention particulière et à donner le maximum de développement aux activités de son programme qui rentrent dans le cadre du programme de base de l'U.N.E.S.C.O.;

(*c*) après accord, à donner suite à toute demande d'enquête ou d'étude qui pourra lui être présentée, ainsi qu'à entreprendre, au nom de l'U.N.E.S.C.O., des tâches déterminées se rapportant au programme de l'U.N.E.S.C.O.

*Article* 5. Le présent accord entrera en vigueur dès qu'il aura été approuvé par les organes compétents de l'U.N.E.S.C.O. et de l'I.C.S.U., et signé par le Directeur général de l'U.N.E.S.C.O. et par le Président de l'I.C.S.U.

Toute révision éventuelle de l'accord sera soumise à la même procédure.

La période d'application du présent accord sera celle de l'année du calendrier. L'accord sera reconduit d'année en année, sous réserve d'approbation par les organes compétents des organisations intéressées.

En cas de résiliation, un préavis réciproque devra être donné par l'une ou l'autre des parties au moins un an avant la fin de l'exercice en cours.

A. VON MURALT
*Président du*
*Conseil international des*
*Unions scientifiques*

JAIME TORRES BODET
*Directeur général de*
*l'Organisation des Nations Unies*
*pour l'Education, la Science et la Culture*

# Règlement des Commissions Mixtes

1. En vertu de l'article V.19 des statuts de 1949, le Comité exécutif de l'I.C.S.U. peut créer des *Commissions mixtes* pour l'étude de questions relevant de la compétence de plusieurs Unions, après approbation de chacune de ces Unions.

2.1. Le Comité exécutif invite chaque Union intéressée à désigner un certain nombre de représentants à ces Commissions mixtes.

2.2. Normalement, le *nombre des membres* d'une Commission mixte ne doit pas dépasser 10. Il appartient au Comité exécutif de fixer ce nombre en dernier ressort pour chacun des cas, sa décision pouvant être révisée lors de la réunion annuelle du Comité.

3. Le Comité désigne une *Union-mère* pour patronner l'activité de chaque Commission.

4.1. Dès la constitution d'une Commission mixte, l'Union-mère désigne un *Secrétaire provisoire*.

4.2. Le Secrétaire provisoire est chargé de faire désigner par chaque Union intéressée les membres qui la représenteront au sein de la Commission mixte et de convoquer celle-ci pour sa première réunion.

5.1. Au cours de sa première séance, la Commission mixte élit un Président et un Secrétaire, tous deux choisis parmi ses membres et au moins l'un ou l'autre appartenant à l'Union-mère.

5.2. Le Président et le Secrétaire sont élus pour la première fois pour trois ans, après lesquels tous deux sont rééligibles au moins pour une autre période de trois ans.

5.3. Une Commission mixte peut, sans en référer au Comité exécutif, rester en fonction pendant trois ans à compter de la date de la première séance. Il appartient alors au Comité exécutif de décider de l'opportunité de maintenir la Commission mixte pour au moins une autre période de trois ans. Dans ce cas, les Unions intéressées devront assurer un renouvellement convenable des membres, de façon à représenter les plus récents progrès dans le domaine de la Commission.

5.4. A l'expiration de son mandat, chaque Commission mixte est, soit dissoute, soit remplacée par une Commission de l'Union-mère comprenant le cas échéant des membres cooptés d'autres Unions.

6. Une Commission mixte peut désigner un certain nombre de *Conseillers* si elle estime leur assistance indispensable à la bonne marche de ses travaux.

7.1. Les *Conseillers* venus participer aux travaux de la Commission n'ont droit au remboursement de leurs frais de déplacement et de séjour qu'à condition de suppléer des membres titulaires qui se trouvent dans l'impossibilité d'assister à la réunion.

7.2. Au cas où une réunion d'une Commission mixte coïncide avec une autre réunion organisée par le Conseil ou par l'une de ses Unions, les frais de déplacement et indemnités de séjour ne peuvent être sollicités qu'à un seul titre.

7.3. Les *frais de déplacement* peuvent être sollicités, d'une façon générale, pour des voyages en deuxième classe chemin de fer ou bateau. Les frais de voyage par avion peuvent être sollicités pour les grandes distances ou dans des cas de gain de temps considérable.

7.4. Les membres et les conseillers assistant à une réunion de la Commission et bénéficiant d'une subvention de l'U.N.E.S.C.O. peuvent recevoir, dans la limite des fonds disponibles et pendant trois jours au plus, ou cinq jours au plus, s'ils viennent de pays lointains, une *indemnité journalière* dont le montant sera fixé de temps à autre par le Bureau.

8.1. Les crédits afférents aux réunions ordinaires d'une Commission mixte ne sont disponibles qu'une fois tous les deux ans au plus.

8.2. Les Commissions mixtes peuvent proposer l'organisation, au cours d'une année donnée, de *colloques* sur les questions relevant de leur compétence. Toutefois, le nombre total de colloques organisés chaque année auxquels des subventions peuvent être allouées est fonction des fonds versés à cet effet par l'U.N.E.S.C.O. et l'I.C.S.U.

9.1. Afin qu'il soit possible de présenter les demandes de subventions à l'U.N.E.S.C.O. en temps voulu, chaque Commission mixte soumet à l'avance une liste des réunions et colloques à l'examen du Bureau de l'I.C.S.U., à l'occasion de la session annuelle du Comité exécutif et en vue d'obtenir l'approbation de ce Comité.

10.1. Les demandes de subventions destinées soit à financer des réunions ordinaires ou des colloques approuvés par le Comité dans les conditions prévues ci-dessus (9.1), soit à couvrir des frais de publications, sont présentées à l'U.N.E.S.C.O. ou à l'I.C.S.U. par l'Union-mère au nom de la Commission mixte.

10.2. Il appartient à l'Union-mère de traiter avec l'U.N.E.S.C.O. ou l'I.C.S.U. toutes questions ultérieures concernant les subventions.

10.3. L'I.C.S.U. prend à sa charge les menus frais d'administration des Commissions mixtes. Toute autre dépense doit être, avant d'être engagée, approuvée par l'Union-mère et par l'I.C.S.U.

11.1. L'Union-mère est responsable devant le Comité exécutif de la conduite des travaux de toute Commission mixte qui lui est rattachée.

11.2. Les Commissions mixtes adressent des rapports détaillés sur toutes leurs réunions et autres activités à l'Union-mère.

11.3. Lors de la réunion annuelle du Comité exécutif, l'Union-mère présente un rapport intérimaire sur l'activité de toute Commission mixte qui lui est rattachée. Tous les trois ans, elle soumet en outre un bref rapport critique sur l'activité de ses Commissions mixtes à l'Assemblée générale, par l'intermédiaire de ses représentants désignés conformément aux dispositions de l'article VI. 25 des statuts de 1949.

# Rules for Joint Commissions

1. Joint Commissions to study specific topics in borderline fields covering subjects appropriate to more than one Union may, with the concurrence of the Unions concerned, be set up by the Executive Board of I.C.S.U., under § V. 19 of the 1949 Statutes.

2.1. The Executive Board shall invite the appropriate Unions to nominate each a certain number of members to serve on such Joint Commissions.

2.2. *Membership* of a Joint Commission shall not ordinarily exceed ten. The final decision on the strength of each individual Commission rests with the Executive Board, and is subject to revision at the annual meeting of the Board.

3. The Executive Board shall designate a *Parent Union* to foster the work of each Joint Commission.

4.1. On the formation of a Joint Commission, the Parent Union shall appoint a *Provisional Secretary*.

4.2. The Provisional Secretary is responsible for obtaining the nominations to membership of the Joint Commission from the Unions concerned, and for calling the first meeting of the Commission.

5.1. The *First Meeting* of the Joint Commission shall elect a President and Secretary, both from among its members, of which at least one shall be a nominee of the Parent Union.

5.2. The initial term of Office of both President and Secretary shall be three years, when both are eligible for re-election for at least one further term of three years.

5.3. A Joint Commission may continue in being for three years, counted from the date of the first session, without reference to the Executive Board. It then rests with the Executive Board to decide whether or not the Joint Commission should continue its work for at least a further period of three years. If so it shall be mandatory for the Unions concerned to ensure adequate rotation of membership, representative of the latest advances in technique covered by the Joint Commission in question.

5.4. Each Joint Commission, on the termination of its mandate, shall either be dissolved or be replaced by a Commission of the Parent Union, if necessary with members co-opted from other Unions.

6. A Joint Commission may appoint a number of *Advisory Councillors* if it is considered that the work of the Commission requires their assistance.

7.1. *Advisory Councillors* who may attend a meeting of the Commission can receive transportation and per diem expenses only if they take the place of full members of the Commission who are unable to attend.

7.2. If a meeting of a Joint Commission should coincide with another meeting organized by the Council or one of the Unions, transportation expenses and per diem for members of the Commission can be claimed on one count only.

7.3. *Travelling Expenses* are normally claimable in respect of second-class railway or steamer tickets. Air transport is claimable where large distances or notable time saving are involved.

7.4. *Per Diem Expenses* to members and advisory councillors attending a meeting of the Commission with the assistance of U.N.E.S.C.O. subventions are payable according to the funds available, ordinarily for a maximum period of three days, or of five days in the case of members or advisory councillors coming from distant countries, at a rate to be determined from time to time by the Bureau.

8.1. Funds for *Regular Meetings* of a Joint Commission are available at most in alternate years.

8.2. Joint Commissions may suggest *Symposia* on topics falling within their domain, to be held in any year. The total number of such symposia in any one year for which subventions may be allocated is however contingent on the funds available in that year from U.N.E.S.C.O. and I.C.S.U. sources.

9.1. In order that applications for subventions from U.N.E.S.C.O. may be submitted in time, each Joint Commission shall submit an advance list of meetings and symposia for scrutiny by the Bureau of I.C.S.U. on the occasion of an annual meeting of the Executive Board, for submission to the Board for its approval.

10.1. Requests for subventions from U.N.E.S.C.O. or I.C.S.U., either for regular meetings or symposia approved by the Board as in 9.1, or towards the cost of publications, shall be submitted by the Parent Union on behalf of the Joint Commission.

10.2. All subsequent dealings with U.N.E.S.C.O. or I.C.S.U. in respect of subventions are the responsibility of the Parent Union.

10.3. Minor administrative expenses of Joint Commissions will be borne by I.C.S.U. All other expenses must be approved by the Parent Union and by I.C.S.U. before being incurred.

11.1. The Parent Union is responsible to the Executive Board for the conduct of the work of any Joint Commission attached to it.

11.2. Joint Commissions shall render full reports of all meetings and other activities to the Parent Union.

11.3. The Parent Union shall submit an interim Report on the work of any Joint Commission attached to it at the annual meeting of the Executive Board; and a summarized report of the work of its Joint Commissions triennially to the General Assembly, through its representatives designated under § VI. 25 of the 1949 Statutes.

# Kalinga Prize for Science Writing

Following the generous offer made by Sir B. Patnaik, Anand Bhawan, Tulsipur, Cuttack, India, the following resolution was adopted by the Executive Board of U.N.E.S.C.O., during its 24th session (2–10 November 1950):

6.9. '*Kalinga Prize for Science Writing*'

'On the report of the Programme Committee (document 24EX/29) the Executive Board authorized the Director-General to accept with gratitude a gift of £100 per annum offered by Mr Patnaik, of India, for the award of a prize to be known as the "Kalinga Prize for Science Writing" and to consult with the International Council of Scientific Unions regarding the Possibility of the Council administrating the award.'

This prize was raised from £100 to £1000 by Sir B. Patnaik.

As a result of this resolution, the following Scheme of Regulations for the award of the Prize was drawn up at U.N.E.S.C.O.'s request by the Bureau of I.C.S.U., and subsequently confirmed by the Executive Board of both I.C.S.U. and U.N.E.S.C.O.

## SCHEME FOR THE AWARD OF THE KALINGA PRIZE FOR SCIENCE WRITING

1. That the subject on which the award is made should be a body of work popularizing Science. This might be in the form of a book or books (supplemented possibly by articles in magazines or newspapers) or a series of articles (supplemented possibly by a book or books).

2. That the award be annual.

3. That the prize be not divided.

4. That the award be made each year at a meeting of a Jury of three persons:

(i) A representative of the physical sciences,

(ii) A representative of the biological sciences,

(iii) A representative of the class of educated readers.

5. That jurymen (i) and (ii) should be nominated by the Bureau of I.C.S.U. and that Juryman (iii) be nominated by U.N.E.S.C.O.
That one member of the Jury retires each year in rotation.

6. That the Jury should be empowered to seek the advice of specialists.

7. That national organizations adhering to I.C.S.U. be invited to submit to U.N.E.S.C.O. each year the name of one suitable writer, together with four copies of the works on which his claim is based plus supporting evidence as the nominating body may feel to be desirable. That if the work is not written in one of the working languages of U.N.E.S.C.O. a translation into a working language must be submitted. That three copies of the work (or translation) be sent by U.N.E.S.C.O. to the members of the Jury.

8. That U.N.E.S.C.O. also should submit each year to the Jury the name of a suitable writer recommended for the award with similar evidence in support of his claim.

9. That when the award has been made by the Jury, the presentation of the Prize should take place under arrangements made by U.N.E.S.C.O.

# New Statutes and By-Laws of Unions

*International Union of Crystallography*

Amendment to By-law 6, the list of officers of the Union (*e*): for 'three ordinary members' substitute 'four ordinary members'.

*Union internationale de Chimie pure et appliquée.*

## Statuts

### 1951

### CHAPITRE I. ORGANISATION DE L'UNION

#### Article 1

Il est institué une *Union Internationale de Chimie Pure et Appliquée*, ayant pour but:

D'organiser une coopération permanente entre les Associations de Chimie des pays adhérents;

De coordonner leurs moyens d'action scientifiques et techniques;

De contribuer à l'avancement de la Chimie dans toute l'étendue de son domaine, notamment par la réunion de Conférences, de Congrès et de Colloques.

Elle a son siège provisoire à Paris. Un vote conforme aux statuts fixera tous les quatre ans le lieu du siège de l'Union.

#### Article 2

L'action de l'Union telle qu'elle est définie à l'article 1, s'exerce par un Conseil, par des Sections telles que: Chimie inorganique, Chimie organique, Chimie-physique, Chimie analytique, Chimie biologique, Chimie appliquée, et par des Commissions qui peuvent être rattachées à ces Sections.

L'ensemble des réunions du Conseil, des Sections et des Commissions désignées par le Bureau prend le nom de *Conférence de l'Union Internationale de Chimie Pure et Appliquée*.

ARTICLE 3

Un pays peut adhérer à l'Union par son Conseil national de chimie, par se Fédération nationale, par son Association nationale représentant la chimie, ou, à défaut, par l'Académie nationale des Sciences ou, provisoirement, si de tels organismes n'existent pas encore, par son Gouvernement.

ARTICLE 4

La cotisation annuelle est fixée pour chaque pays à un taux proportionnel à son activité dans les sciences chimiques, conformément au tableau suivant:

*Catégorie A:* Etats-Unis, France, Grande-Bretagne, République Fédérale allemande, Suède, Suisse, U.R.S.S.; cotisation annuelle minimum: 675 dollars.

*Catégorie B:* Afrique du Sud, Argentine, Australie, Belgique, Brésil, Canada, Danemark, Espagne, Italie, Japon, Norvège, Pays-Bas, Pologne, Tchéco-Slovaquie; cotisation annuelle minimum: 525 dollars.

*Catégorie C:* autres pays; cotisation annuelle minimum: 375 dollars.

La répartition des pays dans ce tableau peut être modifiée par décision du Conseil.

Tout pays adhérent à l'Union n'est engagé que pour les dépenses relatives à l'administration générale.

Toute autre dépense ne pourra lui incomber sans son approbation préalable.

ARTICLE 5

Tout pays peut se retirer de l'Union à condition d'avoir rempli ses obligations.

La radiation peut être prononcée pour non paiement de cotisation ou pour motifs graves, par le Conseil, à la majorité des trois quarts des suffrages exprimés, le pays intéressé ayant été préalablement appelé à fournir ses explications.

ARTICLE 6

*Le Conseil* de l'Union est composé de délégués de chacun des pays adhérents, le nombre des délégués étant fixé d'après leur catégorie, comme il est indiqué ci-après:

| | |
|---|---|
| Catégorie A | 6 délégués |
| Catégorie B | 4 délégués |
| Catégorie C | 2 délégués |

Les délégués au Conseil sont nommés par l'Organisme adhérent National à l'Union.

## Article 7

Le pouvoir exécutif au Conseil est confié à un *Bureau*, composé d'un Président, de neuf Vice-Présidents, de six Membres élus, d'un Secrétaire général, d'un Trésorier et des deux derniers Présidents.

Le Conseil choisit de préférence le Président parmi les Vice-Présidents anciens ou en fonction et les Membres du Bureau. Au cas où il ne serait pas possible de procéder ainsi, la personnalité désignée devra recueillir les trois quarts des suffrages des membres présents et votant au Conseil.

Les Présidents des Sections sont *ipse facto* Vice-Présidents de l'Union.

Le mandat du Président, des Vice-Présidents, des Membres élus, du Secrétaire général et du Trésorier est de quatre années. Trois Membres élus sont immédiatement rééligibles dans les mêmes fonctions, après quoi ils seront inéligibles dans ces mêmes fonctions durant une période de quatre années. Le Secrétaire général et le Trésorier sont rééligibles dans la même fonction durant une période de douze années, après quoi ils seront inéligibles dans ces mêmes fonctions durant une période de quatre années.

## Article 8

Le Conseil se réunit au moins tous les deux ans et, en outre, chaque fois qu'il est convoqué par son Président ou encore chaque fois que la demande en est faite par le quart des pays adhérents.

Il entend les rapports sur l'Etat général de l'Union et sur la situation financière; les rapports et les comptes sont adressés aux pays adhérents quatre mois au moins avant la session de l'Union.

Il entend les rapports des Sections qui sont lus en français et en anglais.

Il fixe les dates et lieu des Conférences de l'Union, qui se tiendront au moins tous les deux ans.

Il établit le budget.

Les recommandations d'ordre scientifique sont adoptées à la majorité relative des délégués présents.

Toutefois, les décisions du Conseil au sujet de l'établissement d'usages scientifiques internationaux (nomenclature, symboles, étalons, etc.) ne sont adoptés que provisoirement; ils doivent être communiqués aux Organismes adhérents nationaux qui peuvent faire part de leurs observations dans un délai de six mois. Ces remarques éventuelles sont transmises aux Sections pour examen. A la réunion suivante, un rapport est présenté au Conseil en français et en anglais pour adoption définitive s'il recueille au moins les deux tiers des suffrages.

Pour les questions d'ordre administratif et financier, les suffrages sont

exprimés par pays, chaque pays ayant un nombre de voix égal à celui de ses délégués. Dans ce cas, il n'est pas nécessaire que ceux-ci soient tous présents. Un mandataire peut être désigné par les délégués d'une nation au Conseil pour les représenter et prendre part au vote en leur nom.

Il ne pourra être que sur les questions portées à l'ordre du jour, qui sera envoyé quatre mois au moins avant la réunion du Conseil.

Néanmoins, en cas d'urgence, une question pourra être inscrite à l'ordre du jour par décision prise à l'unanimité des membres présents.

Le vote par correspondance est admis. S'il y a égalité de voix, le vote est nul.

### Article 9

Il sera tenu procès-verbal des séances; les minutes des procès-verbaux seront établies en deux exemplaires et signées par le Président et le Secrétaire de séance.

Le Secrétaire aura la garde des archives et sera chargé de l'exécution des décisions prises par le Conseil et le Bureau, en particulier de l'envoi de l'ordre du jour.

### Article 10

Le Bureau a pour fonctions:

1° De veiller à la stricte observation des Statuts;

2° De fixer l'ordre du jour des réunions du Conseil. Cet ordre du jour comportera obligatoirement toute question qui aura été transmise au Bureau par l'un des pays adhérents, six mois avant la session;

3° D'exécuter le programme d'action élaboré par le Conseil et notamment d'assurer la réunion des *Congrès internationaux de Chimie pure et appliquée*;

4° De soumettre au Conseil le rapport sur l'état général de l'Union, les comptes de l'exercice clos et le projet de budget;

5° De représenter l'Union ou de désigner ses représentants.

Entre les réunions du Bureau, ses pouvoirs sont dévolus à un *Comité exécutif* constitué par le Président, un Vice-Président et un des membres élus (tous deux désignés par le Conseil), le Secrétaire général et le Trésorier. En particulier, ce Comité accomplit, entre les Sessions, les actes d'Administration nécessaires.

ARTICLE 11

Les dépenses sont ordonnancées par le Président et réglées par le Secrétariat.

L'Union est représentée dans tous les actes de la vie civile et en justice par le Président, qui peut déléguer ses pouvoirs à un membre du Conseil ou au Secrétaire général.

ARTICLE 12

Une modification quelconque des Statuts ne peut être soumise au Conseil que sur la proposition du Bureau de l'Union ou sur la demande de l'un des pays adhérents.

Les propositions de modifications figureront à l'ordre du jour du Conseil, à la condition d'avoir été reçues, par écrit, par le Bureau au moins six mois à l'avance.

Les suffrages sont exprimés par pays conformément à l'article 8.

Le vote par correspondance est admis.

Les Statuts ne peuvent être modifiés qu'à la majorité des deux tiers des suffrages exprimés.

ARTICLE 13

Le Conseil, appelé à se prononcer sur la dissolution de l'Union, est convoqué spécialement à cet effet trois mois à l'avance. Il doit comprendre au moins les représentants des trois quarts des pays adhérents.

Si cette proportion n'est pas atteinte, le Conseil est convoqué de nouveau dans un délai minimum de six mois et, cette fois, il peut valablement délibérer quel que soit le nombre des pays représentés.

Le vote par correspondance est admis.

Dans tous les cas, la dissolution ne peut être votée qu'à la majorité des deux tiers des suffrages exprimés.

ARTICLE 14

En cas de dissolution, le Conseil désigne un ou plusieurs commissaires chargés de la liquidation des biens de l'Union. Il fait don de l'actif net à une ou plusieurs institutions internationales.

## CHAPITRE II. ORGANISATION DES SECTIONS

### Article 15

*Définition des Sections.*

Une Section représente au sein de l'Union la Chimie indiquée dans son propre titre.

Les idées directrices suivies par les Sections dans leurs activités doivent être conformes aux concepts de l'Union et en particulier à ceux exprimés dans ses Statuts et son Règlement.

### Article 16

*Composition des Sections.*

La Section sera administrée par un *Comité de Section* qui est l'organe de liaison entre le Bureau (ou le Comité exécutif) de l'Union et les organisations diverses constituant la Section.

La Section peut comprendre des *Divisions* ou *Sous-Sections*, des *Commissions* et des *Sous-Commissions*.

### Article 17

*Membres des Sections.*

Les Membres du Comité de Section, les Membres titulaires et les Membres délégués des Divisions ou Sous-Sections, des Commissions et des Sous-Commissions rattachées aux Sections forment l'ensemble des Membres des Sections.

### Article 18

*Composition et rôle du Comité de Section.*

Le Comité de Section est élu par les Membres de la Section. Le Président, le Secrétaire général et le Trésorier de l'Union en font partie au titre de Membres ès-qualité.

Ce Comité choisit parmi les Membres élus, un Président, un ou plusieurs Vice-Présidents et un Secrétaire de Section.

Aucun Membre du Comité de Section ne peut demeurer dans les mêmes fonctions durant plus de quatre ans, hormis le Secrétaire de Section qui peut être réélu pendant une nouvelle période de quatre ans, après quoi il n'est pas rééligible dans cette même fonction.

Le Président de la Section est *ipso facto* un des Vice-Présidents de l'Union.

Le Comité de Section a pour fonctions:

1° d'organiser des Conférences, Congrès, Colloques et autres réunions jugées utiles pour le développement de la discipline scientifique ou technique de la Section;

2° de créer ou de supprimer les Commissions ou Sous-Commissions rattachées à la Section et, en cas de création, de désigner jusqu'aux élections une liste provisoire de Membres ainsi qu'un Président et un Secrétaire-Rapporteur;

3° de donner des directives aux Commissions, de superviser leurs travaux et, le cas échéant, de résoudre les difficultés pouvant s'élever entre ces organismes;

4° de déterminer le budget de la Section;

5° de préparer s'il y a lieu des projets de conventions en vue d'assurer des progrès dans le domaine prospecté.

Puisque d'après l'article 1, l'Union a notamment pour mission de contribuer à l'avancement de la Chimie dans toute l'étendue de son domaine, les décisions des Comités de Section doivent recevoir approbation du Conseil ou du Bureau de l'Union, lorsqu'elles se rapportent à des questions financières intéressant le budget de l'Union. De plus, le Conseil sera également informé des autres décisions, de façon à assurer la coordination indispensable entre les activités de toutes les Sections.

Le Président du Comité de Section présente chaque année au Bureau de l'Union un rapport écrit sur les activités du Comité, des Divisions ou Sous-Sections, des Commissions et Sous-Commissions de la Section ainsi que sur l'utilisation des subventions accordées par l'Union.

Le Secrétaire de Section collationne les rapports et les demandes des Divisions ou Sous-Sections, Commissions et Sous-Commissions, assure la circulation des documents, prépare le budget de la Section, établit les ordres du jour des réunions et les envoie au moins quatre mois à l'avance aux Membres de la Section. Il assure en général les fonctions habituelles de transmission d'un secrétariat, en liaison avec le Secrétaire général et le Trésorier de l'Union.

Le Comité de Section se réunit au moins tous les deux ans lors des réunions de Section prévues plus loin (art. 20). Les Membres du Comité empêchés d'y assister peuvent faire connaître leur vote par correspondance. De même, en dehors des réunions, le Président de Section peut solliciter par correspondance les votes des autres Membres et du Comité de Section sur toutes questions justiciables d'une telle consultation.

## Article 19

*Composition et rôle des Commissions.*

Les règles relatives au fonctionnement des Commissions, à l'élection des Membres et à leur mandat, aux élections des Présidents, éventuellement des Vice-Présidents, des Secrétaires-Rapporteurs et à leur mandat, sont définies dans le Chapitre II du Règlement de l'Union et par les dispositions complémentaires indiquées ci-après.

Le nombre des Membres titulaires de chaque Commission est au maximum de dix. Les autres Membres, dont le nombre n'est pas limité, sont des Membres délégués, des Représentants nationaux ou des Observateurs. Sauf décision contraire du Bureau de l'Union, seuls les Membres titulaires émargent aux subventions que l'Union peut allouer, le cas échéant, pour les frais de transport et de séjour aux réunions.

Les Présidents des Commissions présentent au Comité de Section un rapport écrit sur leurs activités, deux mois au moins avant les réunions de la Section et au moins une fois chaque année. Le rapport mentionne les résultats obtenus et indique le programme des travaux à entreprendre au cours de l'année suivante. Ces rapports sont commentés par le Comité de Section avant d'être présentés au Bureau et au Conseil de l'Union.

Les Commissions mixtes formées entre plusieurs Unions scientifiques internationales dépendront directement de l'Union de Chimie si celle-ci est reconnue Union-mère. Elle décidera alors de leur rattachement soit au Bureau, soit à une de ses Sections.

## Article 20

*Réunions de la Section.*

Une réunion de la Section a lieu en principe tous les deux ans, au cours d'une Conférence de l'Union à laquelle la Section est appelée à participer. D'autres réunions supplémentaires peuvent être tenues sur proposition du Comité de Section. Les ordres du jour doivent être communiqués aux Membres de la Section, par les soins du Secrétaire de Section, au moins quatre mois avant la date des réunions.

Les réunions des Divisions ou Sous-Sections, des Commissions et des Sous-Commissions suivent le même rythme. Les réunions supplémentaires paraissant souhaitables doivent recevoir l'agrément du Comité de Section.

## Article 21

Le présent texte français servira exclusivement pour l'interprétation à donner aux articles des Statuts.

# Règlement

## 1951

## CHAPITRE I

### Article 1

Un pays adhère à l'Union par un Organisme assurant la collaboration des groupements scientifiques nationaux qui se consacrent spécialement au progrès de la Chimie pure et appliquée.

### Article 2

Cet Organisme est de préférence un Conseil national composé de représentants de ces groupements ou une Fédération de ces groupements.

Dans le cas où il n'existe qu'un seul groupement chimique, l'adhésion peut émaner de ce groupement.

A titre provisoire, un pays peut adhérer par son Académie Nationale des Sciences ou, à son défaut, par son Gouvernement, lorsqu'il n'existe encore aucun groupement chimique ou que les groupements existants n'ont pu constituer de Conseil national ou de Fédération. Dans ce cas, le pays adhérant aura l'obligation de créer un groupement, un Conseil national ou une Fédération dans un délai de six ans à dater de son entrée dans l'Union. La même obligation incombera, le cas échéant, aux pays déjà membres de l'Union dans un délai de six ans après la promulgation du présent règlement.

### Article 3

Les pays non encore affiliés à l'Union pourront être admis sur leur demande. Cette demande sera soumise par le Président au Conseil de l'Union, qui décidera de leur admission à la majorité des trois quarts des voix de l'ensemble des pays déjà associés.

### Article 4

En cas d'empêchement du Président, sa suppléance sera assurée jusqu'à la prochaine conférence par l'un des Vice-Présidents que le Bureau aura désigné dès son élection.

## CHAPITRE II. COMMISSIONS

### A. COMMISSIONS DE L'UNION

#### Article 5

Le Conseil de l'Union peut décider l'institution de Commissions permanentes ou temporaires.

Ces Commissions sont chargées soit de la gestion des divers organismes de l'Union, soit de l'étude de questions déterminées.

#### Article 6

Chaque Commission scientifique et technique de l'Union Internationale de Chimie pure et appliquée doit être composée entièrement de spécialistes. Elle peut comprendre:

1° *des Membres titulaires*, élus par la Commission à titre personnel;

2° *des Membres délégués*, proposés par des Organismes intéressés (Bureaux de mesures, Instituts de recherches, etc.).

Les Membres titulaires ou délégués doivent faire autorité dans le domaine de la Commission. Ils doivent avoir le désir et les possibilités de réserver suffisamment de temps aux activités de la Commission. Ils doivent être scientifiquement reconnus par les Organismes adhérents de leurs pays d'origine, afin que ceux-ci acceptent par la suite les recommandations des Commissions approuvées par le Conseil. Avant de les soumettre à l'élection, le Président de la Commission doit les éclairer sur les devoirs de leur mission et ils doivent s'engager à les remplir au cas où ils seraient nommés.

L'élection d'un Membre titulaire ou délégué se fait soit au cours d'une séance de la Commission, soit par correspondance. La nomination est alors soumise à l'approbation de l'Organisme adhérent représentant le pays où réside le Membre élu. Si l'approbation est obtenue, le Conseil, le Bureau ou le Comité exécutif statue à la plus prochaine session. Sans réponse de l'Organisme adhérent ou en cas de désapprobation de celui-ci, la nomination est différée jusqu'à la prochaine Conférence pour être soumise à l'examen du Conseil qui statuera.

#### Article 7

A côté de ces deux catégories de Membres, les seuls qui aient voix délibérative, la Commission peut s'adjoindre, à titre consultatif seulement:

1° *des Représentants nationaux* des pays adhérents à l'Union et désignés par les différents Organismes nationaux;

2° *des Observateurs*, invités par le Président d'une Commission pour prendre part à ses travaux au cours d'une conférence particulière de l'Union, et ce, sur la proposition du Prèsident de la délégation de leur pays à cette conférence. Les noms de ces Représentants nationaux et Observateurs doivent être communiqués au Président de l'Union par le Président de la Commission intéressée.

### Article 8

Le nombre des Membres d'une Commission scientifique n'est pas limité. Le nombre des voix de Membres ressortissants à un pays ne peut pas surpasser celui des délégués de ce pays au Conseil de l'Union.

### Article 9

La création d'une nouvelle Commission permanente ne peut se faire qu'à la suite d'une résolution du Conseil de l'Union. Les premiers Membres titulaires sont élus par le Conseil à la suite d'un vote par pays.

### Article 10

En cas de décès d'un Membre titulaire ou lors du passage à la retraite d'un délégué des Institutions de recherches ou des Bureaux de mesures, l'élection d'un remplaçant se fera comme il a été dit à l'article 6.

### Article 11

Chaque Commission élit dans son sein un Comité de travail et éventuellement des Sous-commissions, composées d'un petit nombre de Membres appartenant aux catégories prévues par l'article 6.

### Article 12

Les Membres titulaires et délégués des Commissions sont nommés pour quatre ans. Ils peuvent être réélus immédiatement pour une nouvelle période de quatre ans, après quoi ils sont inéligibles durant deux ans.

La période d'activité des Membres de chaque Commission sera instituée de façon qu'un quart seulement de ces membres soit inéligibles lors de chaque Conférence, c'est-à-dire en principe tous les deux ans.

Les Membres de chaque Commission élisent un Président, éventuellement des Vice-Présidents, et un Secrétaire-Rapporteur; ces nominations doivent être soumises à l'approbation du Bureau ou du Comité exécutif entre les sessions. Les mandats du Président, des Vice-Présidents, s'il en

existe, du Secrétaire-Rapporteur cessent avec la fin de leur période d'activité au titre de Membre de la Commission, soit, au maximum, après huit ans.

ARTICLE 13

Les Représentants nationaux et les Observateurs ont le droit de présenter au Bureau de l'Union des observations ou protestations motivées, au sujet de décisions prises par une Commission, aux travaux de laquelle ils ont été associés à titre consultatif.

## B. COMMISSIONS AFFILIÉES

ARTICLE 14

A côté des Commissions scientifiques et techniques prévues aux articles 6 à 13 ci-dessus, pourront être affiliées à l'Union des Commissions internationales existantes, dont les buts et les méthodes d'action cadrent avec ceux de l'Union, notamment celles qui se proposent d'unifier les méthodes d'analyse et de contrôle et de faire progresser la technique chimique de certaines branches spécialisées.

ARTICLE 15

Les Commissions internationales, désireuses d'être affiliées, devront adresser au Président de l'Union, en même temps que leur demande, deux exemplaires de leurs statuts et de toutes leurs publications antérieures, ainsi qu'un exposé de leur activité depuis leur fondation.

ARTICLE 16

Cette demande sera soumise au Conseil de l'Union qui prononcera ou rejettera l'affiliation, sans avoir à fournir les motifs de sa décision. Le Conseil pourra, s'il le juge utile, ne prononcer l'affiliation qu'après avoir demandé à la Commission internationale intéressée de modifier ses statuts pour les mettre en harmonie avec ceux de l'Union.

ARTICLE 17

Les Commissions internationales affiliées seront autorisées à faire suivre leur désignation habituelle de la mention : 'Affiliée à l'Union Internationale de Chimie'.

Elles devront tenir une réunion à l'occasion de chaque conférence de l'Union prévue à l'article 18 du règlement de l'Union.

Elles feront parvenir au Secrétariat de l'Union deux exemplaires de tous leurs procès-verbaux et de leurs diverses publications.

Elles recevront les communications et publications de l'Union.

## CHAPITRE III. CONFERENCES

### Article 18

La session du Conseil, des Sections et des Commissions réunies en totalité ou en partie prend le nom de *Conférence de l'Union Internationale de Chimie Pure et Appliquée.*

### Article 19

La Conférence de l'Union Internationale de Chimie ne se réunit pas deux fois de suite dans le même pays.

### Article 20

D'accord avec le Conseil de l'Union, une Commission, nommée par l'organisme officiel adhérent du pays désigné comme siège de la Conférence, est chargée de l'organisation de cette dernière. Elle en élabore le programme et veille à la réception et au logement des délégués.

## CHAPITRE IV. COLLOQUES

### Article 21

A la demande d'une Commission de l'Union ou de spécialistes qualifiés et après avis favorable du Bureau ou du Comité exécutif qui le représente entre ses réunions, il pourra être organisé des *Colloques* sur des sujets d'actualité ou des questions touchant divers aspects spéciaux de la science chimique.

### Article 22

Le Bureau ou le Comité exécutif désignent le siège du Colloque et les spécialistes admis à y participer. L'Organisme adhérent du pays désigné nomme une Commission chargée de faciliter l'accomplissement du programme dressé, de veiller à la réception et au logement des participants.

## CHAPITRE V. CONGRES

### Article 23

Des *Congrès internationaux de Chimie pure et appliquée* sont organisés sous les auspices de l'Union. Ils comprennent une ou plusieurs Sections déterminées à l'article 2 des Statuts.

Leur organisation est confiée à un Comité institué par le pays siège du Congrès.

Le Comité exécutif est chargé des relations avec ce Comité.

ARTICLE 24

Le Comité d'organisation établit le programme et le règlement du Congrès, d'accord avec le Comité exécutif de l'Union.

ARTICLE 25

Le choix de la langue dans laquelle seront faites les communications est facultatif.

En vue d'éviter les erreurs d'interprétations, tous les rapports relatifs aux questions administratives, les vœux, les résolutions et les actes officiels, s'ils ne sont pas rédigés originellement en français, doivent être traduits en cette langue.

ARTICLE 26

Le Bureau de l'Union présentera à la Conférence qui suivra le Congrès un rapport général sur les résolutions adoptées.

ARTICLE 27

La collaboration de l'Union à l'organisation des Congrès n'engage pas sa responsabilité financière.

## CHAPITRE VI. REGLEMENT

ARTICLE 28

Le règlement devient exécutoire après son acceptation par le Conseil.

ARTICLE 29

Une modification du règlement ne peut être soumise au Conseil que sur la proposition du Bureau de l'Union ou sur la demande de l'un des Organismes adhérents.

Les propositions de modifications figureront à l'ordre du jour du Conseil à la condition d'avoir été reçues, par écrit, par le Bureau de l'Union, au moins six mois à l'avance.

Les suffrages sont exprimés par pays conformément à l'article 8 des Statuts de l'Union.

Le vote par correspondance est admis.

Le règlement ne peut être modifié qu'à la majorité des deux tiers des suffrages exprimés.

ARTICLE 30

Le présent texte français servira exclusivement pour l'interprétation à donner aux articles du règlement.

UNESCO/PREP. COM./NAT. SCI/2A.



UNITED NATIONS EDUCATIONAL
SCIENTIFIC AND CULTURAL ORGANISATION

PREPARATORY COMMISSION

NATIONAL SCIENCES COMMITTEE

Annexe 1 to Document 2

Annexe 1

THE SCIENTIFIC FUNCTIONS OF U.N.E.S.C.O.

The Division of Natural Sciences of U.N.E.S.C.O. should:-

(i) Promote international scientific cooperation in all its aspects, by facilitating the work of existing international scientific organisations, by initiating new ones if necessary, and by setting up regional science cooperation offices throughout the world (cf. Constitution, Art. I, Sect. 2 (c)).

(ii) Organise and assist the better exchange of scientific information and research services between scientists and their organisations in the different countries.

(iii) Assist the restoration of scientific facilities in the liberated countries.

(iv) Consider the provision of German and Japanese reparations in the form of scientific apparatus and research chemicals.

(v) Plan the utilisation of such surplus war material and equipment as would be suitable for use in scientific research, and its transfer to the more scientifically backward countries.

(vi) Assist the free flow of essential research apparatus, chemicals, and equipment across national boundaries, as also the exchange of scientific specimens; collections of animals and plants, mineralogical samples, roots, seeds, and the like.

(vii) Assist the free flow of scientific books, periodicals, microfilms, cinema films, manuscripts for publication, translations, abstracts, radio talks, etc. across national boundaries; and especially between world regions of widely different linguistic pattern, e.g. those of the ideographic and alphabetic languages.

(viii) Assist the free flow of scientists coming and going across national boundaries, whether for periods of study and research or for congresses, conferences, and the like.

(ix) Assist in maintaining contact between government organisations concerned with science, pure and applied, when necessary; and advise governmental and diplomatic personnel on scientific matters, when desired.

(x) Promote plans of international collaboration in research.

(xi) Support the international activities of the various National Academies of Science.

(xii) Assist the work of the Economic and Social Council of U.N.O., and of the Trusteeship Council of U.N.O.

(xiii) Assist the work of other international organisations at the same level, such as the United Nations Food and Agriculture Organisation, the United Nations Atomic Development Authority (when set up), the International Labour Office, the International Health Organisation, the United Nations Relief and Rehabilitation Administration, the United Nations Civil Aviation Commission, the International Resources Office (if formed), etc. etc. in scientific questions.

(xiv) Federate into branches of one organisation, if feasible, or at least maintain the closest touch with, the smaller international scientific bodies already existing, such as the Bureau International des Poids et Mésures, the United Nations Standards Coordinating Committee, the International Nations Standards Coordinating Committee, the International Commission on Zoological Nomenclature, the International Anti-Locust Research Centre, the International Fisheries Boards, an International Commission of Type Cultures (if formed), etc. etc.

(xv) Cooperate with the Division of Press and Publicity in U.N.E.S.C.O. in informing the Public in all countries concerning the bearing of scientific discoveries on international relations.

I. Promote international scientific cooperation in all its aspects, by facilitating the work of existing international scientific organisations, by initiating new ones if necessary, and by setting up regional science cooperation offices throughout the world.

This general aim covers all the rest, but it implies the "carte blanche principle" already referred to in connection with the war-time scientific offices. U.N.E.S.C.O. would not be restricted to any one group of sciences. It should also be thought of in connection with the "periphery principle", already mentioned. That is to say, a large part of the work of U.N.E.S.C.O's science division would lie in helping science and technology in those regions of the world outside the most advanced "bright zone", i.e., where scientists are relatively isolated.

REGIONAL OFFICES

There is only one way in which this can be effectively done. It is, in the opinion of the Secretariat, essential that U.N.E.S.C.O. should have a number of Regional Offices, scattered throughout the world. Only by direct contact in the field can the needs of scientific men become known, and adequate communication assured between them. About ten such Regional Centres will be necessary, probably somewhat as follows: (a) East Asia (b) Australia (c) South-East Asia (d) India (e) Middle East (f) Africa (g) East Europe (h) North America (i) Central America (j) South America. This plan assumes that the headquarters will be in Paris, and this would act also as the Regional Centre for West Europe.

A word may be said about the functioning and staffing of the regional offices. It would probably be advisable to locate the regional office in the most important scientific centre of the largest of the nations or countries which compose the region as laid down. Correspondents could then be appointed for all the other nations or countries within the region; these would have to keep in close touch by letter and by personal visits with the regional centre. Judging by the experience of the British Scientific Office in Chungking, which consisted, all told, of six British scientists, 10 Chinese scientists, and 2 Indians; it would not be necessary to have in any regional centre more than three or four scientific men from the most advanced scientific countries sent out from headquarters. It is, in fact, preferable, to associate with these a well-chosen group drawn from local scientific circles, since this at one and the same time solves the grave difficulties of language and communication and also makes the local countries feel that they are playing a big part, as indeed they are, in the machinery of scientific interchange. It also assures that the U.N.E.S.C.O. group is not thought of as a "foreign intrusion" on the soil of any given country. Thus a Chinese scientist, if he joined the central U.N.E.S.C.O. secretariat, might remain in Paris, or be sent as one of the headquarters members of the South American regional office, for example; but he might also join the China regional office as one of the non-headquarter members, in which position his linguistic capacities would render him of great value. The same thing applies, mutatis mutandis, to the Latin-American or Arabic-speaking countries.

The question of the freedom of action of U.N.E.S.C.O. regional offices will no doubt arise. It is understood that every participating nation will organise a National Commission representative of all its science, technology and learning, for the purpose of handling all matters relating to U.N.E.S.C.O's work. While it will clearly be essential that all questions of general importance or wide relevance should pass through the local National Commission, (Constitution,

Art VII), and while Sect. 3 of Art. I of our Constitution must not be infringed, it is nevertheless extremely important that the staff of the regional office should not be debarred from direct and informal contact with the actual scientists and technologists of the country in question. In countries where the prestige of science is still low and the influence of local politicians with little or no understanding of science is strong, there will be grave danger that U.N.E.S.C.O. will never contact the genuine struggling scientists, but only those who have known how to make themselves politically agreeable to the government of the day though their actual scientific attainments may be a good deal less than first-class. If direct contact with the men in the field and at the bench is debarred, the staff of U.N.E.S.C.O. wherever situated, will be rendered helpless by bureaucratic redtape and diplomatic protocol. There is not the least danger that if the staff of U.N.E.S.C.O. is not shielded from direct contact with scientific workers, their time will be wasted by cranks. The writer's experience is that if you put a few scientists together for a short time from any country in the world, it will speedily become apparent who is on the right lines and who is bogus.

A suggestion is under consideration that the Regional Offices of U.N.E.S.C.O. should be housed under the same roof as the Regional Offices of the United Nations Organisations for Health, Civil Aviation, Food and Agriculture, etc. Such an arrangement would greatly contribute to the efficiency of all technical experts employed in the service of the United Nations, allowing for close and constant consultation.

A word may be added here about the problem of personnel. It is clear that for the most part, men without a scientific training cannot be used. Those who do not believe in the value of international organisations are correspondingly pessimistic about the possibility of getting any scientifically trained men to work in them. The present writer considers that this pessimism is often carried much too far. He believes (1) that many eminent scientists, even at the height of their powers, would be willing to serve "sabbatical terms" in such an organisation, a process calculated to enlarge their horizons at least as much as travel to another laboratory and continuation of research along their usual lines there. But he also believes (2) that there is a certain class of younger men, with brilliant minds, who lack the precise combination of qualities necessary for successful research. On this account they generally become university teachers, though they often have not the flair of the teacher either. Would not such men be available for a whole career of international scientific service? Then, (3) there is a great fund of wisdom and experience to be drawn upon if certain men in the five-year period after the retiring age are suitably placed in the organisation. Finally (4) younger specialists should be seconded without hesitation from time to time to work on quite specific subjects.

The objection that neither the Regional Offices nor the central secretariat could have scientists on the staff representing all possible branches of science has no substance whatever. The business of the scientific liaison officer is not necessarily to know the answer but to know where the answer can most probably be obtained.

THE SCIENTIFIC UNIONS

No less important than any of the foregoing is the provision of help to the International Scientific Unions and their federal Council. Before World War II they had already come to an arrangement (which, owing to the war, was never implemented) with the International Office of Intellectual Co-operation (L. of N.) whereby they would be provided with a central secretariat and some office accommodation (19). This arrangement should obviously be put into practice by U.N.E.S.C.O., and interpreted in the most generous way possible*. The presence, in adjoining offices, of the work of U.N.E.S.C.O. and of I.C.S.U. would lead to a very fruitful collaboration, and would constitute a perfect example of that

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* Recommended also by C.A.M.E. (5.2.46); the Danish Delegation to U.N.E.S.C.O. (16.11.45) see Prep.Com./38, 3(C); and the U.S.A. delegation to U.N.E.S.C.O. (14.11.45); see Prep.Com./22.A4,(1):
See also Art.XI of the Constitution. Requested by I.C.S.U., Resolution of Exec. Committee, 4.12.45.

"facilitation" which is the keynote of U.N.E.S.C.O.'s aim. The International Council of Scientific Unions, however, is not the only international organisation which may desire to have its central office housed adjacent to U.N.E.S.C.O. and sharing common secretarial services. There are various committees of preparation for International Scientific Congresses in sciences where no Union as yet exists, and there is the projected World Federation of Associations of Scientific Workers. There are, moreover, the entire fields of Engineering and Medicine, in which numerous international activities go on, and which should be assisted in the same way. One of the best known engineering organisations in the World Power Conference, which may be regarded as the International Union of Power and Fuel Engineers; this is just the kind of body which should be materially and secretarially associated with U.N.E.S.C.O.

As regards the details of assistance to the International Scientific Unions, it must be foreseen that most of their Secretaries and Presidents will be living in cities other than Paris. The Secretary of the International Union of the Biological Sciences, for instance, is located at Groningen. In this case U.N.E.S.C.O. should finance an Assistant Secretary to look after the business of their central office and also a personal Secretary-typist to aid the two chief officers wherever they may be.

It is hardly believable that various national regulations concerning exchange of currency are one of the great hindrances to the functioning of the Scientific Unions. Yet the Secretary-General of I.C.S.U. tells us so himself in a public meeting (21b). Here U.N.E.S.C.O. could be of immediate help for it will have diplomatic immunity and will be working in many different countries so that cross payments can be made a matter of bookkeeping. The Unions would like U.N.E.S.C.O. to support some of the permanent undertakings such as the Bureau de l'Heure, thus leaving them free to develop fresh projects which need at first only small sums.

Finally, U.N.E.S.C.O. should not only help in every possible way the existing International Scientific Unions, but also stimulate the formation of such Unions in the sciences where they do not already exist.

II. Organise and assist the better exchange of scientific information and research services between scientists and their organisations in the different countries.

CIRCULATION OF GOVERNMENT SCIENTIFIC PUBLICATIONS

While in the future there may be many opportunities for the exchange of confidential technical information between various countries, there is an enormous field of work to be done in seeing that the information actually published by government scientific organisations reaches those who need it both near and far. Moreover the availability of scientific journals, especially the more specialised ones, throughout the world, is very restricted, and there is a great need for an agency which could help isolated scientific workers with microfilmed or double-contact-printed excerpts from the literature (cf. the proposals of the American ASoW for U.N.E.S.C.O., Jan. 1946).

COLLECTION AND DISSEMINATION OF SCIENTIFIC DATA

Allied to such conceptions is that of Dr. Arnold Raestad's International Centre of Scientific Information (19A), and Prof.A. F. C. Pollard's International Information Council (19B). The former proposal at least relates to the important subject of popular education in science. Such a centre would be continually receiving and digesting reports of scientific progress throughout the world, and producing data suitable for elaboration by the journalist, the radio speaker, the film producer and the organiser of exhibitions. It would be a projection on a world scale of agencies such as the successful American Science News Service. Something of the kind might well grow up under U.N.E.S.C.O. Many beginnings are already being made. Thus the Association of Hospital Physicists has developed a system of exchange of diagrams and data between radiotherapy centres (20), and certain Anglo-American groups have prepared a catalog of X-ray diffraction data (21).

PHOTOLITHOGRAPHIC REPRODUCTION OF SCIENTIFIC JOURNALS

In this connection, remarkably few people realise the seriousness of the position regarding back numbers of the important scientific journals. These are absolutely necessary for scientific research today. Some papers, such as those of Willard Gibbs on thermodynamics, are as vital now as on the day they were printed. Other old papers hold keys needed today; thus McMunn's work on the pigment histohaematin (cytochrome) laid the foundation of our modern knowledge of the respiration of the living cell - but it was done as far back as 1885. Complete sets of such journals as the (British) Journal of the Chemical Society, or the (American) Journal of Experimental Zoology are very scarce; of the former perhaps not more than six sets exist in England today. Yet hundreds of sets are needed both to restore the devastated European and Chinese libraries and to equip the new libraries which will in due course arise. Hence U.N.E.S.C.O. should begin by arranging for the lithographic reproduction of all important back runs of periodicals, similar to that which the U.S.A. Custodian of Enemy Property has applied to the classical Beilstein dictionary of organic chemistry and to certain German journals (21a).

CENTRAL REPRINT STOCKPILE

Then the system of exchanging of reprints, universally used among scientists and most valuable in itself, is grossly incomplete and unsatisfactory. It needs to be supplemented by other means, especially microfilms, double-contact-prints, photostats, etc.; This borders on VII below, For example, when a scientist dies, the stocks of his reprints, usually unsaleable, are often thrown away by his family, though hundreds of other scientists, scattered over the world, are in need of them. Commercially, the supply cannot contact the demand, and in any case, the reprints are for free distribution. If there were, under U.N.E.S.C.O., some central stock-pile where reprints could accumulate, the work of scientists throughout the world would be much assisted. If the work of the International Scientific Unions is centralised at U.N.E.S.C.O. headquarters, they could each take charge of the appropriate division of the central reprint stockpile.

USE OF SPECIAL APPARATUS AND FACILITIES

In the field of research services, great help could be rendered by arranging for the wider use of special apparatus only available at certain places. It will be a long time before every centre has an electron-microscope, a cyclotron, equip-ment for cutting thin rock sections, or an ultracentrifuge. In all such work, U.N.E.S.C.O. would very often only need to put scientists in different countries in touch with each other; the later development of the work could be done by direct contact. U.N.E.S.CO. could thus act as a recommending agency, assuring, for example, the Geological Survey of a certain country A, that Dr. X of another country, B, who wants certain experiments or observations done for him, is a highly reputable man of good standing.

SUPPORT OF TYPE CULTURES

Another vital matter on which urgent help is required in the biological sciences is the international support of the various collections of Type Cultures. These have grown up nationally but perform an international service. The National Collection of (Bacterial) Type Cultures in London (M.R.C.) is famous, but the Chinese also maintain such a service in Nanking. Type Collections of fungi are maintained at Princes Risborough and at Baarn (Holland), of yeasts at Delft (Holland) and Nanking (China), of algae at London, Prag, Geneva and Basel. Important collection of genetical cultures, (e.g. Drosophila, cotton, maize, etc.,) are growing up, but often under precarious conditions dependent on the temporary position of a single research worker at a given institute. All are in urgent need of funds. It would not be in any way out of line of U.N.E.S.C.O.'s functions to take over their entire financial support, which would simply involve contribu-tions to the existing bodies which maintain them, and they might well become at the same time branches of an International Commission of Type Cultures.

III. Assist the restoration of scientific facilities in the liberated countries.

IV. Consider the provision for German and Japanese reparations in the form of scientific apparatus and research chemicals.

V. Plan the utilisation of such surplus war material and equipment as would be suitable for use in scientific research, and its transfer to the more scientifically backward countries.

These three aims are all short-term ones and need little further explanation. It may however be said that after World War I the laboratories of the University of Louvain were largely restocked with German-made apparatus by way of reparation, and the case for the Chinese Universities vis-a-vis the Japanese after World War II is at least as strong. But it would be a pity to hold up the re-equipment of devastated laboratories until the problem of reparations has been fully settled.

In the pursuance of these aims, it has been urged by the Czechoslovak delegation to U.N.E.S.C.O. (Prep.Com./32) that U.N.E.S.C.O. should prepare a systematic account of the fate of cultural and scientific material in all devastated countries, with a view to replacing it or assuring its return from the Axis countries.

URGENT SCIENTIFIC REHABILITATION

With regard to the urgent steps necessary for the provision of scientific equipment to the devastated countries, an agreement was made at an earlier stage between U.N.E.S.C.O. and U.N.R.R.A., and a joint technical sub-committee exists (Prep.Com./20 and 23).

Unfortunately, it seems that little progress has as yet been made even with the establishment of exactly what are the concrete needs of the various laboratories on the continent of Europe. Detailed lists have apparently not been forthcoming for examination by the joint subcommittee. However, a joint Anglo-American Mission (sent by the Board of Trade and the Department of Commerce respectively) consisting of two experts on scientific equipment from each country, has recently been touring eleven European countries, (France, Italy, Greece, Austria, Czechoslovakia, Belgium, Holland, Denmark, Norway, Sweden and Poland). The information which these experts have accumulated will be of the greatest value in planning the scale of operations of the scientific instrument industry in the U.K. and the U.S.A. There seems no reason why these concrete lists should not before long be available to U.N.E.S.C.O., through the Foreign Office and the Department of State. It will then be possible to consider action appropriate to the facts on the table.

It appears that in Europe U.N.R.R.A. has appropriated funds for the restoration of agricultural and veterinary laboratories, but not for the industrial ones, and not for Universities. It remains to be seen what the best methods will be for getting the apparatus to those who need it. In China, on the other hand, U.N.R.R.A. appropriated at the end of 1945 an allocation of U.S. $ 4,000,000 for the re-equipment of universities, including their laboratories. During the war itself, some rehabilitation has been going on, as the British Scientific Mission constituted itself an emergency supply channel and had a quantity of apparatus flown in to keep the wheels of Chinese science turning. (see above).

Estimates of the cost of re-equipping the devastated laboratories of Europe have already been made (21b). Assuming total destruction, the cost is thought to be in the neighbourhood of £100,000,000. This is probably an over-estimate, but if we include the damage known to have been done to the Universities and Research Institutes of Asia, it is probable that the need does not fall far short of this figure. The Institutes of Physics, Chemistry and Engineering of Academia Sinica alone, recently visited by one of the Secretariat in Shanghai, are estimated to need $ NC 600,000,000 for rehabilitation (£ now is $ NC 7500 approx.): and his impression was that this was an under-estimate. Yet it is reported that during 1946 the U.S.A. will have an exportable surplus of only £5,000,000 worth of equipment. Combined exportable surpluses of U.S.A. and U.K. in 1947 might reach the £10,000,000 mark. It may thus take 10 years to restore the broken laboratories of the world to their pre-war condition, even allowing for no progress or improvement.

Allocation of equipment also presents a problem. At present anyone who has money to pay can place orders for equipment in the U.K. and the U.S.A. Countries which have suffered least during the war and which therefore have reserve currency may therefore get most of the available apparatus. It may be felt that this is rather unfair. It has been suggested that U.N.E.S.C.O. should invite all countries needing equipment to participate in some sort of voluntary rationing scheme, whereby an equitable distribution of apparatus could be arranged in accordance with the needs and possibilities of each country.

VI. Assist the free flow of essential research apparatus, chemicals and equipment across national boundaries, as also the exchange of scientific specimens; collections of animals and plants, mineralogical samples, roots, seeds, and the like.

This is the long-term equivalent of the three aims immediately foregoing. It would involve seeing that the catalogs of firms of all nations producing scientific equipment were widely distributed throughout the world. Once normal trading conditions are restored, this should not present much difficulty, but a helping hand might be very useful from time to time, especially in the matter of customs duties and procedures. U.N.E.S.C.O. could press, for instance, for increased facilities for movements of apparatus, It would also do everything possible to encourage the production of scientific apparatus by local initiative from materials locally available. The Committee on Scientific Equipment of C.A.M.E. has already emphasised these points.

ASSISTANCE IN EXCHANGES

Assistance in the exchange of scientific specimens is so obvious an activity that it needs no further comment. But a certain amount of "facilitation" is needed in many places. At present it may be easier to send an expedition to a given country A to collect its fauna and flora, than to obtain duplicates from museums already in that country.

In this connection, a U.N.E.S.C.O. "courier service" might grow up. Transferences of living specimens across national boundaries involves the work of the various national plant and animal quarantine services, and would be facilitated by personnel carrying U.N.E.S.C.O. credentials and cooperating with these services.

STANDARDISATION OF SCIENTIFIC EQUIPMENT

Probably the greatest problem which comes under this head is the standardisation or normalisation of scientific apparatus. At a meeting at S.V.S. in Feb. 1946 (21b), it was stated that when the emergency translation of English scientific textbooks for the use of French students had been considered after the end of World War II, it was found to be virtually impossible because of the difference of approach and of traditional design of apparatus. A system of universal units and designs is urgently necessary.

No doubt the greatest stumbling-block here is the fact that in some countries scientific workers are accustomed to use the metric system throughout the whole of their scientific education, while in other countries the non-metric system still prevails. Physical equipment graduated in pound-inch units is therefore unsuitable for many purposes. The British and American screwthreads differ, as also do the British and American electrical frequency cycles for which equipment is designed. Some effort towards standardisation is long overdue. Another reason for excessive cost of production of scientific apparatus is the large number of redundant types. At the same meeting it was stated that while approximately 1000 Wheatstone bridges were sold annually in the U.K. before the war, these were manufactured by no less than 100 different firms. All such problems could be tackled by U.N.E.S.C.O. in conjunction with the United Nations Standards Coordinating Commission and its adhering bodies.

SCIENTIFIC APPARATUS INFORMATION BUREAU

In the meantime U.N.E.S.C.O. should set up an Information Bureau serving as a link between the users of scientific equipment and the manufacturers. Enquiries of the most diverse kind reached the Science Commission of C.A.M.E. from all parts of the world, ranging from simple enquiries from overseas buyers whose difficulties arose merely from unfamiliarity with current products, to highly specialised enquiries concerning the latest developments in instruments and techniques in all branches of science. U.N.E.S.C.O.'s Apparatus Information Bureau could offer impartial and unbiased advice on the many problems which arise in connection with scientific instruments and techniques. The Bureau should also prepare a world-index of instrument-manufacturers.

This work is, indeed, already quite advanced. The Secretariat of U.N.E.S.C.O. has inherited from the Science Commission of C.A.M.E. a group of investigators who have already made great advances in the kind of compilation required.

One of the achievements of this group has been to begin the conflation of scientific instrument catalogs, and the register so prepared already contains 20,000 items. From this it is possible to obtain figures showing exactly how much it costs to equip various kinds of laboratories with their basic requirements. Since such figures have never been produced before it may be of interest to give a few here (all in £ sterling)

| | Elementary School | Secondary School | University, Technical College, or Research Institute |
|---|---|---|---|
| Biology (Botany, Zoology and Entomology only) | 20 | 250 | 2,000 |
| Chemistry | 20 | 250 | 10,000 |
| Physics (including Radio Physics) | 20 | 900 | 12,000 |
| Geology (main branches only) | | | 4,000 |
| Engineering (-do-) | | | 20,000 |
| Agriculture (including farm implements) | | | 10,000 |
| Veterinary Science | | | 6,000 |
| Medicine (all principal branches) | | | 20,000 |

The grand total for a university comprising all these departments is of the order of £100,000.

VII. Assist the free flow of scientific books, periodicals, microfilms, cinema films, manuscripts for publication, translations, abstracts, radio-talks, etc., across national boundaries, and especially between world regions of widely different linguistic pattern, e.g. those of the ideographic and alphabetic languages.

A SCIENTIFIC POST-OFFICE

This again explains itself. The more fully mail communications return to normal, the less the "post-office" character of science cooperation offices will be, but it is clear that there will for a long time to come be much to be done under this general heading. U.N.E.S.C.O. could, for example, exert due influence against tendencies to publish scientific results in lesser-known languages such as Flemish, Finnish, or Gaelic without any summary in a widely-known language; it could arrange for translations on a considerable scale, and it could ensure the prompt acquaintance by isolated scientists of the most uptodate publications in their field.

Even for peace-time, however, the post-office aspect of such agencies is not to be despised. In all ages exceptional scholars have acted as clearing-houses for science and learning, and the worse the political chaos of the age, the more important this has been. In the middle ages the monastic houses and the Jewish and Arabic translators in Spain fulfilled such functions, or the Sung Confucians

in China, or, in the 17th century, the tireless Comenius (Bishop Komensky). Exiled from his native Czech land, Komensky kept together through years of wanderings not only his church, the Unitas Fratrum, but also the band of adherents of the "new, or experimental" philosophy, whose later great achievement was the foundation of the Royal Society, suggested by Komensky himself. And when the Royal Society was founded, what a post-office did Oldenburg, its first Foreign Secretary keep! He it was who opened the series of letters from the microscopist, Leeuwenhoek, in which for the first time the New World lying beyond the limits of ordinary vision was described. A scientific post-office, indeed, requires the qualities of a "department of insufficient addresses", for its aim should be to ensure that every communication reaches its proper destination, a destination that the author himself may only vaguely know.

In the formulation of this clause, reference was made to the great necessity of overcoming the barrier between the ideographic and alphabetic language areas. It need hardly be said that a similar effort to surmount that between the Russian Cyrillic script and the W. European Roman is at least as necessary.

## ABSTRACTING PROBLEMS

If conditions should be favourable U.N.E.S.C.O. could proceed to more thoroughgoing rationalisation of the present system of abstracting of scientific publications (see the Czechoslovak delegation's proposal, Prep.Com. 35). For example there seems no need for two separate sets of biological and physiological abstracts, one appearing in the U.K. and the other in the U.S.A. Great duplication of effort could be avoided if all the abstracting machinery were centralised in an international organisation, which might issue the abstracts in the three or four main world languages simultaneously. This matter is very urgent since some of the best abstract journals were German, and are now in circumstances which make their revival impossible for a long time to come.

## AN AUXILIARY INTERNATIONAL LANGUAGE FOR SCIENCE

At a still later date, some thought and experiment might be given, in conjunction with other international organisations, to the problem of a world language for scientific inter-communication. It might be feasible some day to publish one set of abstracts only in Basic or Interglossa for example. This is forcibly urged by Dr. Rjen Hung-Chang (Ko-Hsueh 1944, 27, 1). But this is no doubt some distance ahead.

## RATIONALISATION OF SCIENTIFIC PUBLICATIONS

Much more immediate is the question of rationalising the publication of scientific data. Wide dissatisfaction is felt with the present system, which is a natural growth from the publication methods of the eighteenth century. It has been expressed not only by individual scientists but in certain official papers (e.g. Czechoslovak Govt. 11.2.46). The Association of Special Libraries and Bureaux (ASLIB) and the Association of Scientific Workers (ASoW) have recently been actively thinking out this question in the U.K., and the Report of the Division of Libraries and Museums parallel to the present Report has a reference to their work. U.N.E.S.C.O. should take a helpful part in these deliberations, which aim to rationalise the present system without undue disturbance of the flow of scientific publication. One scheme proposes the establishment of a joint scientific publishing office in each country which would issue all scientific papers in the form of reprints, the selecting and editing being done as at present and the various existing journals retaining their identity. This proposal attempts to avoid the situation existing today, in which an individual scientist has to subscribe to many journals although those on the fringes of his interests will only contain few papers of interest to him. Under the "All-Reprint" system, these few would be sent to him automatically, and he could always glance at the others, if he wished, in the ordinary libraries. Since each country would continue to be responsible for the financing of these journals which already exist, U.N.E.S.C.O. would perhaps only be called upon to aid the financing of the capital cost of the change-over, (see also Prep.Com/29).

Finally, it is obvious that aid in the circulation of booksellers' catalogs, and book lists of all kinds, would be in the province of U.N.E.S.C.O.

WORLD COLLECTION OF SCIENTIFIC CINEMA FILMS

An analogous activity, and one of great importance, would be the preparation of a world catalog of scientific cinema films and later on their retitling in each of the main languages of the world. This has also been proposed by the Belgian delegation to U.N.E.S.C.O. (Prep.Com./28). Thus for example, the excellent Chinese documentary on the 2000-year old deep-drilled brine and natural gas wells of Szechuan would be prepared for showing to English, Russian or Spanish-speaking audiences; while the famous British film on Harvey's discovery of the circulation of the blood would be available in Chinese, Burmese, Hindustani, etc.

SCIENTIFIC MICROFILMS

With regard to the subject of microfilms we may claim to speak with some authority, one of the Secretariat having operated, as head of the British Scientific Mission in China, a supply service of microfilmed scientific journals, which were sent by the British Council to China and distributed there through a joint American-British-Chinese ad hoc organisation. While there should be, in normal times, a great scope for the use of microfilms of rare books not widely available, it was found in China that the strain of reading is such as to make this medium unsuitable for normal provision of journals and certainly for books or any kind of material used by students. The China microfilm program was a success as far as research workers were concerned, who only needed to read one or two papers in any given issue of a journal, and it formed a method of great importance where freight space was as limited as it was over the Hump, but in peace time it should never be regarded as a satisfactory substitute for the actual copies of the journals themselves. Microfilm has also, of course, many other uses, such as the duplication of unprinted memoranda, and their quick transmission in highly compact form.

The Belgian delegation to U.N.E.S.C.O. (Prep.Com./27) has submitted a plan for the formation of an International Microfilm Documentation Organisation under U.N.E.S.C.O. The reservations made in the preceding paragraph do not militate against this proposal in any way, which, on the contrary, has the support of the Secretariat, but it would, of course, have to be a joint under-taking among all the functional divisions of U.N.E.S.C.O.

VIII. Assist the free flow of scientists coming and going across national boundaries, whether for periods of study or research, or for congresses, conferences and the like.

SCIENTIFIC TRAVELLING

Here U.N.E.S.C.O. would have to work in close contact with the continuation committee of the great International Congresses, e.g. those of Physics, Zoology, and Geology, usually triennial and the smaller special conferences which have grown up in special subjects. e.g. the Annual Conference on Differentiation and Growth. The more complete the return to normal after World War II in matters of travel, passports and the like, the less need there will be for U.N.E.S.C.O. to exert any special influence in assisting the movements of scientists. But even if this return successfully takes place, there will be room for a long time to come for financial assistance to competent scientists to travel, especially the younger ones, those from the smaller countries, and delegates proceeding to and from I.C.S.U. and I.S.U. conferences. In the course of this work, U.N.E.S.C.O. would become a central clearing house of information about congresses and conferences in all countries. This does not at present exist.

Assistance in travel has been given outstanding emphasis by many scientists such as Sir David Rivett (Australia) and Dr. Coumoulos (Greece); by CAME itself (5.2.46); and by the American ASCW (22). The comment of a distinguished British scientist is of interest. He says "Even before the war travel was often unnecessarily difficult, especially if one was carrying specimens, lantern slides, manuscripts and the like. Ideally I should like to see something like a

diplomatic visa for scientists. I think they would do less smuggling than some minor diplomats! The possibilities of special consideration are shown by Sir Humphrey Davy's journey to France during the Napoleonic Wars. Napoleon saw that his journey would benefit French chemistry."

This idea of a "diplomatic visa" for scientists engaged on journeys in line of duty is by no means as far-fetched as it seems at first sight. Many well-informed voices (e.g. Prof. P. M. S. Blackett in a speech, May 1946) are warning us that a curtain of secrecy is tending to come down on all scientific effort, and this will effect the travelling of scientists. The advent of atomic energy seems likely to make censorship and customs officials more nervous than ever. It is a striking thought that for five years past or more, it has been impossible to send from one country to another by ordinary mail a paper on mathematical logic, since no one in censorship offices would understand a word of it, and hence could not dare to let it pass, in spite of the completely harmless character of the subject. The international traditions of science are in peril of suffocation over large fields such as nuclear physics and bacteriology. More and more it may be feared that scientific men will have to face interference and perhaps confiscation of papers or notes on crossing national frontiers. Is it not possible, therefore, that U.N.E.S.C.O. might issue a special visa, accepted by all countries, indicating that the bearer was a perfectly bona fide scientist travelling on scientific business.

SCIENTIFIC EXPEDITIONS

Allied to this is the helping hand which U.N.E.S.C.O. could give in the preparation of all kinds of scientific expeditions in zoology, astronomy, etc. It should also act as a central clearing-house of information to avoid overlapping. No one wants repetitions of the classical case when a British and an American expedition met quite accidentally to collect insects on a small Pacific island, collected independently and then went home and published the results independently. Conversely, as in eclipse expeditions, international coordination is essential, and the I.A.U. does just this.

Then again there are particularly interesting parts of the world which are unable themselves to finance the investigation of their natural products. Western Australia, for example, though a third of the whole continent in size, and with a unique flora and fauna, is a relatively poor State. Federal and State Governments can only finance research on problems of immediate practical import. U.N.E.S.C.O. could help either by financing the necessary investigations or by bringing the need to the notice of the existing world financing Foundations.

MULTISEARCH GROUPS

An interesting proposal has been made by Dr. F. W. Went, the distinguished plant physiologist. He points out (23) that in many fields of biology such as Genetics, Cytology, Physiology and Morphology, which should be independent of local conditions (as Zoology, Botany, Ecology, etc., can never be), great difficulties have arisen precisely on account of these. Local differences in available experimental facilities, animal or plant material used, climatic conditions, etc., have played a major part in establishing and maintaining fruitless controversies. In the biological sciences close to medicine, this fact has been the cause of much delay in medical progress. Dr. Went suggests, therefore, the organisation of temporary research groups in specific topics. Some of the more important investigators of a certain controversal subject would be brought together for a period of some months in one laboratory, during which time each would demonstrate the experiments on which he bases his own conclusions, and also work with the methods and materials of some of his opponents. As examples, 12 investigators hold 14 different theories of bud inhibition, each man concentrating on a different aspect and using a different experimental plant, and there are no less than 10 mutually contradictory theories of translocation of carbohydrates in plants. The expenses of such research gatherings and the arrangements for them could properly be undertaken by U.N.E.S.C.O. Dr. Went suggests that such groups, which should preferably consist of not less than 5 and not more than 20 investigators, might be called "Multi-search" groups.

FOYERS DES SAVANTS

Another excellent proposal is that a "foyer des savants" analogous to the very successful Society of Visiting Scientists in London should be set up, and partly financed by, U.N.E.S.C.O., in a number of important cities. It might be a good plan to arrange for one in association with each of the Regional Centres of U.N.E.S.C.O. throughout the world, but it would not be necessary that all the S.V.S. clubs should be in the same places as the Regional Centres.

IX. Assist in maintaining contact between government organisations concerned with science, pure and applied, when necessary, and advise governmental and diplomatic personnel on scientific matters, when desired.

IMPORTANCE OF MULTILATERAL CONTACT

Government organisations concerned with science in the U.K. and U.S.A., for example, can no doubt, communicate with each other quite satisfactorily without the good offices of any new international organisation. But is this equally the case between the Forestry Service of Bulgaria, let us say, and the Economic Entomology Bureau of Northern Brazil or Kuangtung? The diplomatic representation of the smaller Powers abroad can never be expected to be elaborate enough to handle all such technical enquiries. There is thus enormous scope for a multilateral organisation such as U.N.E.S.C.O. which would know no limitation of language or geography.

Again, if scientific attachés are appointed in the Embassies of the larger powers, competent advisers will be available to the diplomatic staffs. That this is most desirable would be readily admitted by all of them. But the smaller powers can hardly be expected to appoint such advisers, owing to lack of sufficient personnel. There is much therefore for U.N.E.S.C.O. to do in this direction, and its supranational character would render it all the better qualified to do it.

This raises the whole question of activities carried on by individual national governments in the field of international scientific relations. Mention has been made above of the International Scientific Unions and their Council, which have never been more than semi-governmental. The Science Cooperation Offices, on the other hand were, and are, fully governmental. But there are two other types of international scientific intercourse which have not yet been discussed. One is the further extension into the scientific field of the bilateral cultural goodwill organisations, such as the British Council, the Cultural Division of the State Department, etc. The other is the appointment of Scientific Attachés and Counsellors in the principal Embassies, a measure which the continuing interchange of confidential information on war science will almost certainly necessitate.

RELATIONS WITH BILATERAL CULTURAL GOODWILL ORGANISATIONS

The question of the relation between U.N.E.S.C.O. and bodies such as the British Council will have to receive further study before it is fully clarified. But this at least may be said. The frame of reference of the cultural goodwill organisations may be said to be primarily the projection of the culture of their own country, the explanation of their own way of life, to that country which receives their representatives and accepts books, periodicals, or other presentations. This kind of intercourse cannot, of course, go on entirely without reciprocity, and it was for this reason that the British Scientific Office in Chungking paid nearly as much attention to the westbound as to the eastbound traffic, but such activities involve a certain stretching of the frame of reference. U.N.E.S.C.O., therefore, could take a certain load off the cultural goodwill organisations by looking after many of the requests for information, and many of the scientific and technical interchanges, which originate in the various countries. On the other hand, it seems likely that problems connected with the exchange of professors, scholars, research fellows, and technical apprentices, will continue to be mainly the responsibility of bilateral cultural goodwill bodies, since the exact number in any category which a given country can receive, or wishes to send out, at any one time, is probably better arranged bilaterally. This is not to say, however, that U.N.E.S.C.O. with its regional offices could not offer

considerable help in such matters as and when occasion arose. Students and professors in countries which have not yet developed cultural goodwill organisations will certainly expect some action from U.N.E.S.C.O. on this subject (as witness the resolution passed by the World Student Congress at Prague, November 1945) Thus Denmark has already approached U.N.E.S.C.O. with offers of accommodation for training of a certain number of foreign post-graduate students (11/12/46 Prep.Com./7; Prep.Com/Tech. Sub, Com./10,17,24).

RELATIONS WITH SCIENTIFIC MEMBERS OF DIPLOMATIC SERVICES

There is little doubt that the incorporation of scientifically trained men into the foreign services of the various countries, whether on temporary or permanent assignment, is a tendency which will continue. Prof. A. V. Hill and Brigadier Lindemann were perhaps the first such appointments, in the British Embassy in Washington, then came the appointment of Professor Eric Ashby as Counsellor in the Australian Legation in Moscow, and of one of the Secretariat with the same rank in the British Embassy in Chungking. The smaller countries, owing to lack of scientific personnel, will probably not be able to set up many such posts for a long time to come. But there seems no reason why there should not be an overlap between such posts and the U.N.E.S.C.O. regional offices. There seems no reason why a scientist should not occupy concurrently, for instance, the position of Venezuelan scientific attaché at Washington and of an associate staff member of the U.N.E.S.C.O. Regional Office for North America. He could not, of course, be in the secretariat itself, but the Regional Offices of U.N.E.S.C.O. should surely aim at a nucleus of permanent or semi-permanent secretariat members surrounded by a group of scientific men on similar or parallel work who might give part rather than the whole of their time to general international exchanges.

RELATIONS WITH SCIENCE COOPERATION SERVICES OF NATIONS OR GROUPS OF NATIONS

References may be made here to certain bodies which may play a very important part in world science without being strictly speaking international. Thus it is likely that there will shortly be set up, after the Royal Society Empire Scientific Conference this summer, a science cooperation service within the British Commonwealth with a central office in London, and permanent offices in other capitals, e.g. Delhi, Canberra, Ottawa, etc.

Similarly, the Technical Advisory Service of the Smaller War Plants Corporation, which played a most useful part in the United States during the late war, is believed to be now incorporated in the U.S. Department of Commerce (24)
Again, in certain fields, such as that of Agriculture, there are important world-wide organisations not strictly international, such as the Imperial Bureaux of Agriculture. Liaison with all these organisations should present no difficulty. The headquarters and the regional offices of U.N.E.S.C.O. would be in contact with their respective headquarters, and the regional offices of U.N.E.S.C.O. would be in contact with whichever of their peripheral offices happened to be situated in the different regions.

X. Promote plans of international collaboration in research

This of course overlaps with former headings. It would require close contact with the International Scientific Unions, as recommended above. Encouragement would also be given to the activities of such essential organisations as the International Committee on Zoological Nomenclature.

THE WORLD NETWORK OF INVESTIGATORS

This subject has a bearing on the "laissez-faire" theory referred to at the beginning. Let us suppose that a Polish scientist discovers another of those organic substances, the capacity to taste which is either present or absent in different human beings, dependent on a gene inherited according to Mendelian ratio, which may be associated with other desirable or undesirable genes. He wishes to know the frequency of occurrence of this gene in various human populations, e.g. among the Chinese or the Peruvian Indians. According to the "laissez-faire"

theory, he is sure to have scientific friends from China to Peru with whom he can at once put himself in contact through the ordinary mails. But this is of course nonsense; he has probably never met either a Chinese or a Peruvian, or if he did do so at some International Congress, he has long ago lost his address. The Secretary of the International Congress of Genetics, with the best will in the world, has not the staff with which to help him. But U.N.E.S.C.O. could rapidly give him all the contacts he needs. There are, moreover, apart from these types of aid, a number of problems which cannot be investigated by one group of workers in one place, but only by the cooperation and simultaneous work of a net of workers spread over the surface of the globe. Dr. H. J. Bhabha (India) has instanced the question of the high altitude periodic and accidental fluctuation of cosmic ray intensity. A cognate investigation is that of the properties of the ionosphere. Dr. H. Boyko (Palestine) writes on the need for an international network of plant sociological (ecological) stations (25). It will be desirable to strengthen the International Scientific Unions so that such enterprises can be financed or assisted by U.N.E.S.C.O. through them.

## UNIVERSAL REGISTER OF SCIENTIFIC INSTITUTIONS AND PERSONNEL

Not long ago in Cambridge, the writer was deeply impressed by the attitude of one of his scientific colleagues, who had been working in a government team which was about to close down. On being asked whether he was sorry, he replied that he was, as he felt that samples of new compounds, information, etc. had reached him very much more efficiently than would have been the case in the haphazard methods of peace time. Yet this man was socially speaking conservative, and by no means predisposed in favour of organisation, for its own sake, on an a priori ideological basis. It is not too much to say, indeed, that hitherto science has proceeded on what might be called the "gossip" system. Scientists learn of new developments through the standard publications (which may or may not be easily available to them) or through the regular meetings of scientific societies (which they may or may not be able to afford to attend). Hence the remarkable time-lag which often occurs in scientific advances. The famous insecticide of World War II, DDT, was originally discovered in 1875. It is time that some steps were taken to render the dissemination of scientific information less haphazard that heretofore. Under this heading would also come the work of preparing and maintaining, preferably in loose-leaf form, an uptodate register of scientific institutions of all kinds, and their members and specialities, throughout the world, analogous to the publications "Minerva", and "Index Biologorum" now quite out of date.* The Unions might well be asked to carry out a part of this work.

## INTERNATIONAL PROFESSORSHIPS

Numerous proposals have been received recommending the formation of one or more International Universities (e.g. Dr. Maxwell Garnett, Oxford, Dec. 1945; Baron G. Fuchs, April 1946; Columbian Delegation to U.N.E.S.C.O., Prep.Com./22, B2, (1); Maj-Gen. Li Chen-Pin, Memo of Aug. 1945). Sometimes an International Academy of Sciences is suggested (e.g. Dr. Tu Chang-Wang, Acta Brevia Sinensia, 1944 No.6). It must be recognised that the formation of even one international university would be a very formidable task, and would require the sinking of large capital sums. Conditions might have been propitious for this if the United Nations had decided to internationalise any territory (such as Hong-Kong or Hawaii) in connection with international civil aviation. But since this decision has not been taken, the establishment of an International University would be, in the opinion of the Secretariat, too large and doubtful an undertaking at the present stage. A much better project on which U.N.E.S.C.O. funds might be spent (if sufficient were available) would be the foundation of Chairs in a number of existing Universities tenable annually or biennually be scholars of successively different nationalities, and variable in subject like those of the Collège de France. Two Universities at least have this sytem, notable the Universite d'Alger and Stanford University in California.

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* Recommended also by C.A.M.E. (5/2/46).

XI. Support the international activities of the various National Academies of Science.

This simply emphasies the desirability of working in close cooperation with illustrious and ancient bodies as the Royal Society, the French Academy of Sciences, the U.S.A. National Academy of Sciences, the Academy of Sciences of Moscow, etc. etc.

NATIONAL ACADEMIES

XII. Assist the work of the Economic and Social Council of U.N.O., (see Prep. Com./36, Art. 4), and of the Trusteeship Council of U.N.O. (see Prep. Com./36 Art. 6)

SCIENTIFIC KNOWLEDGE AND WORLD ECONOMIC DEVELOPMENT

This phase of the duty of the Division of Natural Sciences of U.N.E.S.C.O. cannot be better put than in the words of Dr. Guy Gresford, of the Australian Scientific Liaison Office in London (26). One of the Council's most potent weapons, he says, "in securing expanding economy and social progress will be scientific and technological knowledge. In planning for the future it will need to refer, therefore, to scientific experts, not only to ascertain the present state of knowledge as it affects any particular project, but to attempt to forecast the progress likely to be made in the future before the plans can be actually carried into effect. For example, the Council may be considering the development of tropical areas in Latin America, and may think of recommending that the rubber production in this area should be greatly expanded, thereby increasing the proportions of the world's natural rubber industry. Judged by present conditions this might be perfectly sound from the economic point of view, but the scientist must be consulted to find out what the position is likely to be with synthetic rubber in ten years' time, when the new natural rubber plantations would be coming into full production. It would be unwise to develop the rubber-growing industry if there were a very good chance of the synthetic rubber industry producing a better rubber at cheaper cost. To decide this requires a nice balance of scientific knowledge, and the consultation of many experts, for it must be remembered that besides the advances which the chemist and engineer are making in the field of synthetic rubber, the plant breeder and the agriculturist may all the time be improving and cheapening the natural product."

"As another example, the Council should hesitate to recommend the industrial development of a large area of, say, China, by the establishment of very large hydro-electric schemes, if during the time necessary to complete them, there were a good chance of the economic development of atomic energy in that area for industrial purposes. Here again it would be necessary to seek the scientists' advice."

Dr. Gresford goes on to say that U.N.O. could not hope to keep a sufficient number of sufficiently qualified scientific and technical men constantly on hand to answer every conceivable question that may arise. But ad hoc committees may be formed from time to time, with facilities for travel and investigation before completing their reports. So long as no special Scientific Commission at the same level as the Economic and Social Council exists, the Science Division of U.N.E.S.C.O. will be the proper, and indeed the only, channel through which such committees should be formed and report.

All this emphasises once more that U.N.E.S.C.O. must be prepared to deal with the applied, as well as with the pure, sciences. Mr. N. A. McKenna, in a letter of Nov. 1944, has stated succinctly the four basic needs of the non-industrialised countries such as India and China, which the Economic and Social Council will be taking into consideration.

These are:-

(1) Increased production of food per man power.

(2) Improvement of road and rail communications.

(3) Improvement of health, particularly the attack on parasitic diseases and epidemics.

(4) Industrial development in general, but mainly in relation to the previous three requirements.

Mr. McKenna points out that the programs of research undertaken by some of the industrially backward countries sometimes tend to be too long-term. Thus the Indian agricultural research program, though excellently planned, does not look like producing many concrete results under ten years. Yet an immediate application of existing knowledge is also needed.

Something, in fact, must be done to coordinate scientific knowledge and economic development. For example, much work was carried out during the war in the Middle East on Soil Stabilisation and road construction, which, by suitably planned research and trial could be extended on a vast scale both in India and Australia. Economic development in one country could often with advantage be planned right from the start in a way intergrated with economic development in another country; for example the use of timber and timber products as a basis for chemical industry in Canada, and molasses and bagasse as a basis for chemical industry in India, or bamboo waste and soya bean in China. The practicaleconomic implications of scientific and technical development must be kept well to the fore, without in any way interfering with pure research.

U.N.E.S.C.O. has a great advisory task before it in these fields.

XIII. Assist the work of other international organisations at the same level such as the United Nations Food and Agriculture Organisation, the United Nations Atomic Development Authority (when set up), the International Labour Office, the International Health Organisation, the United Nations Relief and Rehabilitation Administration, etc., etc., in scientific questions, (See Draft Agreement between U.N.O. and U.N.E.S.C.O. (Prep.Com./36, Art.1)).

There is not a great deal to be said under this head, since the cooperation envisaged would grow up quite naturally of itself. This would especially be the case if the proposal already mentioned were adopted, namely, of housing the regional offices of U.N.E.S.C.O. under the same roof with the regional offices of the other organisations. This peripheral unity would offset the disadvantages of the plan to which U.N.O. is now committed, of having U.N.O. itself near New York, the I.L.O. in Montreal, U.N.E.S.C.O. in Paris, etc. etc.

DELIMITATION OF ACTIVITIES OF U.N.O. AGENCIES

Arrangements for delimitation of zones and avoidance of overlap will have to be worked out with bodies such as U.N.F.A.O. and U.N.A.D.A. In the case of the United Nations Atomic Development Authority, in particular, it is stated in section 7(a) of the Truman-Attlee-King communiqué of Nov. 1945 (by which policy is presumably still being guided) that U.N.A.D.A. should make provision "for extending between all nations the exchange of basic scientific information for peaceful ends". This seems to be the same function as that of U.N.E.S.C.O., but the intention was no doubt to refer only to the exchange of information in nuclear physics.

Relations with I.L.O. and W.F.T.U. may also be important. Thus the Board of Directors of the American Association for an International Office of Education called in November 1945 for the "inclusion of basic human values in every plan for the developmnet of applied science".

Another valuable activity of U.N.E.S.C.O. would be the correlation of international knowledge about natural resources. Notifications of the impending exhaustion of deposits of important substances such as phosphate or Greenland cryolite could be circulated, followed by the arrangement of conferences among those concerned.

POSSIBLE U.N.O. AGENCIES NOT YET SET UP

This aspect of international work, however, has very far-reaching implications. It is much to be hoped that an International Resources Office I.R.O. will, as

proposed in recent British Association publications, be set up as one of the functional organisations in U.N.O. (27, 28, 29). This was first called for at the B.A. Conference on Science and World Order in September 1941. "The conservation of material resources" it was said "with their full and coordinated, but not wasteful, use, are recognised needs. One necessary requirement to achieve these ends is the existence of a body capable of taking a comprehensive view of resources and their utilisation, and of indicating to the appropriate authorities the action most likely to turn them to best account. Such a body must necessarily have from the outset an international character, for without this there can be no check on un-coordinated national developments which, in the past, have led to economic crises and wars. In this sense it would have a parallel function to the International Labour Office."

The functions of an I.R.O. were defined as follows:-

(a) the collection and statistical analysis of data on natural resources, (cf. the work of the World Power Conference hitherto.)

(b) the dissemination of information on natural resources and techniques.

(c) the coordination of existing relevant organisations on an international basis.

(d) the promotion of new mining, industrial, and scientific research.

(e) the general supervision and coordination of standards, specifications and industrial codes.

(f) the general promotion of mining and industrial progress by means of congresses, exhibitions, prizes, etc.

U.N.E.S.C.O. would necessarily maintain close contact with, and give every a assistance to, such an I.R.O.

Subsequently, the B.A. convened a Conference on Mineral Resources and the Atlantic Charter (28), the report of which contains a mass of information on the world position in exploitation of natural resources. This Conference officially recommended "the establishment of an International Resources Organisation as a fact-finding and advisory body for Governments, as a contribution to world stability, and in the spirit of the Atlantic Charter". (July, 1942). Later still, a special Mineral Resources Committee of the B.A. considered the methods by which an I.R.O. could obtain the necessary facts, and their report was published in August 1943 (29).

Allied to an I.R.O. and also needing U.N.E.S.C.O. cooperation would presumably be the International Development Authority (30) called for at the Bretton Woods Conference.

XIV. Federate into one organisation, if feasible, or at least maintain the closest touch with, the smaller international scientific bodies already existing, such as the Bureau International des Poids et Mésures, the Bureau de l'Heure, the United Nations Standards Coordinating Committee, the International Commission on Zoological Nomenclature, the International Anti-Locust Research Centre, the International Institute of Agriculture (Rome), the International Union of Forest Research Institutes, the International Committee for Bird-Preservation, the International Society for Soil Science, the International Fisheries Boards, an International Commission of Type Cultures (if formed) etc.

IMPORTANCE OF SMALLER INTERNATIONAL ORGANISATIONS ALREADY FUNCTIONING

Some of these would have to be integrated with other functional organisations of the United Nations, such as U.N.F.A.O., as well as U.N.E.S.C.O. As some may be unfamiliar, a word or two of explanation may be necessary. The Bureau International des Poids et Mésures deals with the construction of metric standards of high accuracy, and was established as far back as 1873. The United Nations Standards Coordinating Committee federates the organisations in each country

corresponding to the British Standards Institution, which set forth the engineering, chemical and electrical standards to which manufacturers' products must conform. The International Commission on Zoological Nomenclature performs very important work in standardising animal names. The Anti-Locust Research Centre investigates the origin of locust plagues and conducts campaigns against them; it includes delegated experts from the U.K., U.S.A., U.S.S.R., France, India, Iran and Egypt. International Fisheries Boards have been formed, between interested countries, such as the U.K., Denmark, Sweden and Norway, for the investigation of the North Sea.

In many, if not all, of these cases, scientific work of paramount importance has been struggling along for years on totally inadequate funds. Now is the time, under United Nations auspices, to place them without exception on a sound financial basis.

It may well be that a greater effort than heretofore is desirable for the standardisation of all kinds of scientific terms in all countries (e.g. proposal by the Chinese delegation to U.N.E.S.C.O. 13/11/45 and 6/2/46). If this is so, the participation of the Unions should be secured for the formation of a special International Bureau dedicated to this work, in which I.C.Z.N. could be absorbed.

In any case, it should be recognised that U.N.E.S.C.O. could not only furnish aid to already existing international scientific institutions, but could stimulate the formation of such scientific institutions whose existence is seen to be necessary but which have so far not come into being. An obvious example is an International Commission on Botanical Nomenclature. It would be hard to find any botanist throughout the world who would not warmly endorse the creation of such a body, but it has just happened that hitherto no funds have been available and no self-sacrificing scientist has come forward prepared to undertake the thankless task of beginning such a work with inadequate backing.

Another valuable enterprise would be the collection and publication in readily available form of a set of Emergency Food Manuals for all world regions.

XV. Cooperate with the Division of Press and Publicity of U.N.E.S.C.O. in informing the public in all countries concerning the bearing of scientific discoveries on international relations.

PUBLIC INFORMATION

This task explains itself. U.N.E.S.C.O. should obviously do all it can to provide the peoples of the world with factual information about matters of wide import such as atomic energy, new advances in air transportation and telecommunications, biological engineering, etc. always with relevance to their social implications; and should encourage other agencies to do so.

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UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANISATION

PREPARATORY COMMISSION

Natural Sciences Committee.

SUGGESTIONS FOR THE SCIENTIFIC PROGRAMME OF UNESCO.

Creation of an "International Institute of the Hylean Amazon",
submitted by Professor Paulo de Berredo Carneiro.

The vast area of equatorial America, which Humboldt and Bonpland called Hylea, covers about four and a quarter million square miles. It includes the great plain which stretches from the Andes to the Atlantic, part of the Upper Orinoco, the three Guianas (French, British and Dutch), Lower Tocantins, the sea coast of the province of Para, and part of the north-west of the province of Maranhao, the whole making up nearly one third of the total area of South America.

Hylea contains the largest drainage basin in the world and also the richest reserves of forest land. Its scientific and economic importance is obvious and there is no need to emphasise the urgency of botanical, zoological, chemical, geological, meteorological, anthropological and medical research with a view to the exploitation of this enormous natural reservoir.

Mention should also be made of the survival in Hylea of many native tribes, totalling some 200,000 people, the study of whom, from the ethnological, ethnographical and anthropological viewpoints, must be completed quickly before their main biological and cultural features are effaced by contact with civilisation.

The many complex questions raised by this remote world of plant, animal and human life, still little known (in spite of countless scientific expeditions made by such naturalists of standing as Humboldt, Martins, Spix, Swainson, Gardner, Wallace, Bates, Spruce, etc.) call for the cooperation of a large number of scientists specialising in these various fields, as well as for the mobilisation of large material resources.

No country could undertake such a task alone. It is essentially an international job, particularly affecting Brazil, Bolivia, Peru, Colombia, Ecuador, Venezuela, France, Great Britain and the Netherlands, but extending far beyond that list of countries and of concern to the whole world.

The first objective should be the creation, in Hylea itself, of an international museum to house collections of plants, animals, minerals and rocks, as well as ethnographical documentation collected from the Amazon basin. In the past there has been an unfortunate waste of effort in this field. Much valuable scientific material collected by several foreign and national commissions has either been dispersed or lost. No inventory has yet been made of Hylea's natural wealth, most of which for this reason remains unknown.

The nucleus of this international museum might be found at once in the botanical and zoological collections of the Goeldi Museum, founded in 1900 at Belem do Pará, and now in danger of closing down for lack of money. Its library of some 20,000 volumes and its zoological and botanical gardens would provide an important starting point for the new scientific organisation.

The next task would be to establish a number of research laboratories, both in pure systematics and in plant and animal chemistry, geophysics, physiology, microbiology etc. The International Institute of the Hylean Amazon could immediately tackle the various food problems in these tropical and sub-tropical regions. A Food Office, with as many centres of study and research as possible, would then enable a scientific treatment of this vital problem, of concern to millions of people inhabiting damp and hot climates and living under conditions of chronic scarcity.

The course to adopt in the progressive establishment of such an Institute would depend of course upon a careful examination of the available funds and scientific staff. No doubt the nine countries most directly associated with Hylea would be glad to see UNESCO take the initiative and create a big research centre in the area. They would certainly not fail to contribute their share towards the expenses of its foundation. But UNESCO would have to accept administrative responsibility, to coordinate the necessary efforts, to appeal for further funds from Europe and the United States, and to recruit a body of scientists capable of carrying out this whole investigation of one of the richest and least known quarters of the globe.

UNESCO/Prep.Com./Nat.Sci.Com./5

UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANISATION

PREPARATORY COMMISSION

NATURAL SCIENCES COMMITTEE

TRANSLATION

Suggestions for the Scientific Programme of UNESCO, presented by the French delegation at the Conference of the Natural Science Committee on June 1st, 1946.

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INTRODUCTION:

The whole working programme of the Sciences Section of UNESCO could be divided into three branches: office and research work material activities, constructional work.

The first branch would comprise:

(a) contact between men of science, institutes and laboratories, scientific groups;

(b) census of means and coordination of research;

(c) advice to governments and organs of UNO.

The second branch would comprise:

(a) establishment and circulation of a full documentation through publications, extracts, microfilms, etc.

(b) exchanges of scientific personnel, material and documents between nations and their institutions.

(c) material, staff and financial assistance to nations and institutions in need thereof.

The third branch would comprise:

(a) the taking over, administration and development of existing international working bodies, and the creation of new ones;

(b) the organisation and development of research bodies in branches of science requiring study on a world scale.

There would seem to be need at once for a programme of positive schemes in the third branch, in order to attract and retain for UNESCO the collaboration of active and able representatives of science. The branches which include office and research work, liaison and cooperation, international exchange, are, as everybody knows, essential, but they would not of themselves be enough to confer upon UNESCO the prestige and authority which it must gain and preserve.

I (c) LIAISON:

The Sciences Section of UNESCO must be an international home for scientists, where they can establish contact with their colleagues from all parts of the world. This sort of work includes the organisation of conferences and working committees, help to existing scientific associations and the encouragement of new ones. Part of this liaison would operate through regional offices, a necessary creation.

(b) COORDINATION:

A census should be made of the world's resources in scientific and technical personnel, in buildings, material, and organs of scientific research. After that, a list would be made of research work in course of execution or planned, based on information volunteered by laboratories and researchers. Lastly, a plan could be drawn up for the international coordination of research and would furnish a basis for advice and for help programmes.

(c) ADVICE:

The Science Section of UNESCO should be prepared to supply governments, UNO organs the Economic and Social Council, the International Labour Office the Atomic Energy Commission, etc., with all kinds of scientific information, help and advice.

II

(a) DOCUMENTATION:

The establishment and circulation of documents would include: (1) descriptive bulletins announcing the publication of articles and books; (2) extracts and translations thereof; (3) the editing of news and treatises on new and important subjects; (4) the production and circulation of microfilms and photographic copies; (5) the keeping of a full critical documentation on scientific apparatus made in laboratories or by industry.

(b) EXCHANGES:

UNESCO and its organs will assist the crossing of national frontiers by scientists, students and research workers. In the same way, loans and gifts of books and instruments, and purchases of material will be facilitated in such manner that customs barriers may no longer be the serious obstacle they are today. Financial help in the matter of foreign exchange would be a very important point.

(c) ASSISTANCE:

UNESCO's Science Section should extend help to states and scientific bodies who are in need of it, either owing to the effects of the war, or because of a local lack of resources, due, perhaps, to a backward degree of industrialisation or higher education.

III

(a) INTERNATIONAL ORGANISATIONS:

Organisations like the International Bureau of Weights and Measures, the International Institute of Seismology, should be taken over by the Science Section of UNESCO and developed as their importance deserves. In this way a world organisation for standards of measures and control of precision instruments could be set up, as well as international offices for sciences of the globe, such as meteorology, oceanography, geology, geophysics, etc. These organisations would not be offices only, but would have research stations all over the world.

(b) WORLD INSTITUTES:

In a few branches of science UNESCO should consider establishing institutions of a world character. We suggest three, not including those attached to the organisations described above for the sciences of the globe and standards of measurement.

1. An Institute of Applied Mathematics and Calculations:

This institute, equipped with a staff of mathematicians and calculators and provided with the latest machines, could draw up a programme of practical calculations, tables of functions integrations, etc. which will enable many poorly equipped countries to expand their theoretical and practical sciences.

2. An Institute of Nutrition:

This would study in different parts of the world, the adaptation of means of production to an effective and healthy feeding of human and domestic animals.

3. Institutes for the Study of Infectious Diseases:

On the model of the Pasteur Instituted, which might perhaps be absorbed in them.

UNITED NATIONS EDUCATIONAL
SCIENTIFIC AND CULTURAL ORGANISATION

PREPARATORY COMMISSION

Natural Science Committee

# SUGGESTIONS FOR THE SCIENTIFIC PROGRAMME OF UNESCO PRESENTED BY THE MEXICAN DELEGATION AT THE CONFERENCE OF THE NATURAL SCIENCE COMMITTEE ON JUNE 1st, 1946.

## I. FREEDOM OF SCIENTIFIC RESEARCH AND PUBLICATION

FOR THE REASONS:

that freedom of scientific research and publication is one of the highest ideals to which world civilisation can aspire;

that all countries make use of knowledge which they have inherited from other peoples and other civilisations;

that in these circumstances they are morally obliged to share with other nations the product of their own scientific knowledge;

that from the point of view of mankind it is more or less an accident that a scientific discovery is made at any given moment in any given country and that consequently the contributions of science are not to be regarded as the permanent or even temporary property of their country of origin but as the patrimony of all mankind;

that, unfortunately, freedom of research and especially freedom in the publication of scientific work has been in the past and is still often restricted for military, political or commercial reasons, and that these restrictions are opposed to the ideal of absolute intellectual liberty, which is more important than military, political or commercial interests,

IT IS SUGGESTED:

That absolute freedom of scientific research and publication be established as a principle for all the United Nations. No country shall restrict this liberty; all on the contrary must support it.

## II. A SINGLE INTERNATIONAL LANGUAGE

FOR THE REASONS:

that the diversity of tongues is one of the chief obstacles to international exchange in the fields of education, science and culture;

that all countries naturally love what is their own, cling to it and are proud of it and therefore wish to keep their language pure and unadulterated;

that scientific research is a human activity of international, and not merely local or national importance, and that consequently language must not be an obstacle to the circulation or exchange of scientific work;

that, science being essentially international, it is desirable that all scientific work be published in a single language, a solution which will certainly not be reached for a long time to come,

IT IS SUGGESTED:

1. That a single international scientific language be chosen from among the following: German, English, Spanish, French, Latin, Russian, Chinese. This language would be the official language for international scientific conferences, congresses and other meetings.

2. That, for as long as scientific works continue to be published in its language of origin, works written in a language other than that chosen as the international language shall be accompanied by a sufficiently full summary in the latter language.

## III. STANDARDISATION OF UNITS OF MEASURE

FOR THE REASONS:

that there is today wide diversity among the measuring systems used in the various branches of physics, chemistry and biology, and that this is often a source of confusion;

that it would be well to reach international agreement on the standardisation of the units in use in science,

IT IS SUGGESTED:

That the necessary steps be taken to bring about the adoption of uniform and adequate decimal units of measurement to be used by all the United Nations.

## IV. FREE IMPORTATION OF SCIENTIFIC BOOKS, MATERIAL AND INSTRUMENTS

FOR THE REASONS:

that the protection and circulation of scientific books and periodicals is the best way of encouraging the exchange of ideas between scientists;

that respect for free thought must be reflected in respect for books and periodicals, for which there should be neither frontiers nor customs barriers;

that the instruments, apparatus, reagents and substances used in scientific teaching and research likewise deserve to enjoy this privilege if they are used, not for material profit, but only on behalf of the advancement or spread of science;

that the working materials of universities, schools, hospitals, institutes and laboratories engaged in cultural and scientific work should also be exempt from all import or export duties,

IT IS SUGGESTED:

That UNESCO recommend to the Governments of the United Nations to take the necessary steps to the end:

1. that books and periodicals of scientific, literary or artistic content be exempt from all import or export duties;

2. that the same privilege apply to apparatus, instruments, tools, reagents and substances used for scientific research or teaching in cultural

institutions, hospitals and laboratories which do not seek material gain but only the encouragement and spread of scientific knowledge.

## V. INTELLECTUAL RESEARCH AND COOPERATION.

FOR THE REASON:

that experience shows the great advantages of certain scientific research work being carried out by groups of scientists working in different countries under a common direction and with a common plan,

IT IS SUGGESTED:

1. That UNESCO encourage the organisation of researcher groups, working in different countries and in a position to pursue studies of certain problems of world importance.

2. That selection be made from among existing institutes and laboratories of those which are situated in zones most suitable for such research.

3. That, in case these institutes lack the necessary material elements, UNESCO should assist with the means required to undertake particular researches.

4. That the following should be among the selected subjects of study: epidemic and endemic diseases of a world character; problems of nuclear physics, cosmic physics, synthetic chemistry, especially questions concerning therapeutic substances; geological problems, and any which UNESCO considers of general importance.

## VI. OFFICE OF INFORMATION AND STANDARDISATION IN SCIENTIFIC TERMINOLOGY

FOR THE REASONS:

that the definition and standardisation of technical terms are essential to good scientific work;

that utter anarchy reigns in this matter, not only in countries which speak different languages, but also in those with only one tongue;

that, despite the existence of organised centres responsible for standardising as far as possible the vocabulary and phraseology of certain subjects, the work done by these centres does not always circulate beyond the very limited radius of a number of specialists in direct correspondence with them, and that their activity very seldom extends to other subjects not included in their particular field;

that these circumstances create confusion and difficulties and hinder contact between these subjects and others of a like kind,

IT IS SUGGESTED:

That an Office of Information and Standardisation in Scientific Terminology be established, with the duty of:

1. collating, coordinating and circulating work done in existing centres;

2. undertaking on its own account the standardisation of scientific terminology;

3. centralising documentation on such work, in order that it may at all times be at the disposal of the world's researchers and scientific centres, and securing for it the necessary circulation;

4. weighing the expediency of using preferably Greek and Latin roots in scientific terminology for the formation of new words.

## VII. EXCHANGE IN SCIENTIFIC RESEARCH

FOR THE REASONS:

that the unequal distribution of the resources needed for the advancement of science, both in personnel and in material, has been one of the principal obstacles to this advancement;

that free access to sources of research would be a very important factor in scientific progress;

that, to gain this access, one of the surest and most economical means would be to encourage the exchange of personnel and documents;

that scientific exchange is by nature international work and that it would therefore particularly gain by being organised on a basis of plans and systems duly devised by interested countries.

IT IS SUGGESTED:

1. That travelling scholarships be created, encouraged, and distributed to the best advantage: (a) to researchers who need to visit particular places in order to carry out work already undertaken or planned: (b) to qualified reasearch workers, so that they can visit centres of study and thus be able to help improve the training of native researchers; (c) to research workers of the country, in order that they may visit other centres of work and collaborate in the preparation or accomplishment of work in hand; (d) to scientists, so that they may visit other centres of study for the purpose of expounding the results of their own work.

2. The creation and encouragement of, and assistance to, information centres which would keep records of scientific publications, and prepare, maintain, classify and reproduce works of bibliographical reference, articles, both summarized and in extenso, books, graphic material, specimens, etc., and which would place these materials readily at the disposal of any scientific centres and research workers, authors or teachers who might need them. The centres referred to would also encourage the publication of periodicals of documentation in the different branches of science.

3. The facilitation of scientific missions by all possible means, such as the establishment of a special 'scientists' passport. This document would be issued at the request and on the responsibility of scientific institutions, and would entitle its holder to enjoy customs'exemption, freedom of movement, reductions in fares and travelling priorities, etc.

## VIII. ASSISTANCE TO SCIENTIFIC RESEARCH

FOR THE REASONS:

that it is necessary to encourage the creation of anything that may improve the conditions of human life, in order that the workd may live in peace under the protection of a régime which guarantees social justice;

that the advancement of science especially through systematic research, has been a very important factor in the well-being of humanity;

that for various reasons of a common economic origin, scientific research has until now been the almost exclusive privilege of a limited group of countries, and that, for this reason, large parts of the world have been deprived of the possibility of contributing to the progress of science;

that the absence of effective systems of international cooperation has often been an obstacle to the fruitful pursuit of scientific studies;

that the spirit which animated the United Nations in the days when they fought a common enemy, gave sufficient proof of its efficacy, as well as of the determination of the United Nations to maintain and encourage that spirit for the organisation of peace and well-being in the world;

that it is important to facilitate the creation of systems and organisations which would help scientific research workers, without distinction of race, sex, nationality or creed, to derive the maximum benefit from their studies·

that the United Nations Educational, Scientific and Cultural Organisation should take the necessary measures to facilitate the creation and encourage the work of international bodies responsible for helping all who have duly proved their personal aptitude for scientific research,

IT IS SUGGESTED:

1 That UNESCO be invited to take the necessary steps to supply, by way of gift or loan, or in any other form the instruments, apparatus, substances and specimens needed for the accomplishment of scientific work;

2. That grants-in-aid be accorded to research workers who are in difficult financial circumstances;

3. That all possible facilities be provided to secure the practical application of deserving scientific works, and in order that their authors may receive fair recompense

4. That money prizes be established to stimulate research workers and help them in the undertaking and accomplishment of further work.

UNESCO/Prep.Com/Nat.Sci.Com./7

20th June, 1946

UNITED NATIONS EDUCATIONAL
SCIENTIFIC AND CULTURAL ORGANISATION

PREPARATORY COMMISSION

Committee on Natural Sciences-31st May, 1st June, 1946

INTRODUCTORY REMARKS BY THE SENIOR COUNSELLOR

Mr. Chairman, Delegates, Technical Experts, and Members of the Secretariat, it is a great pleasure for me to have this opportunity of saying a word or two about the papers which you have before you. I think it may help the discussion if I introduce them in a few words, because that will explain how they are constructed. The first one, which bears the title UNESCO/Prep.Com./Nat.Sci.Com/2 deals somewhat with historical matters, that is to say, the methods by which international scientific cooperation has gone on in the past, before the last war, and also discusses some general principles which it seems ought to govern our thinking about the relations between the peoples of the world in the matter of the natural sciences today and in the future. This document ends with a list of Fifteen Aims, on pp.6 and 7, and these Fifteen Aims are again repeated at the beginning of the Annexe (UNESCO/Prep.Com./Nat.Sci. Com./2a). Having dealt with historical matters and general principles in the first paper, the second paper deals with the actual concrete details.

We have tried to make these details really as concrete as possible. The precise proposals put forward are, I should say, not only those which have been thought up in the minds of the Secretariat during the past few weeks, but also we have incorporated all the proposals which have been suggested to UNESCO by Governments; for example, those of the Czechoslovak and Belgian Governments. Other proposals have been made by many individuals and organisations which have at one time or another written in. Many of them overlap; many suggestions are made by more than one Government or individual. They are all in the detailed Annexe.

Now, going back to the first paper again, you will see that once that there are two main parts of it. They deal with the two main ways in which science has been internationally organised in the past. The first, of course, is the International Scientific Unions, and, associated with them, the International Congresses which have brought scientific men together for many years past and have contributed to the contact between the peoples of the different countries. I will come back to the International Unions and say a word about them in a moment, here I only wish to point out that they do represent the most effective machinery which has been spontaneously developed in time of peace by scientific men throughout the world for their contact. Similarly, the International Council of Scientific Unions, in which they are federated, represents the body with the highest authority in the field of the natural sciences. On the other hand, during the war - and largely, though not entirely, for war purposes - various Governments established in each others' capitals Science Cooperation Offices in order to deal with the daily flow of information from one country to another. This is also mentioned, with concrete detail, in the first paper.

I believe that everyone who has studied the question agrees today that the necessary thing to do for international scientific cooperation is to weld together into one functioning machine the conception of the Offices and the conception of the Unions. The Unions are not limited by country. All countries adhere, or are able to adhere. But they are

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limited as to subject-matter; they only deal with say, geology, or astronomy, as the case may be. On the other hand the Offices are not limited by subject-matter, but only by the part of the world in which they happen to be. Geographically specific, they have carte blanche to do anything which scientific co-operation may require. We might adopt the name "Science Cooperation Stations" for them. Both these methods of action are really necessary. Moreover, the International Scientific Unions tended to grow up in what we have called the "bright zone", covering the shores, shall we say, of the Atlantic. Owing to what many of us regard as a series of historical accidents, the natural sciences and the technologies did in fact grow up on the shores of the Atlantic and not in other parts of the world such as Asia or Africa. The situation therefore now is that science is well represented and considerably developed in the "bright zone" but not outside its edges and along the periphery. As we have said in the documents, the whole picture of international collaboration in science looks very different according as to whether you see it from one of the great cities in the Atlantic area, or whether you see it from some city in China or India, Africa or Pacific America and Australia. There you have scientific men who are struggling to do the best they can under extreme difficulties of isolation. We cannot make any distinction between helping them and helping the peoples as a whole, since it is only by helping them that the natural sciences can play their essential part in raising the standard of life of the human population of the world. It seems to me that one of the most outstanding tasks of UNESCO must be to bring them help in their isolation, and to spread the network of science much more evenly over the world than it has yet been spread. So much for the "Periphery Principle".

I think we need not say much about the reluctance to organise, the idea that "laissez faire" is enough, because it really seems to be given up everywhere today. One hardly meets anyone who is not willing to admit that better organisation of international scientific contact is necessary. But I would like to refer to p.6 of the memorandum, which deals with the range over which UNESCO ought to work, and that is what we call the "Principle of Facilitation". We have gone so far there as to say that before engaging in any new international activity, investigation should be made to see whether there is not already an organisation at work trying to do what is necessary. My impression is, from the studies I have been able to make during recent months, that in seven cases out of ten it will be found that there is an international organisation trying to do what is necessary, and acceptable to the relevant specialists throughout the world, but that it is unable to get on with the job owing to lack of funds. Therefore one of UNESCO's most important tasks is to facilitate the carrying on of this work by these international organisations, sometimes quite small, but very worthy, which already exist.

Lastly, I would like to produce a distillate of the Fifteen Aims which you have in these two papers, and I have therefore written upon the blackboard Seven Essential Actions which should be undertaken and implemented as soon as possible by UNESCO. These are:-

(1) THROW A NETWORK OF REGIONAL SCIENCE COOPERATION STATIONS ROUND THE WORLD.

(2) SUPPORT AND EXTEND THE UNIONS AND THEIR WORK.

(3) CARRY OUT CERTAIN SPECIAL TASKS, NOT AT PRESENT BEING DONE.

(4) SPEED UP THE WORK OF SCIENTIFIC REHABILITATION.

(5) ASSIST THE WORK OF UNO AND ITS OTHER SPECIALISED AGENCIES.

(6) INFORM THE PEOPLE OF ALL COUNTRIES ON INTERNATIONAL IMPLICATIONS OF SCIENTIFIC DISCOVERIES.

(7) ORIGINATE NEW FORMS OF INTERNATIONAL SCIENTIFIC COOPERATION (International Observatories and Laboratories)

As to the first of these, I have used the word "Stations" because I think it almost expresses better what one has in mind than "Offices". They

should be points to which any scientific worker in the region in question can send in his requests for information, or contribute his results and answers in his turn, so that overcoming all difficulties of national boundaries and frontiers, these requests or contributions can be rapidly sent to any other region of the world through the worldwide service. This is the idea of the International Science Cooperation Service. I do not think I need explain it further; it is discussed fully in the text.

The second essential action, we would say, is to support and extend the work of the International Scientific Unions. This is referred to on p.3, but I would like to give you one or two details which are not on the paper, and which I had the opportunity of discussing two days ago with Prof. H.R. Kruyt (Holland), President of the International Council of Scientific Unions, and Prof. F.J.M. Stratton (UK), its Secretary-General.

The ICSU is extremely anxious to cooperate in the closest way with UNESCO, and the general line of agreement we came to was that UNESCO should facilitate their work, if possible, by financial grants, and perhaps even more important, by taking over the collection of dues and payments from the various parts of the world, the various countries which adhere to each Union. It is hardly believable that an organisation such as the International Astronomical Union (a science which has been of such fundamental importance for navigation and all transportation throughout the world's history) is today frequently unable to collect its agreed dues, sometimes quite small sums, from adhering countries, owing to exchange regulations. That is frankly a ridiculous situation, that a body of that kind should be hampered in its work by regulations framed for commercial purposes with no thought of scientific inter-relations in mind. UNESCO should surely act as a clearing-house for collection and payment of sums to and from the International Scientific Unions - as well as aiding their work by specific grants for various projects. Where financial grants are involved, a representative of UNESCO should sit on all the relevant Commissions of the Unions, but this could easily be arranged. Then also, of no less importance, is the provision of adequate office accommodation and secretariat for the Unions. They have up to now been trying to make bricks without straw; they have been trying to carry out their work with no proper secretariat, and that is a thing which UNESCO could provide. The Unions would like to have their Central Office housed in the same headquarters building as UNESCO. Secretarial facilities should also be given to all those officers of the Unions who do not happen to live in Paris. The Unions also desire - and this is only one aspect of something which is very generally desired - a facilitation of personal movement of scientific delegates attending conferences and the like. Assistance in travelling expenses for scientists attending conferences, symposia, and the like, is widely considered one of the most important aids which UNESCO can give. Up till now science has been very much hampered because nothing but private pockets have been available to meet heavy travelling expenses, and hence only elderly men have been able to afford to attend conferences. The vigour which younger men, in the thirties, could provide, has been up to now, almost totally lacking from international scientific effort. That can only be provided if the travel of the younger man is financially assisted. However, the talks we have had with the ICSU representatives have only been tentative so far. But this shows you the way they are thinking.

The third of the Essential Actions is to carry out certain special tasks, not at present being done. I would refer here to the rationalisation of publication of scientific journals, the collection and dissemination of special kinds of scientific data, the creation of a central reprint stockpile, the provision of immediate copies of scientific papers on microfilm, and aid to special sorts of work such as the Type Culture Collections. These matters will be found on p.5 of the Annexe.

I would like to say a word here perhaps about Type Cultures, as it illustrates the help which UNESCO can give to the scientific world. I emphasise once again that there can be no distinction between help given to the scientific world and help given to the peoples, because only by helping the scientists is it possible to bring to the peoples the benefits which science can give. Take the question of Type Cultures. In many countries there are organisations which maintain what might be called "living museums", i.e. cultures of all kinds of

organisms such as bacteria, moulds, algae, protozoa, etc. We all know that bacteria cause epidemics - if a new trouble occurs, it is necessary to study the newly found bacillus by comparing it with well-known organisms, samples of which will at once be provided by the Type Culture Organisations. These are sometimes looked after nationally. There is, for example, in this country, the famous National Collection of Bacterial Type Cultures, under the Medical Research Council, but the Chinese in Nanking also maintain Type Cultures of micro-organisms, many of which are of great industrial interest since the fermentation industries of Asia are very different from those of Europe. There is a collection of algae in Cambridge, and we have recently heard that the famous collection of fungi at Baarn in Holland is in difficult straits financially. It really seems quite wrong that this should be the case. Here you have something which is obviously connected with the welfare of humanity as well as of science, and which is yet struggling along on quite insufficient funds. One would therefore suggest that the proper procedure is to supply these organisations with additional funds, which would often enough be quite small; and they should at the same time be associated into a loose federation which could be called the International Commission of Type Cultures and ought to be either under the IUBS (International Union of Biological Sciences) or under a new International Union of Microbiology. All under the auspices of UNESCO. I think that this is an interesting and concrete case.

Elsewhere in the paper other instances are given, for example, standardisation of scientific equipment, which may be very advantageous, this is mentioned on p.7. This connects with the idea of a Scientific Apparatus Information Bureau, on p.8: and on p.10 we have questions which overlap into the province of the Mass Media Division, e.g. scientific cinema films. The educational value of scientific cinema films is, of course, very great, but at the present time they are straitly confined within language boundaries. For example, the Chinese have made an excellent documentary film dealing with the deep-drilled brine and natural gas wells of Szechuan (which go back to the Han dynasty), but what possibility is there of showing this film in Czechoslovakia or Peru ? Literally none, since sub-titles and soundtrack are in Chinese. Similarly, the Czechs have made excellent documentaries (in Czech language), and so far as I am aware, the famous English film on William Harvey's seventeenth-century discovery of the circulation of the blood has never been prepared for showing to Hindustani-speaking or Arabic-speaking audiences. We need, therefore, a World Centre of Scientific and Technical Cinema Films, not to be merely a kind of museum, but to arrange for new sub-titles and soundtracks in all the principal languages of the world.

Then on pp.11 and 12 the suggestion is made that UNESCO may be able to do something towards facilitating the travel of scientists, not only by financial help, but by issuing some sort of "carte d'identité" recognised by all nations. Actually the phrase "diplomatic visa" was used, but it was really a "Carte d'identité" that we meant. It would show that such and such a person was a genuine bona fide scientist moving about on accredited scientific business. The principle might also be applied to humanists - I am not saying that it should not be - but I feel that the danger is particularly great in future international scientific relations. Now that we have entered the Atomic Age - as the newspapers so glibly call it - I am afraid that customs officials and police at national boundaries are going to be far more nervous and worried than they ever were before. UNESCO's certification, therefore, might avoid confiscation of documents and all kinds of trouble. I must say I thought that this proposal was a little bit too imaginative when we incorporated it in the documents, but I was delighted to find that the Mexican Delegation to this Committee says exactly the same thing. We have not had time to circulate it because their proposals only came in this morning, but it does make just the same point, and I am therefore emboldened to think that the idea is not so far-fetched as we were inclined to think it was.

The Fourth Essential Action is to speed up the work of scientific rehabilitation. This is a thing which is worrying us very much, more perhaps than any other item on the list of Essential Actions, because we do not feel at all happy or satisfied about the speed with which this is going on. Everybody knows that there are scientists throughout Europe (and I can tell you from personal acquaintance that there are also in China) who are as good as

immobilised, unable to work, because they have no apparatus and equipment with which to work. Although important steps have been taken, such as the setting up of a Joint Committee between UNESCO and UNRRA, the actual progress which has been made, so far as I can see, in the past six months, has not been very encouraging. We think the work should go much faster than it has yet gone. How exactly that is to be done is another matter, and more difficult to visualise. What we need are precise detailed lists of apparatus required, such as a spectroscope here and a gross of test tubes there, and through diplomatic channels it has so far not been possible to get this precise information. This fact points up, indeed, the importance of UNESCO Regional Offices, if we had them now we could get down to ascertaining the facts right away. Only with such concrete and precise lists before us can we go to UNRRA with anything definite to discuss.

I have only three more things to say here. The last three things on the list of Essential Actions are, first of all, assisting the work of UNO and its other specialised agencies. I need not enlarge upon this, but only refer to the work of the Social and Economic Council, UNFAO, the new International Health Organisation, etc. etc.

The sixth Essential Action is to inform the people of all countries of the international implications of scientific discoveries, through, presumably the Press and Publicity Division of UNESCO. I imagine that this needs no elaboration, but I should like to see something done along these lines as soon as possible.

Last of all comes the question of originating quite new forms of international scientific cooperation (international observatories and laboratories). This is by no means the least important - last, but not the least. There is not much about this in the documents which you have before you, because since they were written support has been forthcoming for these ideas on a much larger scale than I ever anticipated. We were not bold enough in preparing this document to put in the things which are now being proposed. Without trespassing on what the American and French Delegations are going to say, I would like to mention that the American delegation proposes the construction of one or more International Astronomical Observatories, one or more International Nutritional Laboratories, and a network of International Meteorological Stations. Similarly, the French Delegation proposes the setting up of an International Centre of Applied Mathematics, i.e. a laboratory of those most wonderful new calculating machines which have been developed in recent years.

Now there are already in existence certain laboratories which have, or have had, an international character, e.g. the Marine Biological Station at Naples, and the High Altitude Physiological Stations on the Jungfraujoch and Monte Rosa. The most desirable thing would be to correlate all these under the auspices of UNESCO, which would be the ultimate administrative and financing body, though the technological control would have of course to remain in the hands of the relevant specialists, under one or other of the Unions.

There is one suggestion which has come up in this connection which again I should myself have thought quite fantastic, but which is nevertheless finding support in very sober quarters. The International Commission of Bird Preservation or groups closely connected with it, has put forward the proposal that the islands of Heligoland and Pantellaria should be internationalised as UNESCO territory for the purpose of bird sanctuaries. Whether this would be possible or desirable would be a matter for further discussion. Pantellaria might also include a branch of the Naples Marine Biological Station, and might be a suitable site for one of the International Astronomical Observatories.

This brings me to the end of what I wanted to say. I would like to add finally that the more I go into these matters, the more right I feel we were to describe the tasks ahead of UNESCO's Natural Science Division as inspiring tasks. All these proposals are extremely inspiring, and I must say I have been surprised at the strength of the support which we find exists on all hands for this work, and also surprised by the boldness of some of the proposals which have been, and are being, put forward by some of the Governments and their Delegations here today. They go much beyond what we had felt able to incorporate in the documents, so on the whole I feel in a very optimistic mood about future possibilities.

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UNITED NATIONS EDUCATIONAL SCIENTIFIC AND CULTURAL ORGANISATION.
PREPARATORY COMMISSION.

Natural Sciences Committee.

SUGGESTIONS FOR THE SCIENTIFIC PROGRAM OF UNESCO.

(This document is being presented separately because the Representative of the Group of Scientific Advisers to the State Department of U.S.A. on UNESCO arrived too late to have these proposals incorporated in the Agenda which had already gone to the printer.)

## INTRODUCTION

The group of Scientific Advisers to the State Department of U.S.A. on UNESCO has carefully considered various proposals for the scientific activities of UNESCO. It may be said immediately that the Group is most heartily in sympathy with many of the ideas and ideals which have been expressed in earlier documents.

The fundamental basis which has guided the thinking of the Scientific Group may be summarized in the following statements:

1. It is considered desirable for UNESCO to adopt a program which will attain a measure of success at an early date, both because there are certain problems demanding an immediate solution in order to place science on a satisfactory international basis and because it is necessary to gain the confidence of the scientists of the various participating nations and of other nations whose support is urgently needed.

2. In addition to urgent problems there must be formulated a broad program which will indicate clearly that UNESCO is to be a living organization which will appeal to internationally minded scientists and appeal especially to those younger scientists who feel that true international cooperation is essential for the future of the world.

In making the following propositions, it should be emphasized that the United States Group supports many of the suggestions contained in the Agenda and that the present document seeks to emphasize only certain points which the Group has discussed in detail. There is no important conflict in point of view with the proposals made elsewhere.

## GENERAL PROPOSITIONS

The Group of Scientific Advisors to the State Department advances the following general propositions for consideration:

1. There should be founded International Scientific Institutes dealing with certain important fields and in which facilities on a world scale are now inadequate.

2. The exchange of scientific personnel at various age levels should be encouraged and furthered, making use as far as possible of existing channels.

3. Regional Scientific Information Offices should be established, perhaps as part of the Regional Offices of UNESCO suggested on the Agenda, for the purpose of furthering the exchange of scientific literature, of scientific apparatus, and, perhaps, of scientific personnel.

4. There should be inaugurated a Survey of existing personnel, apparatus, and general scientific resources in the various countries with a view to establishing a broad program of furthering scientific endeavor throughout the world.

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5. The provision of abstracting and summarizing services for those areas of science not now adequately covered and furtherance of the distribution of existing journals of this type should be implemented in every way possible, particularly since some of these services were performed by nations which are no longer in a position to continue this type of work.

The above proposals will be considered in greater detail in the following paragraphs. However, details of organization, and locations of the various institutes should not be given here. Such problems must be met and solved by the Administration of UNESCO when established. Here we are interested primarily in establishing a principle.

## INTERNATIONAL SCIENTIFIC INSTITUTES

Certain fields of research demand costly equipment and, moreover, must be performed on an international scale to be effective. It is believed that it would be highly desirable for UNESCO to support certain types of international research institutes, both for the sake of the scientific work which would be accomplished and because the citizens of all participating countries should be welcome. A program of this type would have real significance both as an example of international collaboration and as a rallying point for those who believe that certain research problems must be attacked on an international scale to be worth while.

It would be possible to combine a type of training program with such research institutes and, if they are properly located, they could serve as a means of making the pursuit of research more widely disseminated throughout the world.

Three types of institutes are suggested for consideration first. Others might well be envisaged later, but it is necessary to begin in a modest way and to establish the example of successful operation.

Some of these institutes could be placed, for administrative purposes, under existing agencies. Others fall into fields for which no satisfactory international agency now exists and either new ones would have to be established or old ones strengthened.

The three types of institute are as follows:

1. Astronomical Observatories
2. Institutes for the Scientific Study of Nutrition
3. Meteorological Institutes

These three will be discussed separately since each presents its own peculiar problems.

## ASTRONOMICAL OBSERVATORIES

Large, modern observatories are expensive and must be placed in locations with suitable climates and from which suitable observations can be made. Proposals for the establishment of international observatories have already been transmitted to Dr. Julian Huxley by the International Astronomical Union.

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In this case there is a highly successful international union with which to cooperate and which could well be called upon to provide the administration. The selection of sites must necessarily be left to astronomers, but doubtless it would be well to have one in the northern hemisphere, one in the southern hemisphere, and probably one in the Mediterranean area.

The design of instruments and the types of equipment must again be left to astronomers as would a decision as to how much work on astrophysics should be included. We are assured the modern reflecting telescopes can be designed and built for much less cost than the 200 inch reflector whose construction in California was interrupted by the war.

The details of the administration of this program cannot be formulated in a meeting of this type. Provision should be made to accommodate visiting scholars, and students, but most of the key persons would be in residence only for brief periods of time, i.e. a few months or one or two years. It would be essential to provide for rotation so that the observatories would not acquire fixed and definite points of view. They must continue to be truly international.

It is not useful to attempt to make precise estimates of cost at this time. The cost of such installations will be high and if UNESCO approves programs of this type steps must be taken immediately to find means of providing funds.

## INSTITUTES FOR NUTRITION PROBLEMS

Probably no problem is of more permanent concern to the human race than food. From a practical standpoint this problem is related to those groups dealing with public health and with agricultural problems and any efforts by UNESCO would have to be properly coordinated with the activities of these other groups. Nevertheless, there is here a broad field for scientific research which might produce results of lasting benefit. Moreover, these problems include the fields of biology, physiology, chemistry, agriculture, entomology, to mention only a few.

Man is, in general, vegetarian either from habit or by necessity. A systematic study of the food plants of the world could be made with a view to ascertaining which ones are best adapted to certain regions, with a view to ensuring balanced diets, and with a view also to ensuring adequate supplies even during periods of abnormal climate. Moreover, it is known that many plastics made from plant materials can be used to a limited extent to replace metals. The program could, therefore, include research on other than food problems with a view to providing substitutes for materials which are scarce in certain localities.

Since research on nutrition and related problems includes so many different sciences, there should be an opportunity to incorporate a training program in institutes dealing with these matters. Proposals have been made elsewhere to start large international universities and such proposals should be given careful consideration. However, should it not prove feasible, for one reason or another, to embark on such an ambitious program at this time a modest start could be made in connection with the various institutes proposed here.

The number of institutes which would be necessary to cover nutrition problems adequately must be left to decisions by specialists who have studied the matter carefully. Probably at least six would be necessary and they should be located in tropical climates, both humid and dry, in certain parts of the temperate zone, and perhaps even in the subarctic.

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In this instance there seems to be no existing International Union which could be called upon to administer institutes of the types envisaged and either UNESCO would have to establish the administrative organization itself or choose some international agency now in existence as a basis and give it the proper support.

## INSTITUTES FOR METEOROLOGY

A mechanism already exists for exchange of meteorological information on an international scale. This mechanism might be extended to provide for the administration of a series of research institutes treating of problems of the earth's atmosphere from the ionosphere down to the earth's surface.

Institutes of this type would also have the advantage of bringing together several different sciences: meteorology, physics, radio-transmission, even chemistry. The subject matter is of interest to agriculture, to commercial airlines, to all of the industries dependent on radio.

Precise proposals for these institutes cannot be made at the present time. It is merely recommended that if the policy of establishing international scientific institutes is approved, that the subject of meteorology be given careful consideration.

## EXCHANGE OF SCIENTIFIC PERSONNEL

It is firmly believed that UNESCO should promote the exchange of specialized personnel including teachers, students, specialists, and trainees, on a world-wide basis and on a very large scale. The need and desirability for this program are so self-evident as not to merit extended discussion. One of the most obvious functions would be to promote scientific education on an adequate level in all countries and in all sciences.

The administration of an extensive program of this type could be centralized, but probably the machinery will prove to be too complex and decentralization will be much more feasible. Certain private agencies and governments already perform these functions on a modest scale. Some of these could be amplified and others would have to be started. If regional information centers are established by UNESCO these could well perform the additional function of facilitating the exchange of personnel.

The number of foreign students in the various countries prior to the war is not known with any precision. There seems to have been about 12,000 in the United States. The numbers in France and in the United Kingdom must have been large. It is hoped that the means used before the war for such exchanges will be resumed, but it appears advisable to promote exchanges on a scale not hitherto contemplated.

This program is, more than any other, one which could be started immediately, not later than the fall of 1947 and its extent will depend entirely on the amount of money which can be allocated. It is suggested that UNESCO establishes as soon as possible a Secretariat which would survey existing facilities and make recommendations for further action.

It would be useless at the present time to specify an administrative procedure in detail because an extensive study will have to be made of the situation. For the same reason no estimate of cost has much meaning.

/Regional ....

## REGIONAL SCIENTIFIC INFORMATION CENTERS

The recommendation for the establishment of Regional Scientific Information Centers has been made elsewhere. The United States group endorses this recommendation, but believes that these centers should have duties in addition to those of transmitting documents, data on apparatus and personnel available. The functions of the Centers might well include the exchange of scientific personnel and the supervision of the regional surveys contemplated in the next Section.

It must be emphasized that these regional centers must be adequately staffed to be effective. One man cannot cover several sciences effectively no matter how broad he is. It would appear that six to eight competent scientists in addition to administrative and clerical help should be present in each office. Moreover, men who engage in this type of work too long cease to be scientists in any sense of the word and provision should be made for rotation of scientific personnel after one or two year intervals.

There are several dangers in the operation of these Centers which must be carefully guarded against. Only in very few countries are scientific personnel numerous enough to spare many well-trained men for this type of work. The impression must not be created that these Centers are run for the benefit of one or two countries and with a dominant point of view of one type. For the above reasons the start of this program must be modest and the duties of these centers clearly defined.

## SURVEY OF SCIENTIFIC RESOURCES

The present situation in many countries devastated by the war is unknown and there is inadequate documentation concerning the scientific resources available in many other countries. It is almost self-evident that a thorough survey of such resources is necessary before a program can be formulated for improving the situation in those countries with inadequate laboratory facilities and inadequate personnel.

This function can be started immediately and some sporadic and uncoordinated attempts along these lines have already been made. Its is recommended that UNESCO start this activity as soon as possible, placing one or two key men in charge and utilizing existing personnel in the various countries for the purpose. The cost can be included in expenditures now contemplated.

## ABSTRACTING AND SUMMARIZING SERVICES

Certain fields, such as chemistry, are now provided with good even though not entirely adequate abstract journals. Other sciences have no such service at the present time.

UNESCO can provide a service of real value immediately and the following recommendations are made:

(1) That in areas where foreign exchange makes the purchase of adequate numbers of existing abstract journals impossible, UNESCO provide such journals, making use of its facilities for making payment where necessary;

(2) That UNESCO provide means for transmittal of periodicals and abstracts of articles to the end that abstracts appear as soon as possible after publication;

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(3) That a survey be made of existing abstract facilities with a view to establishing abstract journals for those fields not now adequately covered. Such abstract facilities should be provided by existing agencies wherever possible and the expense not be borne by UNESCO.

Certain summaries of data, such as Beilstein and Abegg in chemistry, were published in Germany before the war. Substitutes for such summaries will have to be found or the old ones revived. Sporadic and uncoordinated attempts are being made along these lines, but the situation is very critical. UNESCO could well establish a secretariat which would examine this situation and help existing agencies perform these useful functions. Some of the International Unions could be called upon for help, but the progran needs systematization and in some cases help is required when foreign exchange problems arise.

UNESCO/Prep.Com./Nat.Sci.Com./8

June 21st, 1946.

UNITED NATIONS EDUCATIONAL
SCIENTIFIC AND CULTURAL ORGANISATION

PREPARATORY COMMISSION

NATURAL SCIENCES COMMITTEE

# DRAFT AGREEMENT BETWEEN THE UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANISATION AND THE INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

At the initial conference of representatives of the United Nations held in London in November 1945, for the creation of UNESCO, the following resolution was adopted:

"That the Preparatory Commission of the United Nations Educational, Scientific and Cultural Organisation be requested by this Conference to instruct its Executive Committee to consult with the International Council of Scientific Unions on methods of collaboration to strengthen the programmes of both bodies in the area of their common concern, and

That the plans thus formulated be reported to the first Conference of the United Nations Educational Scientific and Cultural Organisation, with recommendations for a suitable working arrangement with the International Council of Scientific Unions."

This resolution was communicated to the Executive Committee of the International Council of Scientific Unions at its meeting on December 4th, 1945, and the committee passed the following resolution:

"That the President should appoint a Committee of three members to study conjointly with a corresponding Committee of UNESCO the details of a working agreement between the two bodies in accordance with the terms of the above resolution."

The President appointed as this committee himself, Dr. W.D. Lambert and the General Secretary.

Consultations have now taken place between members of this Committee and the Head of the Division of Natural Sciences of the Preparatory Commission of UNESCO, Dr. Joseph Needham, F.R.S.

Article XI, 4 of the Convention governing UNESCO states: The United Nations Educational, Scientific and Cultural Organisation may make suitable arrangements for consultation and cooperation with non-governmental international organisations concerned with matters within its competence, and may invite them to undertake specific tasks. Such cooperation may also include appropriate participation by representatives of such organisations on advisory committees set up by the General Conference. In accordance with this, the following draft agreement has been drawn up for submission to the General Assembly of ICSU at its meeting in July 1946 and to the Inaugural Meeting of the Permanent Organisation of UNESCO at its meeting at the end of 1946.

1. UNESCO recognizes the International Scientific Unions as providing the natural form for the international organisation of science, and the International Council of Scientific Unions as their natural coordinating and representative body.

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2. The International Scientific Unions and ICSU recognise UNESCO as the appropriate agency of UNO in the field of international scientific relations.

3. Having regard to the preceding two articles, ICSU and UNESCO will maintain at all times close consultative relations. For this purpose the Head of the Division of Natural Sciences of UNESCO or his deputy shall have the right ex officio to attend plenary sessions of ICSU and meetings of its executive committee as an observer. UNESCO shall also receive a copy of the annual report of each of the Unions and of ICSU.

4. At least one Liaison Officer with secretarial assistance shall be appointed by ICSU to represent that body and the Unions at the Headquarters of UNESCO. His stipend will be provided by UNESCO. UNESCO may also provide secretarial (typist) assistance for such officers of the various Unions as do not normally reside in Paris.

5. UNESCO will further facilitate the work of the Unions by arranging for the collection of the national subscriptions budgeted for by the Unions and Council, and for the payment to the appropriate bodies in the countries concerned of grants made by the Unions and Council.

6. UNESCO will take all necessary steps to facilitate the movements across frontiers of scientific personnel attending conferences or symposia held under the auspices of the Unions or meetings of Joint Commissions appointed by the Unions: in particular, UNESCO will help towards the travelling expenses of official delegates and may make special grants, on application from the Unions, to help the younger research workers to attend meetings.

7. UNESCO may from time to time relieve the various Unions of financial responsibility for established international undertakings of a substantial nature, leaving the technological control of the projects to the Unions. UNESCO would in such cases be represented on whatever committee controlled the annual budget of the undertaking.

8. UNESCO may finance specific Commissions or Joint Commissions of the Unions, being represented in every case on the relevant finance committees.

9. UNESCO may from time to time provide funds to the various Unions for the opening up of new approved projects.

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UNESCO/Prep. Com. /Nat. Sci. Com. /9

16th July, 1946.

UNITED NATIONS EDUCATIONAL
SCIENTIFIC AND CULTURAL ORGANISATION

PREPARATORY COMMISSION

Natural Sciences Committee

# WORK OF THE INTERNATIONAL SCIENTIFIC UNIONS

In response to requests, the Section of Natural Sciences has prepared the accompanying summary of the structure and organisation of the International Scientific Unions. This represents, in effect, the way in which they carry out their work. It must be emphasised that they are now taking stock of their position at the conclusion of the war, and no doubt some of the various Commissions may now be liquidated while others will be newly set up. The wide scope of their activities, however, is well seen in the accompanying resumé.

INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

THE INTERNATIONAL UNIONS AND THEIR COMMISSIONS

## INTERNATIONAL ASTRONOMICAL UNION

- Commission on Notations and Units
- Commission on Ephemerides
- Commission on Abstracts and Bibliography
- Commission on Astronomic Telegrams
- Commission on Meridian Astronomy
- Commission on Astronomical Instruments
- Commission on Sunspots and Character Figures
- Commission on Chromospheric Phenomena
- Commission on Solar Radiation and Solar Spectroscopy
- Commission on Eclipses of the Sun
- Commission on Standard Wavelengths and Tables of Solar Spectra
- Commission of Physical Study of Comets
- Commission of Physical Observations of Planets and Satellites
- Commission for the Study of the Moon
- Commission on Longtitudes
- Commission on Latitude Variation
- Commission on Positions and Movements of Minor Planets, Comets and Satellites
  - Sub-Commission on Solar Parallax
  - Sub-Commission on Periodic Comets
- Commission on Meteors, Zodiacal Light, etc.
- Commission of the Chart of the Heavens
- Commission on Stellar Parallaxes and Proper Motions
- Commission on Stellar Photometry
- Commission on Double Stars
- Commission on Variable Stars
- Commission on Nebulae and Star-Clusters
- Commission on Stellar Spectra
  - Sub-Commission on Novae
- Commission on Stellar Radial Velocities
- Commission of the International Time Bureau
- Commission on Selected Areas
- Commission on Stellar Statistics
- Commission on the Constitution of the Stars
- Commission on Spectrophotometry

## INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS

Association of Geodesy

- Commission on Bibliography
- Commission on Latitudes
- Commission on Longtitudes
  - Sub-Commission on the Geoid
- Commission on the value of g on land and sea
- Commission on Compensation of the European Network
- Commission on the Meridian Arc from the Arctic to the Mediterranean
- Commission on the Mean Parallel Arc
- Commission on Notation
- Commission on Triangulations
- Commission on Projections

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Association of Seismology

Association of Meteorology

Commission on Solar Radiation

Association of Terrestrial Magnetism and Electricity

Commission on Magnetic Storms
Commission on Polar Aurora
Commission on the Relationship between Solar Activity and Terrestrial Magnetism
Commission on Choice of Observatory Sites
Commission on Saecular Variation
Commission on Electrical Characterisation of Days
Commission on the Polar Year (jointly with the Association of Meteorology)
Commission on Magnetic Charts

Association of Physical Oceanography

Commission on Tides
Commission on Mean Sea Level and Variations
Commission on Chemical Methods and Units
Commission on International Survey of the Gulf Stream Area
Commission on Nomenclature of Sea Bottom Deposits
Commission on Interaction between Sea and Atmosphere (jointly with the Association of Meteorology)

Association of Vulcanology

Association of Scientific Hydrology

Commission on Rivers
Commission on Lakes
Commission on Glaciers
Commission on Subterranean Waters
Commission on Hydraulic Measurements
Commission on Statistical Methods
Commission on Snow and Ice

Joint Commission on Continental and Oceanic Structure

INTERNATIONAL UNION OF CHEMISTRY

Commission on Thermochemistry
Commission of Annual Tables of Constants
Bureau of Physico-Chemical Standards (Pure Substances)
Commission on Data of Physical Chemistry
Commission for the Reform of Inorganic Chemical Nomenclature
Commission for the Reform of Organic Chemical Nomenclature
Commission for the Reform of Biochemical Nomenclature
Commission on New Analytical Reagents and Reactions
Commission on Atomic Weights
Commission on Atoms and Isotopes
Commission on Radioactivity Constants
Commission on Physico-Chemical Symbols
Commission for the Chemistry of Fats
Commission on Purity Nomenclature of Chemical Compounds

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INTERNATIONAL UNION OF SCIENTIFIC RADIO

Commission on Standards and Measurements
Sub-Commission on Frequency Standards
Sub-Commission on Field Intensity Measurement
Commission on Wave Propagation
Sub-Commission on Ionosphere Measurement
Sub-Commission on Sunspots
Sub-Commission on Reciprocal Action of Waves
Sub-Commission on Eclipses
Commission on Atmospherics
Sub-Commission on Origin of Atmospherics
Sub-Commission on Propagation of Atmospherics
Sub-Commission on Measurement of Atmospherics
Sub-Commission on Radiogoniometry of Atmospherics
Commission on Liaison with Operators, Amateurs and Related Sciences
Commission on Radio Physics

INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS

Commission on Units

INTERNATIONAL UNION OF GEOGRAPHY

Commission for the Study of Population
Commission for the Study of Pliocene and Pleistocene Terraces
Commission for the Study of Climatic Variations
Commission for the Publication and Reproduction of Old Maps
Commission of Aerial Photography
Commission for Cartography of Surfaces of Tertiary Erosion

INTERNATIONAL UNION OF BIOLOGICAL SCIENCES

Section of Botany

Commission of Phytopathology
Commission for Description and Nomenclature of Plant Viruses
Commission of Urgent Taxonomic Needs
Commission of Algal Cultures
Commission for an Index Bryologicus
Commission of Nomenclature
Commission of Applied Botany
Commission of Directors of Botanic Gardens
Commission of Documentation
Commission of Geobotany and Ecology
Commission for a Geobotanical Map of Europe
Commission for the Study of the Destruction of Tropical Vegetation
Commission for the Phytogeographical Classification of Climates

Section of Zoology

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In addition to the above, negotiations are now in progress for the establishment of the following Unions :-

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International Union of Nutritional Science

Certain countries, such as the U.K., already have flourishing Nutrition Societies, and a symposium with representatives of some 17 countries recently met in London.

International Union of Microbiology

There is already a very active International Society of Microbiology.

International Union of Physiology

The International Congresses of Physiology (triennial) were among the most successful of the international Congresses. In 1938 they set up a permanent Record Office in Switzerland. A Union may be formed.

International Union of Genetics

This would have to be generated by the International Congress of Genetics, which has held many successful meetings.

International Union of Applied Mechanics

The same remarks apply.

International Union of Embryology and Experimental Cytology

An International Institute of Embryology already exists, centered at Utrecht. An Internationale Gesellschaft f. experimentelle Zellforschung was very active before World War II. Some combination may be made of these.

In addition, it will be very desirable to revive, if possible, the International Mathematical Union, and to activate the Zoological Section of the International Union of Biological Sciences.

UNESCO/Prep.Com./Nat.Sci.Com./10

July 29th, 1946.

UNITED NATIONS EDUCATIONAL
SCIENTIFIC AND CULTURAL ORGANISATION

PREPARATORY COMMISSION

NATURAL SCIENCES COMMITTEE

Resolution of the International Council of Scientific Unions

During the General Assembly of the International Council of Scientific Unions, held at Burlington House, 22nd-24th July, 1946, the following Resolution, arising out of a motion brought forward by the Committee on Science and Social Relations of ICSU, and submitted by the Executive Committee, was carried unanimously:

I The General Assembly of the International Council of Scientific Unions sees in the great powers for good and evil that research on nuclear energy has put at the disposal of mankind a supreme opportunity and occasion for a new international unity, to develop the benefits potential in nuclear energy and to avoid its misuse. The General Assembly strongly supports the efforts now being made under the auspices of the United Nations to attain this urgent goal, efforts in which the cooperation of representative men of science, so essential for success, is being officially given.

The General Assembly urges that the present opportunity of eliminating war by the attainment of such a new international unity be grasped.

The General Assembly hopes that the attainment of an agreement on the application of nuclear energy may provide an important instance of international cooperation in economic and political matters. Extension of this would facilitate the promotion of the welfare of mankind, the judicious use of our natural resources, the removal of causes of dispute, and the settling of difficulties arising from the continuous change of world conditions in consequence of scientific and technical advances.

The General Assembly is aware that nuclear energy is not unique among scientific advances in its possible effects for good or ill. Biological and biochemical methods of war, for example, were not applied during the late conflict, but their potential menace may be as great as that of the atomic bomb; equally, the discoveries on which they depend could bring the greatest benefits to mankind.

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The General Assembly is convinced that international security and welfare will be impossible if military secrecy in any country is allowed in future to dominate scientific discovery or to prevent the frank discussion and open publication of scientific results. "There can be no international control and no international cooperation which does not presuppose an international community of knowledge".

II The General Assembly of the International Council of Scientific Unions, in the name of the men of science of the nations represented, acknowledges the duty on the part of all scientific workers:

(a) to maintain a spirit of frankness, honesty, integrity and cooperation, and to work for international understanding;

(b) to promote the development of science in the way most beneficial to mankind, and to exert their influence as far as possible to prevent its misuse;

(c) to serve the community not only by their specialised work, but by assisting, so far as they are able, in the education of the public in the purposes and achievements of science.

London,
23rd July, 1946.

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UNESCO/Prep.Com./Nat.Sci.Com./11

26th July, 1946.

UNITED NATIONS EDUCATIONAL
SCIENTIFIC AND CULTURAL ORGANISATION

PREPARATORY COMMISSION

NATURAL SCIENCES COMMITTEE

# DRAFT AGREEMENT BETWEEN THE UNITED NATIONS EDUCATIONAL SCIENTIFIC AND CULTURAL ORGANISATION AND THE INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

Definitive Version adopted by the General Assembly of the International Council of Scientific Unions, London. 23rd July, 1946.

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At the initial conference of representatives of the United Nations held in London in November 1945, for the creation of UNESCO, the following **resolution** was adopted:

> "That the Preparatory Commission of the United Nations Educational, Scientific and Cultural Organisation be requested by this Conference to instruct its Executive Committee to consult with the International Council of Scientific Unions on methods of collaboration to strengthen the programmes of both bodies in the area of their common concern, and
>
> That the plans thus formulated be reported to the first Conference of the United Nations Educational Scientific and Cultural Organisation, with recommendations for a suitable working arrangement with the International Council of Scientific Unions."

This resolution was communicated to the Executive Committee of the International Council of Scientific Unions at its meeting on December 4th, 1945, and the Committee passed the following resolution:

> "That the President should appoint a Committee of three members to study conjointly with a corresponding Committee of UNESCO the details of a working agreement between the two bodies in accordance with the terms of the above resolution."

The President appointed to this Committee, himself, Dr. W.D. Lambert and the General Secretary.

Consultations have now taken place between members of this Committee and the Head of the Natural Sciences Section of the Preparatory Commission of UNESCO, Dr. Joseph Needham, F.R.S.

Article XI, 4, of the Constitution governing UNESCO states: "The United Nations Educational, Scientific and Cultural Organisation may make suitable arrangements for consultation and cooperation with non-governmental international organisations concerned with matters within its competence, and may invite them to undertake specific tasks. Such cooperation may also include appropriate participation by representatives of such organisations on advisory Committees set up by the General Conference."

In accordance with this, the following draft agreement has been drawn up for submission to the General Assembly of ICSU at its meeting in July 1946 and to the Inaugural Meeting of the Permanent Organisation of UNESCO at its meeting at the end of 1946.

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p.t.o.

1. UNESCO recognizes the international scientific unions as providing a natural and appropriate form for the international organisation of science, and the International Council of Scientific Unions as their coordinating and representative body.

2. The International Council of Scientific Unions (ICSU) recognizes UNESCO as the principal agency of UNO in the field of international scientific relations.

3. Having regard to the preceding two articles, ICSU and UNESCO will maintain at all times close consultative relations for the promotion and development of international cooperation in science. For this purpose the Head of the Section of Natural Sciences of UNESCO or his deputy shall have the right ex officio to attend plenary sessions of ICSU and meetings of its executive Committee as an observer. UNESCO shall also receive a copy of the annual report of each of the Unions and of ICSU.

4. At least one liaison officer with secretarial assistance shall be appointed by ICSU to represent that body and the Unions at the headquarters of UNESCO. UNESCO will make a grant to ICSU to cover his stipend. UNESCO may also provide secretarial (typist) assistance for officers of the various Unions.

5. UNESCO will further facilitate the work of the Unions by arranging for the collection of the national subscriptions budgeted for by the Unions and Council, and for the payment of grants made by the Unions and Council to the appropriate bodies in the countries concerned.

6. UNESCO will take all necessary steps to facilitate the movements across frontiers of scientific persons attending conferences or symposia held under the auspices of the Unions or meetings of Joint Commissions appointed by the Unions; in particular, UNESCO will help towards the travelling expenses of official delegates and may make special grants, on application from the Unions, to help research workers to attend meetings, especially the younger ones.

7. UNESCO may from time to time relieve the various Unions of financial responsibility for established international undertakings of a substantial nature, leaving the scientific and technical control of the projects to the Unions. UNESCO would in such cases be represented on whatever Committee controlled the annual budget of the undertaking.

8. UNESCO may finance specific Commissions or Joint Commissions of the Unions, being represented in every case on the relevant finance Committees.

9. UNESCO may from time to time provide funds to the various Unions for the opening up of new approved projects.

10. The present agreement is concluded for an unlimited period. Each party reserves the right to terminate it at twelve months' notice as from the first of January in any year. In the event of such termination the two bodies shall agree on the conditions under which any joint projects shall be terminated or carried on.

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Program Report on the Programme of UNESCO July 5th

UNESCO/Prep Com/51

III.B. 1.

## B. NATURAL SCIENCES COMMITTEE

UNESCO is an agency for peace through active international cooperation. In the field of scientific cooperation and service we have one of the most immediately effective means of accomplishing this. This is partly because scientific research is essentially and traditionally international and cooperative and also because the applications of scientific knowledge to human welfare, if properly made, can be one of the most effective methods of removing some of the causes of war.

The general aims of the Natural Sciences Section of UNESCO must be (1) to increase the total amount of scientific research in the world with the aim of extending our fundamental knowledge; (2) to increase and accelerate the applications of scientific knowledge to human welfare; and (3) to ensure the rapid diffusion of the results of scientific work and of the successful methods of its application to human welfare.

This must be carried out in relation to broad background planning, based on adequate survey of the field, so that UNESCO may be aware of the areas (whether of the world or of science) where the advancement of scientific research and its applications are most urgently required.

This latter principle immediately leads us to the two following practical conclusions (1) UNESCO must aim at smoothing out the quantitative differences in "scientific density" which now exist between different regions of the world, with a view to bringing up the scientific facilities of the less favoured areas towards the level of the more favoured; (2) UNESCO must particularly concern itself with projects which have so far not been undertaken, owing mainly to the fact that scientific activities are still so largely on a national basis, such as, for example the setting up of an International Observatory and an International Meteorological Station in the Southern Hemisphere, the initiation of surveys of problems on the basis of world zones, e.g. the scientific problems of the Equatorial Forest Zone, of the Arid Tropical Zones or the Polar Zones.

With this preamble we may pass to the main functions which UNESCO should undertake. These may be tabulated as follows: -

A. Temporary

(I) Assisting the restoration of scientific facilities in the war-damaged countries.

B. Permanent

(I) Facilitating the work of existing international scientific organisations, initiating new ones where necessary, and setting up regional science cooperation offices throughout the world.

(II) Organising and assisting the better exchange of scientific information and research services between the different countries.

(III) Assisting the free flow of essential research apparatus, equipment, specimens, etc. across national boundaries.

(IV) Assisting the free flow of scientific books and literature of all kinds across national boundaries, and especially between world regions of widely different linguistic pattern, for example those of the alphabetic and ideographic languages.

(V) Assisting the free flow of scientists coming and going across national boundaries.

(VI) Assisting in maintaining contact between government organisations concerned with science, and advising governmental and diplomatic personnel on scientific matters.

(VII) Promoting plans of international collaboration in scientific research.

(VIII) Assisting the work of the Council of UNO (Economic and Social, Trusteeship, etc.)

(IX) Assisting the work of the Specialised Agencies of UNO (FAO, IHO, UNRRA, ILO, etc.)

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(X) Assisting the work of the smaller international scientific bodies already existing (for example the Bureau International des Poids et Mesures, the Bureau de l'Heure, the International Standards Coordinating Association, the International Councils for the Exploration of the Sea, etc., etc.)
(XI) Cooperating with Press and Publicity organs of UNO in informing the public in all countries concerning the bearing of scientific discoveries on international relations.

In order to translate the above principles into concrete action, the following steps must immediately be taken: -

A. Temporary
(1) Speed up the work of scientific rehabilitation.

B. Permanent
(1) Throw a network of regional Science Cooperation Stations round the world.
(2) Support and extend the International Scientific Unions and their work.
(3) Carry out certain special tasks not at present being done, (scientific cinema films, scientific microfilms, aid for travel, etc.)
(4) Cooperate in scientific matters with the work of UNO and its other specialised agencies.
(5) Inform the people in all countries on international implications of scientific discoveries.
(6) Initiate or undertake new types of international scientific cooperative projects (for example International Observatory and Laboratories) to serve as models of their kind.

Most of the steps enumerated above have been suggested to the UNESCO secretariat by various governments and their delegates. However, UNESCO has also been guided by the general principle not to undertake anything that is being done, or will be done, by others and the steps proposed may roughly be classified as three types of action; namely,

(a) Facilitation or coordination,
(b) Surveys, production of information of international character, etc.
(c) Projects to serve as models.

However, two major considerations, and one minor one, have been kept in mind in making the above proposals; namely, time and money and present temporary shortage of suitable personnel. If UNESCO is to gain the confidence of the people of the world, it must show quick results (time factor) with the amount of money allocated to it (money factor). The balance between short-term and long-term projects has consequently been made with these factors in mind, long-term projects being initiated with the expectation of expansion and completion as increased general funds, or other funds for special purposes are made available to UNESCO.

(A - 1) SPEEDING UP THE WORK OF SCIENTIFIC REHABILITATION

This is the most urgent problem of the moment. The task is rendered difficult by the diversity of the problem; for example, what Yugoslavia may require may be different from what the Chinese want. Thousands of scientific workers in the devastated countries are as good as immobilised for lack of even simple chemicals and apparatus, owing to lack of funds, exchange restrictions, export controls and transportation difficulties.

It has been proposed too, that the countries in the "bright zone" should each endow a certain number of bursaries to be administered by UNESCO for university students and graduate research workers. One American delegate, Dr. W.A. Noyes, has, on behalf of the American Chemical Society, already offered to endow ten such bursaries. The Danish delegation has generously offered through UNESCO accommodations for some sixty or more foreign post-graduate students.

Here is where the establishment of regional scientific cooperation offices will serve to fulfil an immediate need, because surveys of national requirements, personal correspondence with individual scientific research workers, etc. can be made expeditiously and some sort of priority ratings to various requests given.

(B - 1) REGIONAL SCIENCE COOPERATION STATIONS

In order to activate in an immediately effective manner the scientific functions of UNESCO, particularly in those countries at the lower levels of scientific and industrial development, a network of regional science cooperation stations should be thrown around the world, beginning with East Asia, the Middle East, Latin America, etc. etc. More stations would be set up as more funds for this purpose become available. These stations should be housed with the rest of the UNESCO regional services and with the regional offices of other UN agencies, such as FAO, ILO, IHO, etc. Acting as a clearing house on the spot, and staffed by 3 - 6 scientific men each, such stations could enormously facilitate the exchange of scientific information, literature, apparatus, personnel etc., across national boundaries. During the war there were scientific missions from one country to another; the Stations may be envisaged as such scientific missions permanently functioning through UNESCO. The Regional Centres will give opportunity of collaboration with bilateral scientific missions, with scientific attachés from countries of other regions, with scientific representatives of countries within the region, and with national cultural agencies, such as the British Council, the Bureau des Relations Culturelles à l'Extérieur and the Cultural Division of the U.S.A. State Department, etc. etc.

(B - 2) THE INTERNATIONAL SCIENTIFIC UNIONS AND THEIR WORK

Many of the international unions have been quiescent during the World War II, but even in normal times they were not able to function effectively on account of the lack of funds, secretarial help and accommodation. The International Council of Scientific Unions (ICSU), a federation of all the international scientific unions (for example, astronomy, biology, physics, etc.,) is extremely anxious to cooperate with UNESCO in every way and a draft agreement to this end has already been prepared. In the fields of engineering, agricultural and medical sciences there is nothing corresponding to ICSU, and it will therefore be necessary for the present to invite all the existing international organisations in each field to send a delegate to special Advisory Councils of UNESCO in Mechanical, Agricultural and Medical Sciences. Where no appropriate international organisation exists at present, UNESCO will also help to promote it, when necessary. It will be mainly through these principal agencies that funds will be channelled for international undertakings of substantial nature, for Special Commissions, Joint Commissions of the Unions, subventions to scientists and younger research workers towards travelling expenses in attending certain international conferences, special grants for certain research projects, etc. etc. UNESCO will also cooperate directly with National Commissions, National Academies and other similar organisations, subject to reaching an agreement on which an International Convention may be based.

(B - 3) SPECIAL TASKS NOT AT PRESENT BEING DONE

There are certain special tasks which have only recently been generally realized to be pressing and which can only be undertaken by an international organization like UNESCO. Such tasks include the rationalisation of scientific journals and abstracting services, standardisation of scientific equipment, collection and dissemination of certain kinds of scientific data, creation of central (and if required, regional) reprint stockpiles, and prompt provision of copies of scientific papers on microfilm, upon request by investigators.

With the coming of world cooperation among scientists on a large scale it is necessary to compile a "Who's Who" of all scientific workers, including engineers, the institutes in which they work, the facilities there available and the problems in which they are specially interested. This survey of scientific manpower and scientific resources should form part of a comprehensive "Directory of Science and Learning". This will help to facilitate the selection of proper men for international undertakings, exchange between countries, etc.

The Natural Sciences Section, in cooperation with the Educational Section, plans to publish general science textbooks suitable for international use in colleges and in adult educational courses. The purpose of these textbooks will be to show the continuity in the history of the earth and its inhabitants, the international character of the development of scientific knowledge, and its relation to social needs.

It is also planned to create a Scientific Apparatus Information Bureau, concerned with the standardisation of scientific equipment and dissemination of information and technical data relating to such equipment (particularly important in the work of scientific rehabilitation and in educational work).

Some of these tasks overlap into the province of mass media and education, with which the natural science division will closely cooperate. An example of this would be the world centre of scientific cinema films proposed by the Mass Media and Natural Sciences Sections. This would not be merely a collection, but a workshop for providing every good scientific film with subtitles or soundtracks in all the principal languages of the world, thus making its contents available to all peoples.

Another special task that will be very conducive to international goodwill is the facilitation of the travel of scientific workers across national boundaries, not only by financial help but by issuing some kind of "carte d'identité" recognized by all nations as certifying the holder to be an accredited scientist, moving on genuine scientific business. In the field of international scientific cooperation, nothing can adequately take the place of personal contact between scientists themselves.

## (B - 4) ASSISTING THE WORK OF UNO AND ITS OTHER SPECIALIZED AGENCIES

UNO and the other specialized agencies will often require authoritative scientific and technical advice which UNESCO can furnish, either directly, or by setting up ad hoc committees of experts. For example, in the field of biology, biochemistry, nutrition and other medical sciences, UNESCO and IHO will to a large extent cooperate. On the boderline of the agricultural sciences UNESCO will collaborate with FAO.

## (B - 5) INFORMING THE PEOPLE OF ALL COUNTRIES ON INTERNATIONAL IMPLICATIONS OF SCIENTIFIC DISCOVERIES

It is obviously of profound importance to bring the implications of science to the people of all countries by every means of public information. This work will be carried out in cooperation with the Educational and Publicity Sections of UNESCO, and with the United Nations Information Service itself. The subject of atomic energy if of course one of the highest priority which should be dealt with. The Scientific and Educational Divisions of UNESCO can assist the International Committee on Atomic Energy to disseminate whatever information the Committee should decide to release.

(B - 6) NEW FORMS OF INTERNATIONAL SCIENTIFIC COOPERATION

Last, but not least, come the concrete projects of international cooperation in somewhat new form. It has, for example, been proposed that UNESCO should be entrusted with the responsibility of erecting an International Astronomical Observatory and of building up an International Centre of Applied Mathematics equipped with some of those wonderful calculating machines that have been developed during the last few years. These are to serve as models of international cooperation, organisation and management. UNESCO will likewise set up one or more Nutritional Laboratories (possibly in cooperation with IHO) and International Meteorological Stations, an International Resources Office and a Zonal Survey Institute, for example, in the Amazon Basin for the purpose of surveying the scientific problems and life in the zone of tropical rain-forest.

Proposals are also under consideration with a view to placing certain laboratories already of international character (for example, the Marine Biological Station at Naples and the High Altitude Physiological Stations on the Jungfraujoch and the Monte Rosa) under the financial aegis of UNESCO by way of the relevant International Scientific Unions. There is also a proposal to internationalize as bird observatories the ex-enemy islands of Heligoland and Pantellaria.

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UNESCO/Prep.Com./Nat.Sci.Com./S.R.1.

UNITED NATIONS EDUCATIONAL
SCIENTIFIC AND CULTURAL ORGANISATION

PREPARATORY COMMISSION

NATURAL SCIENCES COMMITTEE

Summary Report of the Meetings I - IV held on
Friday, 31st May and Saturday, 1st June, 1946

at

47, Belgrave Square, London, S.W.1.

Chairman : DR. MARTINEZ BAEZ.

Present:

| | |
|---|---|
| AUSTRALIA | Mr. G. Gresford |
| BRAZIL | Professor Paulo Carneiro |
| CANADA | Mr. J.E.Kalloch |
| CHILE | Senor J.A. Gandarillas |
| CHINA | Dr. T.S. Chang |
| CZECHOSLOVAKIA | Dr. S. Prat |
| FRANCE | Professor Pierre Auger |
| | M. Fontaine |
| GREECE | Professor A. Photiades |
| MEXICO | H.E. Dr. M. Martinez Baez |
| NETHERLANDS | Dr. J.H. de Boer |
| NORWAY | Mr. I. Löberg |
| POLAND | Professor S. Pienkowski |
| UNION OF SOUTH AFRICA | Mr. Eric Boden |
| UNITED KINGDOM | Professor A.V. Hill |
| UNITED STATES OF AMERICA | Dr. W. Albert Noyes |
| | Mr. H.H. Arneson |
| YUGOSLAVIA | Dr. R. Zinkovic |

Also present:

| | |
|---|---|
| M. G.Maciel | BRAZIL |
| Dr. Sova | CZECHOSLOVAKIA |
| Miss.Alegria | MEXICO |
| Mr. A.Bruce Roberts ) | UNITED KINGDOM |
| Mr. W.R.Richardson ) | |

Secretariat

| | |
|---|---|
| Professor Jean Thomas | Deputy Executive Secretary |
| Dr. Howard Wilson | " " " |
| Sir Alfred Zimmern | Adviser |
| Dr. J. Needham | Senior Counsellor, Natural Sciences Section |

Senior Counsellors, Counsellors and members of the staff.

A M.THOMAS (Deputy Executive Secretary) and DR. WILSON (Deputy Executive Secretary) in their opening remarks emphasised that the purpose of the Meetings was to discuss fully and freely the various proposals put forward by the Secretariat of the Preparatory Commission of UNESCO, the Government Delegates and others. The results of the discussions would be sent to the Executive Secretary for adoption, rejection or amendment in preparation for the November Conference.

DR. NEEDHAM, introducing the Memoranda UNESCO/Prep.Com./Nat.Sci.Com./2 and 2a said that the first dealt with the historical side, that is the methods by which international cooperation had been carried on in the past, and also offered some suggestions on the way in which the scientific relations of the people of the world might be organised in the future, summarised in the form of 15 "Aims". The second dealt with the concrete details of various proposals put forward by the Secretariat and Government Delegates, incorporating many suggestions and ideas from organisations and individuals. The keynote of UNESCO's method in science should be "facilitation", i.e., to help existing organisations to function more efficiently by supplying funds and staff where necessary. Before engaging in any new international activity, careful investigation should first be made to find out whether or not an organisation for this purpose did not already exist. In seven cases out of ten, it probably did, but had never been effective owing to lack of funds.

DR. NEEDHAM then said that the 15 aims might be summarised still further in the form of 7 "Essential Actions". UNESCO should :-

(1) Throw a network of Regional Science Cooperation Stations round the world.
(2) Support and extend the Scientific Unions and their work.
(3) Carry out certain special tasks not at present being done, (cinema films, microfilms, aid for travel, etc.)
(4) Speed up the work of scientific rehabilitation.
(5) Assist the work of UNO and its other specialised agencies.
(6) Inform the people in all countries on international implications of scientific discoveries.
(7) Originate new forms of scientific collaboration, such as International Observatories and Laboratories.

B Before the Secretariat's Memoranda were discussed in detail, opinions on matters of general interest were expressed :-

(1) That UNESCO should consider short-term plans which could be carried through successfully at small cost, and which would redound to the credit of UNESCO ; as well as long-term plans of a more ambitious and expensive nature.

(2) That UNESCO should beware of taking on more projects than it could handle adequately with the funds and staff available.

(3) That an attempt should be made to assign priorities to the various proposals put forward.
(A small sub-committee was formed later to consider and report back on, the question of priorities.)

C The Secretariat's Memorandum UNESCO/Prep.Com./Nat.Sci.Con./2a was then discussed in detail.

(i) To promote international scientific cooperation in all its aspects, by facilitating the work of existing international scientific organisations, by iniating new ones if necessary, and by setting up Regional Science Cooperation Offices throughout the world.

After some clarification of the nature of the proposed Regional Stations, this was approved.

(ii) To organise and assist the better exchange of scientific information and research services between scientists and their organisations in the different countries.

Questions were asked on the nature of the proposed service.

MR. CARTER, Senior Counsellor of the Library Section, outlined his view of what UNESCO might do in this field. He thought it an impossible task for UNESCO to attempt to set up a world documentation centre of its own. UNESCO should rather make use of all existing organisations, fill up gaps where they exist, and act as a world bibliographical centre maintaining detailed knowledge of where all specialised services were to be obtained. After further discussion this point was approved.

The next three points were considered together :-

(iii) To assist the restoration of scientific facilities in the liberated countries. Approved.

(iv) To consider the provision of German and Japanese reparations in the form of scientific apparatus and research chemicals.

The words "ex-enemy countries" were substituted for "German and Japanese". The hope was expressed that UNESCO would not take part in discussions of reparation proposals, although it might undertake to allocate materials from these sources.

(v) To plan the utilisation of such surplus war material and equipment as would be suitable for use in scientific research, and its transfer to the more scientifically backward countries. Approved.

(vi) To assist the free flow of essential research apparatus, chemicals, and equipment across national boundaries, as also the exchange of scientific specimens; collections of animals and plants, mineralogical samples, roots, seeds and the like. Approved.

(vii) To assist the free flow of scientific books, periodicals, microfilms, cinema films, manuscripts, translations, abstracts, radio talks, etc., across national boundaries; and especially between world regions of widely different linguistic pattern, e.g., those of the ideographic and alphabetic languages. Approved.

(viii) To assist the free flow of scientists coming and going across national boundaries, whether for periods of study and research or for congresses, conferences and the like.

The Meeting commended the general principles of free exchange of scientific personnel, payment for travelling expenses, overcoming of frontier difficulties, etc.

DR. NEEDHAM pointed out that the cost of financing several thousands of new studentships and fellowships for research workers and professors might be very great, in relation to other equally important methods of scientific cooperation.

DR. NOYES proposed that the difficulty would be eased if the member Governments would offer studentships, to be administered by UNESCO.

PROFESSOR AUGER supported this proposal. As a gesture DR. NOYES promised on behalf of the American Chemical Society ten such studentships.

(ix) To assist in maintaining contact between government organisations concerned with science, pure and applied, when necessary; and advise governmental and diplomatic personnel on scientific matters, when desired.

At the suggestion of DR. NOYES, the words "scientific matters" should be changed to "matters of scientific education and research." The point was then approved.

(x) To promote plans of international collaboration in research.

(BRAZIL) PROFESSOR CARNEIRO (Brazil) put forward detailed proposals (see UNESCO/Prep. Com./Nat.Sci.Com./4) for the creation of an International Museum and Research Institute in central South America, perhaps on the site of the existing Goeldi Museum at Belem do Para, for the exploration of its vast natural resources and the collection of minerals, flora, fauna, and for the study of the surviving primitive peoples. The proposal of the Brazilian delegate was strongly supported by the Meeting.

(xi) To support the international activities of the various National Academies of Science. Approved.

(xii) To assist the work of the Economic and Social Council of UNO., and of the Trusteeship Council of UNO. Approved.

(xiii) To assist the work of other international organisations at the same level, such as the United Nations Food and Agriculture Organisation, the United Nations Atomic Development Authority (when set up), the International Labour Office, the International Health Organisation, the United Nations Relief and Rehabilitation Administration, the United Nations Civil Aviation Commission, the International Resources Office (if formed), etc., etc., in scientific questions. Approved.

The only discussion of this point concerned the relation of UNESCO to the International Atomic Energy Committee now being formed. PROFESSOR AUGER felt that the Atomic Energy Committee should decide what scientific information could be released, and that the Scientific and Educational Sections of UNESCO were the proper bodies to disseminate it. DR. WILSON asked Professor AUGER to convey to the Atomic Energy Committee the willingness of UNESCO to assist in any possible way.

(xiv) To federate into branches of one organisation, if feasible, or at least maintain the closest touch with, the smaller international scientific bodies already existing, such as the Bureau International des Poids et Mesures, the United Nations Standards Coordinating Committee, the International Nations Standards Coordinating Committee, the International Commission on Zoological Nomenclature, the International Anti-Locust Research Centre, the International Fisheries Boards, an International Commission of Type Cultures (if formed), etc., etc.

(xv) To cooperate with the Division of Press and Publicity in UNESCO in informing the public in all countries concerning the bearing of scientific discoveries on international relations. Approved.

D DR. NOYES then took the Chair.

(MEXICO) DR. MARTINEZ BAEZ (Delegate of Mexico) put forward some points for consideration which were discussed one by one (see UNESCO/Prep,Com./Nat.Sci.Com./6) :-

(1) The principle of freedom of research in all the United Nations.

It was agreed that the Preparatory Commission be told that the Meeting favoured the free exchange of research information, and that those agencies responsible for this exchange be so informed.

(2) Universal language for science.

The Meeting agreed that the Preparatory Commission be informed that the sentiment of this Group was towards simplification in the use of languages for scientific publications. That consideration be given to the use of one or two, preferably English or French, or in any case as few as possible, in preparing abstracts or summaries of scientific articles; and that agreement should be made with other parts of UNESCO and of the United Nations Organisation in this respect where possible.

(3) Uniformity of system of measures.

It was approved that the Meeting should indicate to the Preparatory Commission the desirability of uniformity of measures throughout the various countries.

(4) Free exchange of books, reviews, apparatus, etc.

This point was the same as Nos. (vi) and (vii) of the Secretariat's Memorandum already approved.

(5) Encouragement of cooperative research.

Also in the Secretariat's Memorandum, No (x). Approved.

(6) Bureau of scientific terminology.

Also in the Secretariat's Memorandum, No. (x). Approved.

(7) Travelling fellowships, bursaries.

Also in the Secretariat's Memorandum, No. (x). Approved.

E (U.S.A.) DR. ARNESON (U.S.A. Delegate) then put forward some proposals (see UNESCO/Prep.Com./Nat.Sci.Com./3) :-

(1) There should be founded International Scientific Institutes.

The U.S.A. envisaged at least one International Observatory, at least one International Institute of Nutrition, and International Institutes of Meteorology.

PROFESSOR AUGER (France) suggested also an International Institute of Applied Mathematics (Computing Laboratory), and the enlargement and further support of the existing International Bureau of Weights and Measures.

MR. MALLOCH (Canada) warned that the sums required for the projected International Institutes would be large, and that careful thought should be taken in all cases as to their desirability.

(2) The exchange of scientific personnel at various age levels should be encouraged and furthered. (This is the same as No. (viii) of the Secretariat's Memorandum previously approved.)

(3) Regional Scientific Offices of Information should be established. (This was included under No. (i) of the Secretariat's Memorandum previously approved.)

(4) There should be inaugurated a Survey of existing personnel, apparatus and general scientific resources in the various countries. (This has been included under No (x) of the Secretariat's Memorandum previously approved.)

(5) The provision of abstracting and summarising services for those areas of science not now adequately covered. (This corresponds to No (ii) of the Secretariat's Memorandum previously approved.)

F Proposals were then put forward by PROFESSOR AUGER (France) (see UNESCO/Prep.Com./Nat.Sci.Com./5). As their substance had been covered in the previous discussion they were accepted en bloc.

G The CHAIRMAN summed up the discussion at this point :-

(a) That the Meeting was in general agreement with the idea of establishing International Institutes.

(b) That all the other means of international collaboration should be carried forward and that the establishment of the Institutes should not in any way exclude the furtherance of other means.

(c) That the following proposals for the establishment of International Institutes under the aegis of UNESCO be carefully considered :-

| Institute | Proposed by |
|---|---|
| Astronomy, Nutrition, Meteorology | U.S.A. |
| Applied Mathematics<br>Museum of New Materials (Plastics, Alloys, etc.) | France |
| Health (Parasitology, Immunology, etc.) | Mexico |
| Natural Resources of the Amazon Basin | Brazil |

H DR. NEEDHAM then gave an outline of the forthcoming "UNESCO Month" Exhibition to be held in Paris in November. Besides the Art Exhibition, Ballet, Lectures, etc., it was proposed to have a Scientific Exhibition. It was hoped that the latter would include the Palais de la Decouverte and exhibits by such bodies as the Anti-Locust Research Centre, the International Union of Scientific Radio, the Council for the Exploration of the Sea, etc., etc., as well as material sent by government and academic research organisations. Additional contributions to the Scientific Exhibition from member governments of UNESCO were invited and would be warmly received. The Delegates were especially requested to inform their Governments accordingly.

I PROFESSOR AUGER reported the findings of the sub-committee on priorities (Professor Auger, Dr. Noyes, and Professor Carneiro) :

First Priority (in time)

(i) Speeding up of exchange
(ii) Facilitation of travel
(iii) Help to countries outside the main centres of scientific work
(iv) Provision of scholarships, etc.

Second Priority

Establishment of Regional Offices

Third Priority

Establishment of International Institutes

Fourth Priority

Establishment of Secretariat to advise United Nations Organisations

After some discussion, during which it was made plain that the suggested order of priorities was in no way final or binding, but could be altered to suit circumstances, the Meeting generally approved.

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UNITED NATIONS EDUCATIONAL
SCIENTIFIC AND CULTURAL ORGANISATION

PREPARATORY COMMISSION

NATURAL SCIENCES COMMITTEE

Document prepared for the Natural Sciences
Committee of the U.N.E.S.C.O. National Delegates
May 31st - June 1st, 1946

(Reference numbers in brackets refer to the list
at the end of the Annexe)

The field of the Natural Sciences, Pure and Applied, has now been recognised by general consent as falling within the scope of that functional agency of the United Nations Organisation which has to deal with cultural interchanges, whether of an intellectual or technological character, between the nations of the world. This agency has received the name of the United Nations Educational, Scientific and Cultural Organisation. The purpose of the present paper is to examine briefly the inspiring tasks which lie before the Division of Natural Sciences within the permanent organisation of U.E.S.C.O. In order to do this, it will be necessary to consider under what arrangements international interchanges in the natural sciences have already gone on in times past, and how the international relations of science can best be strengthened in the immediate future.

## INTERNATIONAL SCIENTIFIC UNIONS

In the past, in times of peace, scientists themselves organised periodical (usually triennial) International Congresses for each science; most of these began in the seventies and eighties of the last century (e.g. Geodesy 1883, Physiology 1889). Then for certain branches of science (though not for all) there were successful International Unions, or permanent bureaux, which were an attempt to deal with the problems of day to day cooperation. The unions were federalised in an International Council of Scientific Unions, (1) and this International Council was eventually associated with the League of Nations International Institution of Intellectual Cooperation.

It is worth while to look a little more closely at the genesis of the Unions and their Federal Council. One of the earliest activities of this kind was the International Chart of the Heavens, started in 1824. In some sciences such Geodetics and Seismology, the need for constant contact was so strongly felt that international bodies were formed as early as about 1860. The Bureau International des Poids et Mésures began operations in 1875. From 1898 onwards an International Association of Academies came into being, but it had not been able to accomplish very much before World War I, though its existence led to the foundation in England of the British Academy as a body complementary to the Royal Society on the side of the humanities. After the war, therefore, an International Research Council was substituted for it, and in 1919 this generated the International Unions for the various sciences.

The measure of their success was very varying. Those for Astronomy, Geodesy and Geophysics, Chemistry, and Radio Physics (the study of the ionosphere) were definitely successful. The activities of those for Geography and for the Biological Sciences were on a much smaller scale. In Mathematics the Union was formed but later disbanded, and that of Pure and Applied Physics has been relatively inactive. In Geology, the Medical Sciences, and Psychology, the Unions never got beyond the stage of proposals. For some sciences, such as Physiology and Biochemistry, a Union seems never even to have been proposed. There can be little doubt that the failure of the Unions, in so far as they did fail, was, apart from individualist tendencies in some sciences, due to the lack of adequate secretariat (and to this point we shall return), though there were also many political difficulties. Delegates from the former Central Powers were not admitted till 1926. Some of the earlier statutes were not satisfactory, e.g. the lack of any limit to the tenure of office of Presidents of some of the Unions, but many improvements were made in 1931, when the name of the organisation was changed to International Council of Scientific

Unions. This body does to-day represent the highest spontaneously-created scientific organisation in the world, and given generous assistance by the United Nations, could accomplish far more than formerly.

SCIENCE COOPERATION OFFICES

During World War II all these international agencies went into a state of suspended animation. (2) On the other hand under the exigencies of war, the United Nations set up in each other's capitals Science Cooperation Offices to deal with the emergency exchange of scientific and technical information bearing on military affairs. Most of these offices (such as the British Commonwealth Scientific Office in Washington (3), The United States Scientific Mission in London (under the Office of Scientific Research & Development), the French Scientific Mission in London and Montreal, the Australian Scientific Office in London, etc.), in general much more efficiently run than anything known to international science in peace-time, dealt to the extent of some 85% with war science. But in one case (the British Scientific Office in Chungking) a condition more similar to what might pertain in peace-time grew up, only about a third of the work being concerned with war science. These science cooperation offices differed from pre-war international scientific cooperation mainly in that they had adequate funds, secretariat and mechanical aids with really reliable means of communication; and were not confined to any one science, but had carte blanche to do anything which might assist in better scientific cooperation between the countries which they linked. They were therefore rather a new departure, and pointed the way for the future. Let us look at the two whose functions came closest to those which U.N.E.S.C.O. should perform. They were (a) the British Scientific Office in Chungking and (b) the U.S. Interdepartmental Committee of Cultural and Scientific Cooperation with the American Republics.

The Sino-British Science Cooperation Office was started at the end of 1942 to give all possible aid to the Chinese scientists isolated by the Japanese blockade, except for the air route from India and the road across Sinkiang from Russia. Originally intended to deal only with peace science, it came also to deal with war science, for which it was connected with the Ministry of Production in London, as well as with the Science Division of the British Council. By the end of the war, its activities, as has been said, were concerned about 33% with war science, 33% with industrial and agricultural matters, and 33% with pure science (4). Though still financed by the British Council, it will henceforward be connected also with the Department of Scientific and Industrial Research.

Since the aim of this document is to be as concrete as possible, it is necessary to describe exactly some of the things which this office was able to do. Its functions may be divided into four:

(a) Maintenance of contact between government and other organisations concerned with science in China and the West.

(b) Supply of scientific information and equipment to China.

(c) Output of scientific information from China.

(d) General advisory assistance to British and Chinese authorities in scientific and technical matters.

Under the second and third of these heads, the office during the past three years:-

(a) Flew into China some 30 tons of scientific apparatus for about 400 Chinese laboratories. This figure, while small in comparison with the military supplies going in, was large in terms of the scientific value of equipment, individual items of which often weigh relatively little.

(b) Flew into China some 7,000 scientific and technical books.

(c) Personally visited, through its representatives, about 300 Chinese institutions of science, technology and learning.

(d) Provided about 200 current British journals and 6 microfilm copies of each for the circulation service of the International Microfilm Committee in Chungking.

(e) Sent out about 140 original papers by Chinese scientists for publication in Western scientific journals, and 100 runs of current Chinese publications for Western libraries, as well as thousands of Chinese books.

(f) Made arrangements for e.g.

(i) Cutting of thin rock-sections for Chinese geologists by the Indian Geological Survey.

(ii) Exchange of research materials of all kinds between China, India, and the West, i.e. cultures of bacteria and moulds, botanical and agricultural specimens, etc.

(iii) Printing Chinese maps by the Indian Cartographic Office.

(iv) Providing the Chinese Surgeon-General's Office with a list of edible and poisonous plants in N.Burma and the Shan States.

(v) Selecting five Visiting Professors and forty Travelling Fellows from China to England each year.

(g) Obtained information for the Chinese on e.g. (1) aerodynamics and wind tunnel experiments, (2) oilfield technology, (3) low temperature carbonisation, (4) animal husbandry, (5) nerve surgery, (6) typhus control, (7) rat control, (8) improvement of freshwater fisheries, (9) blood transfusion and blood banks, (10) vibrational spectra of molecules, (11) dynamics of faulting, (12) vegetable oil lubricants, (13) malariology, (14) crop rubber in America, India, Russia, (15) desiccated foods, (16) yeast as food, (17) conservation of B-vitamin in rice, (18) non-food uses of soya bean, (19) Seger cones for ceramic technology, (20) biochemistry of amino-acids, (21) coal utilisation research, (22) nickel-chromium steel metallurgy, (23) artificial and natural insecticides, (24) technical optics, (25) refractory bricks, (26) carbon electrodes, (27) lists of isotopic masses, (28) mechanical properties of timbers, (29) soil science in relation to tea growing, (30) examination of tree saps for rubber latex, (31) method of preparation of bacteriological peptone, (32) child psychology and social psychology, (33) industrial fermentations, (34) stereochemistry, (35) sugarcane husbandry, (36) cereal crop improvement and genetics, (37) natural resources of India, (38) experimental embryology of amphibia, (39) preparation of gas-gangrene toxoid, (40) organic chemistry of arsenical drugs, etc.

In addition to all this work the office was able to advise the civilian and military technical departments of the Chinese Government from time to time.

The work of the office complemented in a fortunate way that of the technical experts sent to China by the Cultural Division of the American State Department. These experts, of whom some 35 visited China during the war, and whose work was in general markedly successful, were attached to the relevant Chinese Ministries and worked entirely, as it were, in the field. Such a system of procedure lacked a central clearing-house through which requests for scientific information and aid could be co-ordinated. The British office, which throughout maintained close contact with the American experts, was able to fill this need.

Another good example of the kind of activities suitable for the Natural Sciences Division of U.N.E.S.C.O. is the work of the (U.S.A.) Interdepartmental Committee on Cultural and Scientific Cooperation with the American Republics, of which the chairman is the endocrinologist, Dr. R.L. Zwemer. Started in 1939 the committee, which is associated with the Cultural Cooperation Division of the State Department, has now broadened its scope to include countries other than those in South America, (5). Among the activities of this excellent organisation have been assistance to various Latin-American countries in:-

(i) rubber production and technology.

(ii) development of vital statistics.

(iii) civil aviation flight training,

(iv) aviation standardisation,

(v) tidal, magnetic, seismological, and geodetic observations,

(vi) hydrographic surveys,

(vii) educational improvement,

(viii) medicine and public health,

(ix) improvement of fisheries,

(x) maternal and child welfare investigations,

(xi) improvement of library science,

(xii) anthropology, including the compilation of an exhaustive regional handbook of the history, archaeology, and culture of Central and South American Indians and their indigenous civilisations.

It will be seen that while some of this work would come in the field of the United Nations Health Organisation and the United Nations Civil Aviation Authority, a great deal of it points the way to future international action on the part of U.N.E.S.C.O. The countries concerned have been Haiti, Ecuador, Columbia, Cuba, Peru, Venezuela, Nicaragua, Mexico, Uruguay, Panama, Brazil, Chile, Dominica, and Paraguay.

Summarising, therefore, we see that the International Scientific Unions were, and are, limited as to subject-matter; the bilateral Science Cooperation Offices were, and are, limited as to national scope. The Unions connected (or would have been in a position to do so if they had had the facilities) work going on in all countries within a defined field, such as that of Physics. The Offices did in fact organise interchange over the whole field of the sciences, but it was only bilateral, as between two individual nations, or at any rate, restricted. As has often been said, what we need to-day is fundamentally a system which will combine the methods which have spontaneously grown up for assuring international scientific relations in time of peace, with those which the nations have had to work out under the stress of war. None of the machinery ought to be scrapped. The problem is to weld it into a satisfactory functioning system.

Hence the conception of an International Science Cooperation Service, set forth by one of the Secretariat as the result of his four year's experience as Director of the British Scientific Office in Chungking, in a series of memoranda (6,7,8) which originated in the first instance from conversations and correspondence with H.E. Dr. T.V. Sung in December, 1943. Now that a Division of Natural Sciences exists within U.N.E.S.C.O., its activities would in effect be those formerly pictured for an International (United Nations) Science Cooperation Service.

## AN INTERNATIONAL SCIENCE COOPERATION SERVICE

First of all what is the necessity for such an international science cooperation service?

In general, it may be said that there is a universal desire among scientists to see better international scientific contacts in the coming years. The dependence of all modern world civilisation on applied science must find its expression in the sphere of international relations. This desire is more strongly expressed, however, the further one goes away from the great scientific and industrial centres of Europe and the United States, and in the United Kingdom it is much more noticeable among scientists under fifty than among those above that age. Some of the older generation, though theoretically in favour of international scientific cooperation, are distrustful of any machinery for doing it. They believe, for example, that given free mailing facilities and free transit by sea and air once again, scientists in all countries will be able to cooperate so well as to render any organisation unnecessary. Thus Professor A.V. Hill, now Foreign Secretary of the Royal Society,

has suggested that governments might subsidise air-lines by giving them so many thousand passenger-miles earmarked for scientists travelling on scientific business, the travel-vouchers to be issued through the Royal Society, the National Academy at Washington or some similar responsible body in each country. This is an interesting idea which we may hope will bear fruit.

The fundamental error of believers in what we may call "laissez-faire", however, is that they look at the scene too exclusively from the European-American point of view, that is to say, they think of oscillating between Paris, Brussels, London, New York, Washington, Montreal, and the like. They do not realise that the picture of world science looks very different when seen from Roumania, Peru, Java, Iran or China*. For historical reasons, since modern science grew up in Western Europe, there is a "bright zone" covering Europe and North America, where all the sciences are relatively advanced and industrialisation is highly developed. It is particularly the scientists and technologists in the far larger regions of the world outside the "bright zone" who need the helping hand of international science.

This must not in the least be taken to imply that the international scientific activities of U.N.E.S.C.O. would be, from the standpoint of the most advanced nations, purely philanthropic. Such a conception would be laughable. Among the five hundred million inhabitants of China and Japan, there is not a high proportion of organic chemists, but Chen gave ephedrine and Takamine adrenalin to the Western world. India gave the Bardhan-Gengupta synthesis, fundamental in the realm of the steroids. Was not the country which produced Ramanujan and Raman scientifically backward as a whole? Then, descending from highest mathematics to humble agriculture, it has been calculated that the soya bean, which emanated from China, far more than recompensed the Western nations financially for all the money which they had devoted to education and scientific assistance in that country. Similarly Canada and Australia are interested in the potatoes of the Andes and the grasses of Chinghai; Mexico provided the insect parasite which saved Australia from the prickly pear. Many important discoveries have emerged from countries which are, as a whole, less advanced scientifically, e.g. the work on sex hormones in Esthonia, on soil bacteria in Finland, on protein denaturation in China and on neutral anatomy in Spain.

The parochial theory of the "laissez-faire" school is that in science everyone knows everyone else, and can therefore easily get in touch when any problem arises which calls for it. But this is simply not the case in the greater part of the world. A Venezuelan economic entomologist may have a problem very similar to that of a Chinese economic entomologist, but the difficulties of their coming into touch are enormous. A Roumanian organic chemist may need a few grams of a substance only being produced in India or Canada, but if he only knows his own language it will not be so easy to get. The Australian workers on alunite needed for years the publications of the Chinese National Academy on the same subject, but were never able to get them until an exchange was arranged through the British Scientific Office in Chungking. Again, according to theory, the actual publications (we need say nothing, for the moment, of confidential matters) of the United States Department of Agriculture, or of the United Kingdom Department of Scientific and Industrial Research, are supposed to reach automatically all those investigators in every country who need them. But this is palpably not the case. And yet no individual country could afford to maintain "selling machinery" which would ensure the efficient distribution of public knowledge, especially since most of the publications are for free gift.

Allied to what may be called this "Periphery Principle" of concentrating the help of U.N.E.S.C.O. where it is most needed i.e. to the scientific men isolated around the periphery of the "bright zone", is the complementary principle of not interfering too much within the "bright zone". It would obviously be absurd for any international funds to be spent in communicating between people in the United Kingdom and the United States, for example, who are quite well able to communicate with each other. U.N.E.S.C.O. should rather do those things in international scientific cooperation which are not being done, and cannot be done, by any other

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* Cf. the letter of Dr Naji al Asil (Iraq) to the Chairman, dated 19/11/45 (Prep. Com./6); the declaration of the Egyptian delegation to U.N.E.S.C.O. (Prep. Com./22,E(1); Prep. Com./41); and the speeches of M. Luis Perez (Cuba) (Prep. Com. 4th session, PV 2,p.9), and of Lt.Col. Hodgson (Australia) (-do-, p.10).

channels. Acceptance of this principle will at once reassure all those scientists within the "bright zone" who might fear that some bureaucratic organisation may try to come between them and the colleagues with whom they are familiar across the Atlantic.

One might say that the keynote of the Natural Sciences Division of U.N.E.S.C.O. should be "Facilitation". Before engaging in any new international activity, investigation must be made to see whether there is not already an organisation at work trying to do what is necessary. In seven cases out of ten it will be found that there is, but that it has never been able to operate satisfactorily for lack of funds and secretariat. In this case, if on examination it proves to be truly international, and acceptable to the specialists whom it concerns throughout the world, it should be so strengthened financially as to enable it to function really well, and combined with other similar bodies into a loose federation under E.N.E.S.C.O. auspices.

The fear of organisation as such is common, especially among those scientists who like to emphasise the artistic and individualistic character of their work. An eminent astronomer said to the writer "One assumes that a man has the necessary books and equipment, and then it lies between him and his maker". But this assumption is just what is often unwarranted.

The problem before U.N.E.S.C.O. then is to steer clear of two extremes. The spontaneously arising scientific organisations before World War II often made the mistake of thinking that the battle was won when the organisation was once written down on paper, and eminent scientists in different countries had accepted high positions in it. There thus grew up what might be called "invisible secretariats" existing only on paper, and capable of doing little real work. A single scientist would frequently devote only his spare time to his work as secretary, and the majority of proposals or requests would have to be turned down because there was nobody to handle them. On the other hand, if great care is not taken to select the right personnel, international scientific exchanges may perish under undue bureaucratism. The former danger may be avoided if adequate funds for office management are assured, and the latter will not arise if scientists themselves fully participate.

It is often said that scientific work must be kept free from all political entanglements. In so far as this is true, U.N.E.S.C.O. provides the machinery for doing it, since an international organisation must naturally remain free from the influence of changing political trends in individual countries.

It may be added that an international service of scientific cooperation has been called for recently by many writers and organisations (9,10,11,12,13,14,15,16). It was also endorsed by the meeting of U.K. and Dominions Scientific Liaison Representatives at Washington in August 1944 (17). The Draft of a Bill to establish a National Science Foundation, prepared by the Subcommittee on War Mobilisation of the Military Affairs Committee of the U.S. Senate (18,) of Feb. 1945, includes under Title VIII provisions to give the Foundation authority to "collaborate with similar organisations in other countries in sponsoring and carrying through research programs and projects requiring cooperation by foreign scientists and technologists; and to act as a clearing-house for exchange of technical and scientific information with other countries" and with relevant international organisations.

We may now embody the ideas expressed in the above paragraphs in a series of quite concrete proposals. What should be undertaken by the Division of Natural Sciences of U.N.E.S.C.O.?

The Division of Natural Sciences of U.N.E.S.C.O. should:-

(I) Promote international scientific cooperation in all its aspects, by facilitating the work of existing international scientific organisations, by initiating new ones if necessary, and by setting up regional science cooperation offices throughout the world (cf. Constitution, Art.I, sect.2(c)).

(II) Organise and assist the better exchange of scientific information and research services between scientists and their organisations in the different countries.

(III) Assist the restoration of scientific facilities in the liberated countries.

(IV) Consider the provision of German and Japanese reparations in the form of scientific apparatus and research chemicals.

(V) Plan the utilisation of such surplus war material and equipment as would be suitable for use in scientific research, and its transfer to the more scientifically backward countries.

(VI) Assist the free flow of essential research apparatus, chemicals, and equipment across national boundaries, as also the exchange of scientific specimens; collections of animals and plants, mineralogical samples, roots, seeds, and the like.

(VII) Assist the free flow of scientific books, periodicals, microfilms, cinema films, manuscripts for publication, translations, abstracts, radio talks, etc. across national boundaries; and especially between world regions of widely different linguistic pattern, e.g. those of the ideographic and alphabetic languages.

(VIII) Assist the free flow of scientists coming and going across national boundaries, whether for periods of study and research, or for congresses, conferences, and the like.

(IX) Assist in maintaining contact between government organisations concerned with science, pure and applied, when necessary; and advise governmental and diplomatic personnel on scientific matters, when desired.

(X) Promote plans of international collaboration in research.

(XI) Support the international activities of the various National Academies of Science.

(XII) Assist the work of the Economic and Social Council of U.N.O., and of the Trusteeship Council of U.N.O.

(XIII) Assist the work of other international organisations at the same level, such as the United Nations Food and Agriculture Organisation, the United Nations Atomic Development Authority (when set up), the International Labour Office, the International Health Organisation, the United Nations Relief and Rehabilitation Administration, the United Nations Civil Aviation Commission, the International Resources Office (if formed), etc. etc. in scientific questions.

(XIV) Federate into branches of one organisation, if feasible, or at least maintain the closest touch with, the smaller international scientific bodies already existing, such as the Bureau International des Poids et Mesures, the United Nations Standards Coordinating Commission, the International Committee on Zoological Nomenclature, the International Anti-Locust Research Centre, the International Fisheries Boards, an International Commission on Type Cultures (if formed), etc. etc. etc.

(XV) Cooperate with the Division of Press and Publicity in U.N.E.S.C.O. in informing the public in all countries concerning the bearing of scientific discoveries on international relations.

D 63630-1 500 D/d 5/46

Monday evening
with Evelyn Radford

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INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

*THE FOURTH GENERAL ASSEMBLY OF THE*
INTERNATIONAL COUNCIL OF
SCIENTIFIC UNIONS

Held at LONDON

*July 22nd* TO *24th*
*1946*

# REPORTS *of* PROCEEDINGS

edited by

F. J. M. STRATTON
*General Secretary*

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# TABLE DES MATIÈRES


| | | |
|---|---|---|
| Comité Exécutif | | *page* v |
| Organisations adhérentes au Conseil | | vii |
| Procès-Verbaux des Séances | | 1 |
| Rapports des Unions Internationales | | 27 |
| Annexe I | Composition des Délégations | 45 |
| II | Rapport du Comité Exécutif | 49 |
| III | Rapport des Finances | 56 |
| IV | Rapport du Comité des Relations entre les Phénomènes Solaires et Terrestres | 58 |
| V | Rapport du Comité de la Science et les Relations Sociales | 60 |
| VI | Commissions Mixtes | 76 |
| VII | Les Unions Internationales—Bureaux, Commissions, Pays affiliés | 77 |
| VIII | Statuts du Conseil International des Unions Scientifiques | 86 |
| IX | Statuts des Unions Internationales | 96 |

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SECRETARIAT: Gonville and Caius College, Cambridge, England

# ORGANISATIONS ADHÉRENTES AU CONSEIL

| *Pays* | *Organisation Nationale* |
|---|---|
| Afrique du Sud | Council of Scientific and Industrial Research, Pretoria. |
| Argentine | Gouvernement. |
| Australie | National Research Council, Sydney. |
| Belgique | Académie Royale de Belgique, Bruxelles. |
| Brésil | Serviço Geologico e Mineralogico, Rio de Janeiro. |
| Bulgarie | Gouvernement. |
| Canada | National Research Council, Ottawa. |
| Chili | Gouvernement. |
| Chine | Academia Sinica, Nanking. |
| Etat de la Cité du Vatican | Pontifica Accademia delle Scienze i Nuovi Lincei, Rome. |
| Cuba | Academia de Ciencias Medicas, Fisicas y Naturales, La Havane. |
| Danemark | Kongelige Danske Videnskabernes Selskab, Copenhague. |
| Egypte | Gouvernement. |
| Etats-Unis | National Research Council, Washington. |
| Finlande | Suomalainen Tiédeakatemia, Helsinki. |
| France | Académie des Sciences, Paris. |
| Grande-Bretagne | Royal Society, London. |
| Grèce | Académie d'Athènes, Athènes. |
| Hongrie | Magyar Tudományos Akadémia, Budapest. |
| Inde | Gouvernement. |
| Indes Néerlandaises | Natuurvetenschappelijke Raad van Nederlandsch-Indië, Batavia, Java. |
| Italie | Il Consiglio Nazionale di Ricerche, Roma. |
| Japon | National Research Council, Tokyo. |
| Maroc | Gouvernement. |
| Mexique | Direccion de Estudios y Climatologicos, Tacubaya, D.F. |
| Norvège | Det Norske Videnskaps-Akademi, Oslo. |
| Nouvelle-Zélande | The Royal Society of New Zealand, Wellington. |
| Pays-Bas | Koninklijke Akademie van Wetenschappen, Amsterdam. |
| Pérou | Instituto Geografico Militar, Lima. |
| Îles Philippines | National Research Council, Manila. |
| Pologne | Polska Akademja Umiejetnosci, Cracovie. |
| Portugal | Gouvernement. |
| Roumanie | Académie Roumaine, Bucuresti. |

| *Pays* | *Organisation Nationale* |
|---|---|
| Suède | Kungl. Vetenskapsakademien, Stockholm. |
| Suisse | Société Helvétique des Sciences Naturelles, Académie Suisse des Sciences, Genève. |
| Tchécoslovaquie | Conseil National de Recherches, Prague. |
| Tunisie | Gouvernement. |
| Uruguay | Instituto Geográfico, Montevideo. |
| Yougoslavie | Académie de Serbie, Belgrade. |

## UNIONS SCIENTIFIQUES INTERNATIONALES

Union Astronomique internationale.

Union internationale de Géodésie et Géophysique.

Union internationale de Chimie.

Union Radio-Scientifique internationale.

Union internationale de Physique pure et appliquée.

Union internationale de Géographie.

Union internationale des Sciences biologiques.

# International Council of Scientific Unions

## FOURTH GENERAL ASSEMBLY

### LONDON, 22–24 JULY, 1946

*General Assembly, 22 July, 1100*

The General Assembly met in the rooms of the Royal Society of London at 1100, 22 July, 1946. Sir ROBERT ROBINSON, President of the Royal Society, welcomed the delegates in the following speech:

It is a great honour to welcome, on behalf of British Scientists, the members of the International Council of Scientific Unions to London. The Royal Society is keenly interested in the results of your deliberations and we are glad that this distinguished gathering meets under our roof.

I take it that your primary functions are to assist at the birth of new International Scientific Unions, to mature the young or weak among the Sectional Unions and to co-ordinate the activities of the established organisations. Some of the latter have reached vigorous manhood and you stand in the relation of foster-parent to them. That is a situation which is well known to require tactful handling.

The mature are apt to show an unmistakable, if mistaken, disposition to work out their own salvation.

But even the healthiest of these organisations should welcome the service of the International Council in many respects and I may give as just one example the distribution of Congresses and Conferences in space and time. It seems to be desirable in view of the difficulties of the times, that large International Congresses should not clash and that could be avoided if it became a routine to consult this body before it is too late.

There are doubtless many other aspects of co-ordination on which the established International Scientific Unions could usefully consult this Council. But in addition to the original objects of the Council other matters having even wider implications will be discussed and I refer of course to the question of the Relations of Science and Scientists to the State and to the World at large.

These discussions revolve around the atomic bomb, the possible use of nuclear energy in the service of the community, the responsibilities of scientists and the freedom of science. The noble ideals quoted in the Draft Report of the Committee on Science and its Social Relations truly express the aims of all of us, but the translation into practical measures is beset with difficulties.

Carried to their logical outcome, the precepts of some enthusiasts suggest that loyalty to science must transcend loyalty to King and country.

In others a political paramountcy is claimed which goes far beyond anything that the Community will tolerate.

I mention these matters only to beseech you to apply to concrete proposals the acid test of practicability.

Let us cherish our ideals and take such present steps towards realising them as are approved by the public conscience. Unfounded generalisation and exaggerated demands in the military and political spheres will arouse suspicion and hostility and do a gross disservice to science. Above all let us get the facts right and avoid premature statement based on wishful thinking. Unless we do this, with even meticulous care, we shall come to be regarded as queer folk, cranks, or as men with axes to grind—and our voices will not be heard.

I do not say this to deprecate the efforts which are being made, nor is there any suggestion of failure or despair. On the contrary, the prevailing spirit among scientists at the present time should surely be one of hope and optimism. Opportunity knocks at the door. We may well be at a critical point in history, the turning of which cannot be accomplished without our assistance.

This Council is in a unique position to focus our efforts to maximum intensity and that is why I have ventured to emphasise the necessity for circumspection and the dangers of an attitude of aloofness from the body politic.

Wisely used, the most pervasive faith in the world, the religion of the pursuit of truth for its own sake, may be the most potent instrument of reconciliation and reconstruction. Thus we may help to lead the nations into amity and the prosperity which flows from long-continued peace.

At the conclusion of the speech of welcome the President of the International Council, Professor Dr H. R. KRUYT, took the chair, supported by the General Secretary, Professor F. J. M. STRATTON, and delivered the following Presidential Address:

It is a great pleasure to me to express on behalf of the International Council our gratitude for the great hospitality the Royal Society has rendered us this year again in giving us the opportunity to have our general meeting here. Where could we meet better than here? Last week we honoured the memory of one of your most famous members and when meeting here in Burlington House we are aware of being in a temple of science and we are conscious that our deliberations should be at an adequate level. Moreover, I want to express our thanks for the cordial words of welcome which you, Mr President, were so kind as to speak to us.

I am sorry that I must begin to mention the many losses the I.C.S.U. has suffered since we met here in 1937. We lost our president, Professor Fabry, and two vice-presidents, first Marchese Marconi and later the

Baron Joji Sakurai, whom the Executive Committee had appointed in his place. The Council mourns for these eminent scientists, who co-operated only so short a time in the aims of the I.C.S.U. Then we lost Sir Arthur Eddington, President of the International Astronomical Union, Professor Nicola Parravano, President of the Union of Chemistry, Professor Ernst Cohen, former President of the same Union, General J. E. R. Bourgeois, former President of the International Union of Geography, General Perrier, President of the Association for Geodesy, Sir Albert Seward, President of the International Union of Biology, Professor H. Abraham, General Secretary of the Union of Pure and Applied Physics, Dr M. Philippson, General Secretary of the International Union of Radio Science. Moreover, I want to mention the death of Sir Henry Lyons, who has been the General Secretary of the International Council during the years 1931–37.

This exceptionally long list of heavy losses shows us once more what a critical period in history lies between this meeting and that of 1937. The International Council meeting in 1946 has to consider a world which in many respects is fundamentally different from that of 1937. The Second World War has had not only an enormous influence on politics but as well on science. We are inclined to keep politics as far from science as possible, for we know how much the International Research Council, the predecessor of the I.C.S.U., has suffered after the first world war by not discriminating sufficiently in this respect; the development of international scientific co-operation then has been prevented for at least ten years. However, even if we shall avoid making the same mistakes as have been made then, we shall have to consider this time problems of a quite different nature. I shall refer to this later on.

The I.C.S.U. is the highest body in the domain of natural science; it is the international organisation of the national academies of science from the countries all over the world. As in every country the national academy is the most influential body of that country, the I.C.S.U. is the international bearer of authority of all these national academies. Moreover, the I.C.S.U., according to its name, is the co-ordination of the international scientific Unions; each of these bears in its special field international authority, derived from that of the national societies which constitute the Unions. Therefore the I.C.S.U. has its high authority along two lines: it is the exponent of the national and of the international organisations in the field of natural science. This top position is its strength and its weakness. Its strength is evident from what I just said; its weakness can be understood for two reasons. In the first place, the bodies that constitute the I.C.S.U. have themselves already so much authority, whether territorial (the national academies) or in a specialised field (the Unions), that they will act themselves according to the responsibility they feel, leaving hardly any field of activity for the I.C.S.U. In the second place, the I.C.S.U. being a confederation of other bodies, it cannot be stronger than its constituents: the influence of science, the efficiency of scientific co-operation, depends upon the strength of the academies and the Unions; the I.C.S.U. can co-ordinate

their value but can hardly realise more than any academy or Union can do. The purpose mentioned in the I.C.S.U.'s statutes "to co-ordinate the national adhering organisations, and also the various international Unions" is a rather theoretical one, as organisations cannot be co-ordinated, only their activities; the success of the Council depends therefore on the liveliness of the adhering bodies. When this liveliness fails, it is hardly possible for the Council to promote it. An important aim of the Council should be to establish Unions in the fields where they fail and we miss still badly several Unions. There is, e.g. no Union of Geology, though we have Geodesy and Geophysics as well as Geography. It seems unacceptable that there should be no want of international co-operation in a branch of science so international as Geology; however, there is an international geological congress that meets every three or four years. Now it is a task for the I.C.S.U. to convince geologists that they should transform their international congress into a Union. The latter organisation can assure that activities between two congresses are allowed for. The direction of an international congress is ordinarily entrusted to the country in which the next congress will meet; the task of this committee is restricted to the organisation of the congress, therefore there is no direction for international activities in the intermediate period. Moreover, if the nominated president or secretary dies during that period (not to speak of a war), there is no continuity. If the congress committee were a local commission of the Union (as is the case in the Union of Chemistry with respect to the International Congress of Pure and Applied Chemistry), there is always the Bureau of the Union to assure the continuity; moreover, this Bureau is in any case a link between two succeeding congress committees.

It may seem that this is only a question of administration, but it is very essential for the I.C.S.U. The second purpose mentioned in the Statutes of the I.C.S.U. is "to direct international scientific activity in subjects which do not fall within the purview of any existing international association". Now it seems hardly possible for the I.C.S.U. to direct scientific activity in a subject like geology, the more so because there are geologists neither in the Executive Committee nor in the I.C.S.U. as long as there is no Geological Union adhering. We feel such a lack the more while the two purposes, which I mentioned, combined, impose a very important duty on the I.C.S.U., viz. to organise the scientific activities in those domains which are intermediate between two or more Unions. There are already for long such domains and the more science develops the more these intermediate ranges have an increasing importance. It is a prominent duty for the I.C.S.U. to call into existence joint commissions of two or more Unions to be active in these intermediate provinces of sciences. We are all aware of the importance of teamwork in the development of science; here the I.C.S.U. can bring about things which the separate Unions cannot accomplish. In its December meeting the Executive Committee considered the establishment of a joint commission on the *Ionosphere* between the Astronomical and the Physical Unions and those for Geodesy and Geophysics and for Radio Science; one for *Rheology* between the Chemical and

the Physical Union and that for Biological Science; another for *Symbols* between the Unions of Physics and of Chemistry; and lastly one for *Oceanography* between the Union of Geodesy and Geophysics and that of Biological Science. But here we feel the incompleteness of the I.C.S.U., for in the commission for Oceanography we miss a Union of Geology and in that for Rheology we miss a Union of Mechanics. And here you see that an International Congress, that moves like a comet in our scientific firmament, cannot help us; we want in these joint commissions people who have the permanent background of their Union. I am happy to say that our discussions on joint committees have induced the Bureau of the International Congress of Applied Mechanics to propose to the next congress its transformation into a Union of Mechanics that will adhere to the I.C.S.U., and if I am well informed in the sphere of geologists the same problem will be discussed. I want to express my hope that before long we shall be able to welcome Unions in these and other domains within the I.C.S.U., and thus be able to organise a fruitful co-operation between these Unions. I have not yet mentioned the mathematicians, but we want their co-operation as well, especially in the range of applied mathematics, a domain that has penetrated those of the other sciences since long ago and does so now even more and more. About medicine I hardly venture to speak; that is a very complicated problem in its complexity. But the need for joint actions between Biology, Chemistry, Physics, Physiology, Pharmacology, etc., is so evident that the I.C.S.U. cannot avoid considering this problem before long.

The present condition of the world forces the I.C.S.U. and the Unions to consider many problems which are consequences of the war or of the post-war organisation of the world.

In the first place several scientific journals and encyclopaedic works with a more or less international character were published before the war in Germany. Now that they have fallen off others must be established to take their place. One gets the impression that this is left up till now to the arbitrary initiative of publishers in such a way that commercial considerations prevail over scientific efficiency. It is a duty for the Unions to intervene in this matter within their own domain, but mutual discussions in the I.C.S.U. will improve the result. Therefore, there is a need for more contact between the Unions; the Executive Committee in its December meeting formed the resolution that at least *annual* reports from the Unions should be distributed.

The political organisation of the world in the United Nations Organisation has given birth to the United Nations Educational Scientific and Cultural Organisation, the U.N.E.S.C.O. Though the word "scientific" originally was missing, the American delegation at the conference in November proposed its addition and I have backed that proposal in the interest of the I.C.S.U. and the Unions; Article XI of the Convention indicates an arrangement that can be made between U.N.E.S.C.O. and other international organisations. Moreover, a resolution was adopted in which the Executive Committee of the U.N.E.S.C.O. was instructed "to

consult with the I.C.S.U. on methods of collaboration to strengthen the programs of both bodies in the area of their common concern".

For many reasons we must rejoice at this new development of international relations. The Assembly of the I.C.S.U. in 1937, aware of the fact that the I.C.S.U. needed relationship with an organisation of official status, charged its Executive Committee to negotiate with the Commission de Co-opération Intellectuelle of the League of Nations to co-ordinate their common activities. In 1937 the two bodies met at Paris and we came to an agreement, which excluded every overlapping of our activities and gave the I.C.S.U. a financial support that it needed for a necessary extension of its work. As the war started already in 1939 the agreement came hardly into action and since then the League of Nations and its Commission have lost the importance they had before. I think it a good prospect that the U.N.E.S.C.O. has sought our co-operation from the very beginning. Recently we started our negotiations and I hope that a definite agreement will be accepted during this assembly. Where we hope to come to is this: It would be very inefficient if U.N.E.S.C.O. took up the international organisation of science as if there were no Unions nor the I.C.S.U. with their twenty years' experience and results. On the other hand, our organisations restrict their activity to what Dr Needham lately called the "bright zone" (Western Europe, North America, South Africa, etc., the scientifically well-equipped countries) and they are of smaller use to the countries of the "dark zone". One could say: we form a scientific church but not a mission. We beg U.N.E.S.C.O. to leave us the former domain and take the latter itself, for we are not prepared to do that. Within our domain, the I.C.S.U. and the Unions should be the authoritative body, but so that we remain in close contact with the Bureau of U.N.E.S.C.O. This organisation should then help the Unions and the I.C.S.U., financially and administratively, so facilitating their activity. For the I.C.S.U. wants financial support, for instance to run the joint commissions about which I spoke just now; as to the secretariat of the I.C.S.U. as well as those of many Unions, they are so modestly equipped that one cannot expect them to develop the activity that is really wanted. I hope you do not think this a criticism on the work done up till now, just the contrary. I have the greatest admiration for what Professor Stratton and the secretaries of the Unions do, exactly because they have hardly any assistance. But this should be improved and we hope that this might be changed by the co-operation with U.N.E.S.C.O.

There is still another reason why we should appreciate our new relation to U.N.E.S.C.O. The I.C.S.U. and the Unions are interested in science only, they have never concerned themselves with education nor with the part science should have in culture. I hope this one-sidedness will be improved by our co-operation with U.N.E.S.C.O.: more than ever we feel that we cannot live in scientific isolationism. And this brings me to the last point that I want to mention at the opening of our assembly.

Science is developing since two centuries with an ever-increasing tempo; small wonder that scientists are proud about their achievements. The

notion science includes two parts; its method and its results. The general trend of thought developed in science, that is its method, has had an enormous influence in nearly every domain of human thought; it may have been over-estimated in the nineteenth century; still its great importance cannot be denied. The scientist, therefore, felt that his scientific method was a benefit to mankind and though disapproving of materialism he rejoiced in the progress of knowledge and understanding that science had brought.

As to the results of science the question is more complicated. In the first place the enormous possibilities opened by science to mankind strike everybody as a blessing. I shall not boast of aviation and radio, of metals and plastics, of artificial fibres and electric light, of vacuum cleaners and motorcars; I shall refer only to fertilisers, which have made possible the nutrition of a constantly increasing population and the medical means to fight against diseases and death. We live in a relative prosperity of which former generations have not dreamed. Therefore, we are inclined to praise in panegyrics the blessings of science. But now and then we get sceptical whether it is all to our benefit or not. As long as this doubt concerns only minor questions we are inclined to think that we have to take them into the bargain; but to-day we are aware that the interatomic energy cannot be treated in that way, we realise that the development of science does not imply automatically the benefit of mankind and we become conscious of our responsibility.

What is a scientist's responsibility? One may answer this question in two ways. One point of view is that it is limited only to the disclosure of truth, and that the application of its results is other people's concern. As long as we could maintain the optimistic point of view, that any scientific result lead automatically to the benefit of mankind, there was little harm in this easy theory; but now that we are confronted with the most pernicious consequence of scientific research, we feel that we cannot confine ourselves to an "Am I my brother's keeper?" And this leads to the other point of view, that scientific research implies an ethical responsibility. Ethics and science are seldom discussed in their interrelation, except in the case of medicine, where a man puts his life into the hands of his scientific fellow man. But medicine is no exception now that it becomes obvious that any science interferes with the fate of fellow men. We become aware of the truth of the story of paradise: as soon as man eats the fruit of the forbidden tree he eats from the tree of knowledge of good and evil, and that knowledge implies immediately ethical problems. Knowledge is inevitably a thing that may lead as well to evil as to good. Creation and dispersion of scientific knowledge therefore is a problem of responsibility.

To-day science is confronted with a terrible responsibility. On one side it should develop and everything that can promote it should be favoured: intense research, publicity, etc. On the other side one shudders at the thought how terribly the results can be misused. Clearer than ever we understand that knowledge is not all, that we need morals and brotherhood to avoid science becoming a curse.

The I.C.S.U. during this assembly will have to discuss the problems

I mentioned in this address. Therefore, we shall devise means and ways to strengthen our organisation in the interest of science and its continuous development; we shall try to co-ordinate our activities with those of the United Nations Organisation, the U.N.E.S.C.O., and we shall ask ourselves what our responsibilities are with regard to the actual problems of mankind.

I hope that our assembly may be such that it will take an honourable place in the history of this International Council.

The President extended a hearty welcome to the visitors present, Monsieur A. Establier and Madame Malterre representing the International Organisation of Intellectual Co-operation and Dr Needham, head of the Scientific Division of the Preparatory Commission of U.N.E.S.C.O. The President asked Madame Malterre and Professor Munro Fox to assist in the translations of the speeches made during the meetings.

The report of the Executive Committee (see p. 49) which had been printed and circulated in advance of the meeting was adopted.

The meeting appointed Professor J. H. Oort and Professor J. Proudman as the Finance Committee to examine the accounts of the past years and to report on the estimates for the coming years.

The President then declared the meeting open for a general discussion on the future policy of the Council.

Monsieur Hadamard raised the point that immediate action was required to meet the difficulties caused by the exchange control in the passage of scientific literature across frontiers. It was within the framework of the Council to take action by bringing the matter to the notice of the States they represented and pressing for the removal of the exchange restrictions.

Professor Timmermans asked for information on the continuance of important German publications after the commencement of the war and on the method of securing these publications. Could the Council help in this matter and also in securing the publications of the U.S.S.R. for the years 1939–45?

The President replied that this was a matter for the Fédération Internationale de Documentation.

Professor Borel urged that the Council should use its authority to restart the International Union of Mathematics, which had been dissolved at its meeting at Zürich in 1936.

Professor Sir Ian Heilbron urged that all steps should be taken to authorise groups of geologists and mathematicians to establish international Unions.

Dr Lambert said that he would get into touch with the committee of mathematicians in the United States who were at present organising a mathematical congress, and Monsieur de Margerie expressed a hope that a Geological Union would be formed.

The President asked that representatives of the different countries present should get into touch with their own scientists on these matters and he added that if the change of statutes proposed by the Executive Committee were adopted there would be no long delay in approving new Unions that might be formed.

Dr Hill said that the President had referred to the complex question of international organisations in the field of medicine. Physiology had a well-established international congress, now sixty years old. The question of their forming a Union should be closely discussed with them: the Secretary was Professor Liljestrand of Stockholm.

Professor Fleure added that the anthropologists were holding a meeting in 1947 in Prague. The officers of the Council should get into touch with Sir John Myres at Oxford.

Dr Bogert enquired as to the present position of the Union of Physics as the Union of Chemistry were anxious to get in touch with them.

Professor Ewald stated that a meeting of the Union of Physics was to be held in January 1947 at which it was hoped that the Union would be properly restarted.

Professor Burgers stated that the Bureau of the Congress of Applied Mechanics had decided to recommend at their next meeting later in the year that the Congress should form a Union. They wished to co-operate in some of the joint commissions such as the one on Viscosity.

Professor Tardi suggested that the Council should return to its earlier function and become more of a directing body; this could be done without a change of statutes and might encourage the formation of new Unions.

The General Secretary read a letter from Professor Sir Lawrence Bragg stating that a group of physicists were proposing to form an International Union of Crystallography, which should arrange for the publication of an international journal of crystallography, a periodic review of crystal structure, international tables of data required for crystal structure analysis and abstracts covering the field of crystallography. The Secretary added that another possible Union in view was for Microbiology and that enquiries were reaching him from other quarters.

Dr Needham said that possible developments might also come from Experimental Cytology and from Nutrition.

Professor Munro Fox pointed out that a Union of Palaeontology also existed and added that the Council ought to get into touch with it.

Professor Burgers raised the question whether all these Unions should be separate or should combine with each other and form large Unions. The Executive Committee might form a small group to advise on questions of policy in these matters.

Professor Ewald supported Professor Burgers in this connection but was anxious that the suggested committee should not delay the acceptance of a new Union that wished to be recognised.

Dr Sirks urged that there should be a system underlying the formation of new Unions. The Union of Biological Sciences had always endeavoured to work as a widely extended body, but microbiology and physiology with their medical links might well stay outside. They must, however, not get cluttered up with too many Unions by letting each little group of scientists form a Union.

The President expressed his personal view that Unions existed to co-ordinate the activities of scientists. It was not so important at this stage to settle whether they should be separate or combined. That could be decided later.

Mlle. Lefèvre, referring to the International Union for the Scientific Study of Population, reminded the meeting that the Union of Geography had a commission on population.

Professor Tardi mentioned that the International Union of Geodesy and Geophysics consisted of seven associations and that that method worked very well (a view confirmed later by Sir Edward Appleton). He suggested that the practice of forming sections within a large Union should be retained and developed.

Monsieur Establier said that if the number of Unions was much increased, there would be a risk of overloading the Executive Committee, which would become almost as large as the General Assembly. The Secretary replied that this could be met by a change of statutes.

The President said that the discussion had been quite useful and would help the next Executive Committee. They would turn next to the question of joint commissions.

Professor Burgers asked for a joint commission on continents corresponding to the one on oceanography. The President replied that no suggestion to that effect had come to the Executive Committee. He then asked the views of the meeting on the need of wider publicity for the activities of the Council and Unions through the medium of the scientific press.

Professor Munro Fox said he thought that it was most important that they should take active steps in this matter. He had found that the Union of Biological Sciences was practically unknown and he had gathered that the same was true of the Union of Physics.

Dr Bogert said more publicity on the chemical side was also urgently needed. Many chemists knew nothing of the Union nor of the Council. The intelligent public should be told more of their activities.

Professor Hill said that he was sure that it was right to use more means of publicity. Hundreds of people had asked him about the Council and the Unions.

Dr Bogert said that if they asked for support they must let people know more about what they were doing.

Professor Burgers said that an annual meeting of the Executive Committee coupled with reports from the Unions and joint commissions should help.

The discussion was then closed and the meeting adjourned.

*General Assembly, 22 July, 1400*

The PRESIDENT explained that the business before the meeting was the discussion and, he hoped, approval of the draft agreement with U.N.E.S.C.O. which had been circulated to those present. The Executive Committee had discussed it and had suggested a few minor alterations, but before discussing them he would invite general remarks.

Professor Hill raised the point that other bodies under U.N.O. had scientific activities besides U.N.E.S.C.O., such as the Food and Agriculture Organisation (F.A.O.) and the International Health Organisation (I.H.O.). Was it correct to speak of U.N.E.S.C.O. as "the" appropriate agency? There was also the international organisation for civil aviation.

Dr Needham replied that U.N.E.S.C.O. was now arranging joint commissions with these bodies. The Council might be represented on these commissions.

Professor Lindblad said that this agreement was of the utmost importance and that it was a great pity that it could not have been drawn up in time for the various academies to be consulted in advance of the meeting. The agreement should be greeted with general satisfaction. He also wished to consider the position of sciences not yet represented by Unions and wished to make clause 1 less exclusive.

Professor Borel asked that the statutes of the Council should be changed to enable it to deal as an intermediary between U.N.E.S.C.O. and international bodies other than Unions.

Sir Robert Watson Watt said that the civil aviation organisation was a governmental body concerned with applications of science and that its relation to a Scientific Union would be much the same as that of the International Telecommunication Conference to the Union of Radio Science.

Professor Tardi asked what was the present status of U.N.E.S.C.O. Dr Needham replied with an account of the present organisation of the preparatory commission with its seven divisions, of which natural science was one.

It was then agreed to discuss the clauses of the draft agreement one by one.

Clause 1 as proposed by the Executive Committee read as follows: "U.N.E.S.C.O. recognises the international scientific Unions as providing the natural and appropriate form for the international organisation of science and the International Council of Scientific Unions as their co-ordinating and representative body."

Professor Borel expressed a wish that the Council should take International Congresses under its care.

Professor de Mastonne pointed out that the Geographical Congress had become an International Union and had become much more scientific.

Professor Faouzi asked what was the position of the International Commissions for the Exploration of the Mediterranean and of the Sea. How could they join?

Professor Munro Fox pointed out that the Commission for the Sea was only for the North Sea and North Atlantic and that it was really a governmental body and different from a Union.

The President pointed out that the Statutes made it clear that the initiative for a body wishing to adhere to the Council lay with the body concerned.

Professor Hadamard asked whether a body such as the International Organisation for Mathematical Teaching could form a Union.

The President said that it could not. Such a body should link up with U.N.E.S.C.O.

Dr Needham agreed, saying that the Educational Section of U.N.E.S.C.O. would be interested. He added that governmental bodies covered by separate diplomatic conventions would have separate agreements with U.N.E.S.C.O.

Dr Stagg enquired whether this meant that, if a Union obtained a separate diplomatic convention, it would be ruled out of the agreement between the Council and U.N.E.S.C.O.

Dr Needham enquired whether this question was raised on financial grounds and referred Dr Stagg to the offer in paragraph 5 of the draft agreement.

Dr Stagg said that the question was raised partly for financial reasons and partly because so many countries adhered through their governments.

Dr Mercier asked that clauses 1 and 2 should be considered together.

[Clause 2 as proposed by the Executive Committee ran as follows: "The International Council of Scientific Unions recognises U.N.E.S.C.O. as the appropriate agency of U.N.O. in the field of international scientific relations."]

Professor Ewald raised the question whether the agreement would block the Council or the Unions from working with the U.S.S.R. or Germany.

Dr Needham replied that the Council and the Unions remained perfectly free as to whom they worked with.

Dr Malloch pointed out that criticism had arisen mainly on the exclusive form of Clauses 1 and 2 and it was agreed after further discussion to replace "the natural" by "a natural" in l. 2 of Clause 1 and to replace "appropriate" by "principal" in l. 2. of Clause 2.

With these changes Clauses 1 and 2 were adopted. Clause 3 as proposed was adopted with the addition after "relations" of the words "for the promotion and development of international science".

Clauses 4 and 5 were adopted after certain minor verbal alterations.

Clause 6 was adopted after amending the phrase "to help the younger research workers to attend meetings", to read "to help research workers to attend meetings, particularly the younger ones".

In the discussion on the present day difficulties of movement across national frontiers Dr Needham said that the kind of assistance envisaged was something in the nature of scientific "cartes d'identité". It was agreed that considerable help from such a source might be found in the matter of getting scientific material past customs barriers.

Clause 8 was adopted, also Clause 9. Dr Needham mentioned that U.N.E.S.C.O. had received from four countries applications for the establishment of international institutions and laboratories and for an international observatory. It was important to have International Unions which could take over the scientific and technical control of such institutions, if it was decided to start them. The International Astronomical Union could help with running an International Observatory, the idea of which it had already supported. Type cultures needed funds to put them on a sound financial basis and U.N.E.S.C.O. needed assistance from an International Union of microbiology in order to carry out necessary

schemes for their support. Priority had been given for a scheme for a mathematical computing bureau in the Far East and here again there was need of an international Union of Mathematics or Applied Mechanics to control it.

The President said that the Assembly was very grateful to U.N.E.S.C.O. for its promised help and that the results of the agreement might be of the highest value.

[The agreement as finally adopted, together with a clause added later, is given on pp. 53–55.]

*General Assembly, 23 July, 1000*

The PRESIDENT read the following letter from the International Organisation for Intellectual Co-operation, denouncing the agreement made in 1937:

Paris, le 16 juin 1946

Monsieur le Président,

Nous avons l'honneur de vous informer que, conformément à l'article 7 de l'Accord conclu entre le Conseil international des Unions scientifiques et l'Organisation internationale de Coopération intellectuelle, l'Institut international de Coopération intellectuelle agissant en qualité d'organe exécutif de l'Organisation internationale de Coopération intellectuelle, vous notifie la dénonciation du dit accord.

Nous vous serions obligés de bien vouloir nous donner acte de cette dénonciation et nous confirmer votre accord.

Veuillez agréer, Monsieur le Président, l'assurance de ma haute considération.

J. J. MAYOUX
*Le Directeur*

The President added that it was a great pity that our friendly relations of pre-war days had to be broken. We had greatly appreciated the co-operation of the International Organisation, especially that of Monsieur Establier.

Monsieur Establier explained that the organisation ceased to exist as soon as U.N.E.S.C.O. came into being. The agreement had been denounced solely to facilitate the new arrangement between the Council and U.N.E.S.C.O.—two bodies who could help each other greatly in their respective spheres. He paid a tribute to the General Secretary of the Council for his co-operative actions.

The President explained that the next item on the agenda—reports from the chairmen of the new joint commissions—would not be taken. The commissions had not yet been completed, but the Executive Committee were taking steps to get them actively at work as soon as possible.

Professor Oort then read the report of the International Astronomical Union (p. 27).

Dr Stagg read the report of the International Union of Geodesy and Geophysics (p. 31).

Sir Edward Appleton, in presenting the report of the International Union of Radio Science (p. 35), spoke as follows:

Perhaps I might supplement the formal report of the Acting Secretary General of the International Scientific Radio Union with a few words about the future of our scientific work. The Scientific Radio Union is one of the most fortunate of all the Unions under the Council, in that its subject-matter lends itself so readily to international co-operation. The laboratory of the radio-physicist is the world itself, largely because of the existence of the ionosphere. Radio waves emitted at one point on the earth's surface may, on occasion, be received at any other point thousands of miles away. Moreover the morphology of the ionosphere is so complex that a world net-work of observing stations is necessary for its complete disclosure.

For a more complete understanding of his own subject the radio physicist has to concern himself with many matters in allied fields of natural knowledge. He is much concerned, for example, with solar events (e.g. sunspots), and with their terrestrial consequences (e.g. auroral and magnetic disturbances). He is concerned also with atomic physics, since the processes of photo-ionisation, recombination and attachment occur in the ionosphere under low pressure conditions which are not reproducible in the laboratory. He is also concerned with the radiation (atmospherics) from terrestrial thunderstorms which may be occurring thousands of miles away. Quite recently he has begun to study radio noise from the Milky Way and, still more recently, radio noise from the sun.

As you might expect in a scientific organisation, our work is divided subjectively, and not according to any particular practical applications of radio itself. There are five Commissions in the Union dealing respectively with:

(1) radio measurements and standards;
(2) propagation of waves;
(3) atmospherics and radio noise;
(4) liaison with amateurs and other bodies;
(5) radio-physics.

It is thus possible to break up any new practical radio development and allocate its scientific components to the appropriate Commission or Commissions. In radar, for example, scientific problems concerning the propagation of waves and concerning radio noise arise (Commissions (2) and (3) respectively), while such scientific problems as the calculation of the scattering coefficients of targets would be classed as radio-physics (Commission 5).

As examples of work successfully conducted by the Union in recent years I may cite:

(*a*) the organisation of radio observations during the International Polar Year 1932–33;
(*b*) the organisation of radio observations during solar eclipses;
(*c*) the standardisation of ionospheric nomenclature;
(*d*) the issue of bulletins of ionospheric and solar data (Ursigrams).

Also the discovery of the connection between ionospheric and geomagnetic events led the Union, in 1934, to ask the Union of Geodesy and Geophysics to institute the publication of the now well-known K three-hour-range magnetic indices. This was done by the Association of Terrestrial Magnetism and Electricity of the latter Union in 1936.

During the war, the Radio Union has been able to do very little, but the period has not proved entirely unprofitable in the scientific radio field. There seem to me at least three reasons for saying this. First of all there have been instituted, to serve the war needs of the Allies, over 40 ionospheric recording stations, the majority of which will continue in operation in the post-war era. As a result of the operation of these stations it has been possible to get, for the first time, an approximate world picture of the ionosphere. Many problems of international collaboration naturally arise in this connection.

Secondly, due to the intense war-time development of radar, the radio worker has acquired an increased mastery of ultra-short-wave and microwave technique which should facilitate the further study of the detection of ionised trails of meteorites and rainfall areas by radio-echo methods and the study of galactic and solar radio noise.

Thirdly, there has been developed the relatively new subject of radio-meteorology. It is a war-time discovery that, in the lowest layers of the atmosphere, there frequently exists a marked stratification of air and water vapour density with a sufficiently rapid lapse rate of refractive index to bend radio rays with a curvature exceeding that of the earth itself. The study of this phenomenon in different parts of the world is a matter of great interest and importance.

I know, from personal contacts that I have been able to make since the end of the war with many radio-physicists in Europe, that all are eager to resume our old fruitful collaboration. To that end the Seventh General Assembly of the Union will take place in Paris (as arranged in 1938) during the period 25 September to 5 October, 1946. A warm invitation to attend has been sent to radio-physicists of the U.S.S.R.

Professor de Martonne presented the report of the International Geographical Union (p. 39).

Dr Sirks presented the report of the International Union of Biological Sciences (p. 42).

Professor Ewald presented the report of the International Union of Pure and Applied Physics (p. 38).

Le duc de Gramont proposed on behalf of his French colleagues that a section of optics should be formed within the Union of Physics. There was to be a meeting at the Institut d'Optique in October at which the question of international organisation in optics would be discussed.

Monsieur Hadamard asked how optics was defined. Le duc de Gramont replied that it was mainly in connection with its application to apparatus and particularly to polarisation problems as a special feature.

Professor Abetti emphasised the importance of establishing the section of optics. Astronomers realised the importance of the work done at the Institut d'Optique in Paris, also in Italy and in England.

Sir Edward Appleton said that the physicist had no difficulty in defining the field of optics; there were the two branches, geometrical and physical optics.

Monsieur Establier referred to the fact that the International Council had had close and successful co-operation with the Union of Physics and had arranged two very successful conferences.

Professor Borel referred to the sad death of Professor Abraham, Secretary of the Union of Physics, who had been deported to Germany and put to death in a gas chamber.

The report of the International Union of Chemistry (p. 33) which had been already printed and circulated was taken as read.

The President then referred to the motion brought forward by Monsieur Hadamard, of which notice had been given on the previous day. As it was not on the agenda it could only be discussed with the approval of the Assembly. No objection having been raised, the President called on Monsieur Hadamard to move his proposition, which ran as follows:

Le Conseil International des Unions Scientifiques considère que les restrictions apportées par le contrôle des changes à la libre circulation internationale des publications savantes, constituent un obstacle intolérable et inadmissible à l'activité scientifique; que, d'ailleurs, cette libre circulation, étant donné le montant financier insignifiant qu'elle représente, n'apporterait aucune perturbation sérieuse à la situation monétaire des Etats membres; que, au reste, elle pourrait se faire par l'intermédiaire d'Académies, de bibliothèques officielles et autres organisations compétentes, de manière à ne donner lieu à aucun risque de fraude.

Il demandera au plus tôt aux gouvernements des Etats membres de décider que les échanges scientifiques seront exceptés des dispositions législatives de contrôle des changes.

Il insistera pour que cette disposition soit adoptée et ait son effet dans le plus bref délai.

The International Council of Scientific Unions considers that the restrictions imposed by the exchange control on the free international

circulation of learned publications constitute an intolerable and unjustifiable obstacle to scientific activity; and that, the cost of free circulation being insignificant, it would not present any serious financial difficulties to the member countries; that it could, moreover, be effected through the intermediary of the national academies and libraries and other competent organisations in such a way as to eliminate any danger of fraud or abuse.

The Council will request the governments of member countries as soon as possible to agree to the exemption of scientific exchanges from legislative measures of exchange control.

The Council will insist that this measure be adopted and put into action with the least possible delay.

Monsieur Hadamard desired that the "bureau d'échange" should have no power to stop or obstruct the transfer across a frontier of any publication desired by the librarian of a university or scientific institution. He suggested that booksellers could have their requirements transmitted by librarians and added that the powers of U.N.E.S.C.O. should be brought to our assistance.

Dr Sirks pointed out that the Government of the Netherlands was already helping in these matters both by means of a subvention for the purchase of books and by such methods as establishing a commission in London to collect books and journals published in the war years. They had also assisted in the purchase of instruments by a subvention.

Dr Needham said that to facilitate the free flow of books was one of the chief aims of U.N.E.S.C.O. It was not yet quite clear how best to work, but something would certainly be done. Meanwhile it was desirable for this resolution to be sent up to the governments represented at the General Assembly.

Professor Timmermans said that diplomatic facilities were already being given in Belgium in these matters. He feared that it would take some time to get the proposed scheme established and working.

Dr Malloch said that he could not support the scheme in its present form. "Intolerable" was too strong a word. Many more serious effects of the exchange control existed than that on the exchange of publications. He did not believe that an approach to individual governments would be so successful as a general approach through U.N.E.S.C.O. He proposed the deletion of all the motion except the first paragraph and to substitute for the remainder a request to U.N.E.S.C.O. to explore the situation and to take all possible action with governments. The last paragraph of the resolution would not be helpful in approaching governments.

Professor Giordani said that there were two aspects of the problem—

that of the purchase of books and that of finding the books to purchase. He would like to see scientific bodies and publishers asked to keep copies in reserve.

Professor Hill reminded the Assembly of the address of welcome from the President of the Royal Society and his appeal to them to be practical. He agreed with Dr Malloch that the resolution as it stood was not a practical one and would do more harm than good. We were not able to insist in these matters. It would be best to refer the matter to U.N.E.S.C.O. and to ask them to look also into the wider question of the transfer across frontiers of books, instruments, etc.

The President proposed that the matter should be taken up by the Executive Committee and not decided by a snatch vote.

Professor de Martonne and Sir Edward Appleton expressed their agreement and Professor Timmermans emphasised the impossibility in many cases of getting the desired books and of the need to arrange for photocopies.

The President said that the whole question of buying and securing books and instruments from abroad was very complicated. It would be best to refer the motion to the Executive Committee and for them to discuss it with U.N.E.S.C.O.

This was agreed to by the meeting.

The detailed revision of the statutes as proposed by the Executive Committee was then taken into consideration. The following changes were agreed:

Le Statut III. 6. Lire: "Toute proposition de création d'une Union et toute demande d'adhésion d'une Union doivent être communiquées aux membres du comité exécutif. L'approbation de deux tiers des voix des membres est nécessaire."

IV. 13. Ajouter: "Le Comité exécutif peut prier les Unions de nommer des membres de commissions mixtes pour l'étude de toute question de la compétence des Unions."

IV. 14. Omettre: "Ces rapports sont aussi envoyés aux délégués à l'Assemblée générale précédente."

V. 15. Lire: "Le Conseil International se réunit en principe tous les trois ans en Assemblée générale ordinaire. Le Comité exécutif donnera communication du lieu et de l'époque six mois à l'avance aux divers organismes adhérents."

V. 18. Après le mot "spéciales" ajouter "et des Commissions mixtes".

V. 19. Pour "six mois" lire "trois mois".

VI. 22. Pour "100 francs d'or" lire "500 francs d'or".

The Statutes as revised are given on pp. 86–90 of this volume. On the proposed increase of subscription from adhering countries Professor Lindblad asked for the reasons for the change. The General Secretary explained that increased expenditure would fall on the Council if they had to finance joint commissions and had to print reports from the Unions annually instead of triennially. The costs of printing also had risen.

Professor Borel proposed an addition to the Statutes to make the retiring President a member of the Executive Committee for three years after retirement.

The President pointed out that this could only be put to the meeting if two-thirds of the votes of adhering organisations approved. He enquired if anyone opposed the suggestion. There being no opposition, he put Professor Borel's suggestion to the meeting and it was carried unanimously.

## *General Assembly*, 23 *July*, 1400

Professor ABETTI presented the report of the Committee on Solar and Terrestrial Relationships (p. 58). The President mentioned that it was now proposed to turn this Committee of the Council, which had been doing most valuable work, into a Joint Commission of several Unions.

Professor Burgers then summarised the report of the Committee on Science and Social Relations. It dealt with a mass of material that had appeared at the end of 1945 and early in 1946 dealing with atomic energy. The time available for the preparation of the report had been very short and there had been no discussion by the Committee. It had been very difficult to know what to put into the resolution and what to leave out. It was desired to direct scientific judgment rather to commit their body to a definite line of action. But science had given them power and it was impossible to keep clear of social reactions. Atomic energy in warfare was leading to the suicide of civilisation. The best course was to work for national understanding. It was important also to remove secrecy restrictions and he hoped that agreement between the nations on atomic energy might give the first example of international co-operation in the economic and political sphere.

[The resolutions placed before the General Assembly and an additional proposition by Professor Hill are given on pp. 63, 64.]

Professor Chapman regretted that it had not been possible for the Committee to meet and discuss the draft report. He felt that it ought to be referred back to the Committee.

Professor Ewald suggested that the Assembly should limit any resolution to the motion of Dr Hill, but the latter pointed out that his motion was essentially an addition to the proposed Resolution 1.

Monsieur Hadamard, speaking in the name of the French Academy, said that it supported the resolutions wholly and he would like to add that it would have supported Dr Hill's motion also if it had been placed before them.

Professor Borel suggested that Dr Hill's addition would weaken the force of the original motion as biology was so much less dangerous than atomic warfare.

Professor Hill said that twenty years ago atomic warfare would have been laughed at. Biological warfare was now equally and possibly more dangerous, and, moreover, no safeguard was possible such as can be applied to atomic energy.

Professor Tiercy, speaking for Switzerland, offered complete agreement with the resolution and the addition.

Professor Cox said that the problem they were facing was not the only one which faced them. He would like to see the motion reduced to one of direct opposition to war itself and of the duty of men of science in that connexion. In this war men had given their lives to preserve a sense of human dignity and independence.

Monsieur Hadamard expressed full agreement with Professor Cox and hoped that the meeting would return to this point later.

Professor Faouzi would like to see the resolution made more concise but wished Professor Hill's addition to be retained. Secrecy, which was properly complained of, must be abolished.

Professor Chapman suggested that most of Dr Hill's motion could be incorporated in the original resolution.

The President suggested that the meeting might accept para. 1 of Resolution 1, omit para. 2 of 1 and accept para. 3 of 1 together with Hill's resolution.

Professor Burgers pointed out that if para. 2 of Resolution 1 was omitted the reference to eliminating war would be cut out.

Professor Fleure suggested that the resolution be referred back to the officers and Professor Hill for shortening. The President then put Resolution 1 paragraph by paragraph to the meeting.

Paragraph 1 was adopted as follows:

The General Assembly of the International Council of Scientific Unions sees in the great powers for good and evil that research on nuclear energy has put at the disposal of mankind a supreme opportunity and occasion for

a new international unity, to develop the benefits potential in nuclear energy and to avoid its misuse. The General Assembly strongly supports the efforts now being made under the auspices of the United Nations Organisation to attain this urgent goal, efforts in which the co-operation of representative men of science, so essential for success, is being officially given.

It was agreed that:

Paragraph 2 should be dropped.

Paragraph 3 was adopted as follows:

The General Assembly hopes that the attainment of an agreement on the application of nuclear energy may provide an important instance of international co-operation in economic and political matters. Extension of this would facilitate the promotion of the welfare of mankind, the judicious use of our natural resources, the removal of tensions and the settling of difficulties arising from the continuous change of world conditions in consequence of scientific and technical advances.

On the addition proposed by Professor Hill, Dr Needham pointed out that it was very possible that U.N.O. might still have to keep certain facts secret, for instance data in connection with certain uses of atomic energy.

Professor Niels Bohr said that the Royal Danish Academy agreed with the motion as originally proposed, but he was not sure that Dr Hill's addition was a good proposal. They were all of the same mind. The problem was to find the proper expression for their view. It had been well done in the resolution before them, but he was not sure but that the introduction of biochemical warfare confused the issue.

Professor Munro Fox strongly supported Dr Hill's motion. Those present were mostly physicists who did not fully appreciate the dangers of biological warfare. Dr Hill's addition would not in any sense weaken the resolution.

Professor Heilbron agreed and suggested that the motion be referred back for necessary rewording.

After one or two verbal alterations had been suggested Professor Bohr said that the final drafting must be referred to a small committee which would bear the discussion in mind.

The President said that the Bureau would consider the wording and bring forward a modified form at the next meeting.

Resolution 2 as submitted was then discussed and it was agreed that the bureau should also be asked to modify the text slightly to meet one or two suggestions made at the meeting.

The text of the Committee's report was next discussed and it was agreed to refer it back to the Committee.

It was further agreed that the membership of the Committee be increased to twelve and that, as the method of co-option had failed to secure suitable additions to the original Committee, the adhering organisations should be invited to send in names, the final selection to be made by the Executive Committee.

It was agreed to add to the U.N.E.S.C.O. draft agreement an additional Clause, No. 10, on the method of terminating the agreement, if occasion arose (see p. 55).

Professor Bohr, on behalf of the Royal Danish Academy, renewed the invitation, first given in 1937, for the General Assembly to hold its next meeting in Copenhagen in 1949.

On the motion of the President this invitation was accepted with acclamation.

Sir Ian Heilbron asked if it might not be preferable to meet next in two years instead of three. Professor Timmermans suggested that the question of the date might be left to the Bureau to settle with the Danish Academy and Dr Rayner pointed out that the three-year rule was a general rule only.

Professor Proudman then read the following reports of the Finance Commission:

We have examined the Accounts of the I.C.S.U. for the years 1937 to 1945 inclusive, and compared with the vouchers and bank balances, and certify that these accounts are correct.

The credit balance on 31 December 1945 was £1084. 0*s*. 1*d*.

Owing to the change in the amounts of the contributions proposed in the amendments to the Statutes to be submitted to the General Assembly of the I.C.S.U. and to the uncertainty in the financial assistance that may be forthcoming for U.N.E.S.C.O. during the coming period, no budget was prepared by the Executive Committee of I.C.S.U.

We recommend that the contribution from each Union should remain at 1% (one per cent.) of the income of that Union.

J. H. Oort

23 *July* 1946 J. Proudman

*General Assembly*, 24 *July*, 1000

The President read the revised form of the resolutions arising from the report of the Committee on Science and Social Relations.

Professor Niels Bohr said that in its present form the resolutions were most appropriate. We were forced to realise the chaotic situation in which we found ourselves, in that in spite of the terrible aspects of this new development the work that it had achieved had been decisive in its effects on the future of civilisation. To that end it had had to be carried out in the utmost secrecy: it had proved the last resource against the aggressor. Only

in a unified open world could we take advantage of this unique opportunity. We realised how the fate of all mankind was coupled together. It was our task to give a dignified expression of the whole range of scientific opinion on the subject, representing as we did the subjects covered by our Unions. We had, however, to be careful not to raise fresh difficulties for those who were endeavouring to reach agreement.

Colonel Dianderas, as the only representative present from South America, but actually representing the Government of Peru, its men of science and its University, approved the resolutions in their name. They had put and would put all their resources behind the United Nations in the battle for humanity.

Professor Hill added that Sir Henry Dale most cordially agreed with the resolutions as now framed.

One or two minor verbal alterations suggested by Dr Rayner and Professor Boerman were accepted and the resolutions were approved unanimously in the following form:

1. The General Assembly of the International Council of Scientific Unions sees in the great powers for good or evil that research on nuclear energy has put at the disposal of mankind a supreme opportunity and occasion for a new international unity, to develop the benefits potential in nuclear energy and to avoid its misuse. The General Assembly strongly supports the efforts now being made under the auspices of the United Nations to attain this urgent goal, efforts in which the co-operation of representative men of science, so essential for success, is being officially given. The General Assembly urges that the present opportunity of eliminating war by the attainment of such a new international unity be grasped.

The General Assembly hopes that the attainment of an agreement on the application of nuclear energy may provide an important instance of international co-operation in economic and political matters. Extension of this would facilitate the promotion of the welfare of mankind, the judicious use of our natural resources, the removal of causes of dispute and the settling of difficulties arising from the continuous change of world conditions in consequence of scientific and technical advances.

2. The General Assembly is aware that nuclear energy is not unique among scientific advances in its possible effects for good or ill. Biological and biochemical warfare, for example, were not applied during the late conflict, but their potential menace may be as great as that of the atomic bomb: equally, the discoveries on which they depend could bring the greatest benefits to mankind.

The General Assembly is convinced that international security and welfare will be impossible if in any country for the future military secrecy is allowed to dominate scientific discovery or to prevent the frank discussion

and open publication of scientific results. "There can be no international control and no international co-operation which does not pre-suppose an international community of knowledge."

3. The General Assembly of the International Council of Scientific Unions, in the name of the men of science of the nations represented, acknowledges the duty on the part of scientific workers

(*a*) to maintain a spirit of frankness, honesty, integrity and co-operation and to work for international understanding;

(*b*) to promote the development of science in the way most beneficial to mankind and to exert their influence as far as possible to prevent its misuse;

(*c*) to serve the community not only by their specialized work but by assisting so far as they are able in the education of the public in the purposes and achievements of science.

The President then proposed the following as members of the Bureau until the next meeting of the General Assembly:

| | |
|---|---|
| *President:* | Dr J. A. FLEMING, Washington. |
| *Retiring President:* | Dr H. R. KRUYT, Utrecht. |
| *Vice-Presidents:* | Professor B. NĚMEC, Prague. |
| | Professor EMILE BOREL, Paris. |
| *Members:* | Dr J. N. MUKHERJEE, New Delhi. |
| | Professor M. SOLBERG, Oslo. |
| *General Secretary:* | Professor F. J. M. STRATTON, Cambridge, England. |

These names were accepted and the President then proposed a most hearty vote of thanks to the Royal Society for the accommodation they had provided for the meeting, for their hospitality in the daily luncheons and for the valuable help given by the officials and ladies in the information bureau. He further expressed the thanks of the meeting to Sir Eric Crankshaw and his staff for their help in securing accommodation for the delegates, a serious difficulty under present conditions.

Professor Hill, Foreign Secretary of the Royal Society, accepted these thanks on behalf of the Royal Society. It had been a great joy to the Society to have the opportunity of meeting and helping the International Council of Scientific Unions.

He would also like to express to the President on behalf of the General Assembly a word of appreciation of the skill and geniality with which he had carried through the meeting. He had been shocked to learn that Dr Kruyt could not continue as President. He proposed a hearty vote of thanks to Dr Kruyt.

The motion was carried with acclamation.

The President thanked Dr Hill for his kind remarks and the meeting for the way in which it had received them. In his turn he would wish to thank the General Secretary who had eased the task of the President in so many ways. Also he asked the Assembly to show its appreciation of the services of Madame Malterre and Professor Munro Fox as interpreters during the meetings.

The meeting of the General Assembly then concluded.

# Rapports des Unions Internationales

## RAPPORTS SUR L'ACTIVITÉ RÉCENTE DES UNIONS INTERNATIONALES

## Report on the Recent Activities of the International Astronomical Union

Of the three great undertakings of general character mentioned in the preceding report to the Council: the *Carte du Ciel*, the "Plan of Selected Areas" and the repetition of the so-called "Astronomische Gesellschaft" Catalogues, the latter has made the most important headway, new photographic positions and motions having now been published for nearly half of the sky by the Yale Observatory, while the same data for the entire northern hemisphere obtained at German and Russian observatories seem to be practically ready. Kapteyn's Plan of Selected Areas, set up in 1906, continues to form a most important framework for investigations concerning the structure of the galactic system. It forms, moreover, the basis for the photometry of fainter stars.

The further publication of the *Carte du Ciel* Catalogues has been hampered by the war. As a successor to this joint undertaking by a score of observatories, work on a single-observatory map, reaching even to stars of the seventeenth magnitude, has been started at the Lick Observatory. In this new undertaking the stars will be tied up to extra-galactic nebulae, thereby securing a fixed background for measuring the motions of the stars.

The problem of eliminating the systematic errors in these motions remains difficult and most important. Considerable progress has been made by the Yale Observatory with the aid of some co-operating institutions in the execution of the plan, inaugurated in 1935, to use observations of a set of selected minor planets to eliminate systematic errors from fundamental star positions. The Union is giving its support to a new expedition of the Leiden Observatory for improving the determination of fundamental declinations by means of azimuth observations from a station on the equator. In the same line it is sponsoring plans for the erection of a number of new photographic zenith-telescopes at various latitudes which, it is hoped, may yield valuable absolute proper motions free from systematic error, in some narrow zones of declination.

The determination of the variation of latitude has been carried out under the joint auspices of the Astronomical Union and the Union of Geodesy and Geophysics since the foundation of these Unions. Most of the International Latitude Stations on the parallel of $+39°$ have been able to carry on observations during the war. Results for the years 1935–41 are now being prepared for publication. The projected erection of a number of new photographic instruments of the type of that now in use at the Naval Observatory, Washington, will contribute towards a more complete understanding of the observed motions of the Earth, and to obtaining valuable information on absolute proper motions of a selected set of stars. In combination with modern clocks the zenith-tubes may yield information on possible longitude shifts. Time service is entering upon a new stage through the more general introduction of crystal clocks, measuring the time with a precision of 1/1000 sec. per day.

The *Bureau de l'Heure* at Paris, likewise supported by the two Unions, has continued to function as a centre for comparison of time signals and time determinations all over the world, a work again which is being brought to a hitherto unknown level of accuracy by the introduction of quartz clocks.

Systematic observations of solar phenomena by various observatories have continued as before, and are being co-ordinated by a Commission of the Union. The importance of such observations has been greatly enhanced by the ever-increasing evidence of relations between solar eruptions and phenomena in the earth's atmosphere. In particular, through Lyot's work on monochromatic filters, and his development of a coronagraph by which for the first time coronal streamers can be observed without an eclipse, it has become possible to observe the phenomena on the sun with much greater detail. On the other side, recent developments in radio and radar are giving more accurate information about the action of solar eruptions on the ionosphere. This has led to the formation, by the International Council, of a new joint committee on the Ionosphere.

The Union's Bureau of Astronomical Telegrams found ways to keep up a large part of its valuable service all during the war. It acts as a centre, and essential link, through which all discoveries of novae, comets, minor planets, and information needed for the observation of such objects are being distributed to all observatories interested. A less rapid, but yet quite useful link for various types of work, each of which, because of the great number of objects to be observed, has to be carried out at several observatories, is provided by thirty-four special commissions, each dealing with a certain branch of observational or theoretical astronomy, and each co-

ordinating that work where desirable. The Union's activities in these other fields may be instanced in the support given towards the publication of the *Photometric Atlas of the Solar Spectrum* prepared by the Observatory of Utrecht, and the adoption of an extensive list of astronomical notations prepared by one of the special commissions (*Transactions International Astronomical Union*, VI, pp. 345–55).

Among the fields of work that have suffered seriously from the consequences of the war, mention should be made of the minor planets. The large work of computing ephemerides for all of the nearly 1600 asteroids now known, a work which is essential lest we lose track of those already discovered, used to be carried out largely at the Astronomisches Rechen-institut in Berlin. This institute, which also served as a centre for collecting and distributing observational data concerning the asteroids, has now been dislocated. It appears to be no longer able to carry out more than a fraction of the calculations that it used to do in this domain; nor can it take up its usual share in the calculation of the astronomical Almanacs. Part of the minor planet ephemerides is now being computed by the Institute for Theoretical Astronomy at Leningrad.

Similar difficulties have arisen with the cataloguing of variable stars, as well as with a very complete astronomical bibliography that used to be prepared in Germany. The former has now been brought under the responsibility of the Union. The work is being carried out under the auspices of the Academy of Sciences of the U.S.S.R. by the Sternberg Astronomical Institute.

The limitation of large telescopes to a small number of observatories has in the past called for frequent exchanges of astronomers. This is likely to be further stimulated by the introduction of telescopes of the Schmidt type with vastly larger workable fields.

The Union has formed a standing commission to facilitate the exchange, and to act as an advisory body to U.N.E.S.C.O. in questions referring to it. Contact has also been taken up with U.N.E.S.C.O. regarding the foundation of one or more International Observing Stations equipped with large instruments.

*List of principal present projects.*

Continuous observation of chromospheric eruptions and other solar phenomena, and support of a centre for collecting and publishing the relevant data.

Promotion of latitude observations at the International Latitude Stations, and support of a central bureau for these observations.

Publication of the results of this latitude work, and of the longitude determinations of 1933.

Aid toward the edition of still unpublished parts of the *Astrographic Catalogue*.

Aid towards the publication of ephemerides of minor planets, and of name-lists of variable stars.

Support of observations for the improvement of the determination of stellar declinations.

Among *prospective* projects, mention may be made of possible aid towards the exchange of astronomers, and the eventual foundation of an International Observatory.

# Report of the International Union of Geodesy and Geophysics

## 1. *Washington* 1939 *Assembly*

The last General Assembly of the International Union of Geodesy and Geophysics was held in Washington in September 1939. From the excellent arrangements made for this Assembly by the U.S. authorities it had looked as if the Washington reunion would be the most comprehensive and finest of the series of the seven Union Assemblies. Unfortunately the war clouds which had been rapidly developing in the months just preceding the Assembly finally broke before the meeting was well under way and many delegates were recalled to their various home countries. But in spite of the difficult circumstances an excellent programme of scientific work and discussion was successfully carried through under the late Dr La Cour, Denmark, as President. Because of the absence of many of the officials of the Union and its Associations it was decided that no administrative or financial decisions could be made at the Assembly.

## 2. *War Years*

With normal communications between most countries broken, with personal contacts made impossible and many of the officers engaged on intensive war work, little real development of international geodetic or geophysical activity was practicable. Some of the constituent Associations managed to keep their publications up-to-date in the early war years.

Financial matters were particularly difficult. The General Secretary took charge of the banked reserves of the Union and the reserves of those Associations which had their headquarters in enemy or occupied territory; fortunately most of those Associations had banked their reserves at the same British bank as the Union. A board of trustees, all officers of the Union, was formed to guard against casualties.

Subscriptions were suspended as from 1940: but some countries, even some overrun by the enemy, continued to put aside funds for the Union and continued to keep alive those Associations which had their headquarters in their own or other occupied countries. As far as circumstances allowed the Union itself made subventions to the Associations, organisations, and bureaux in countries where work could be continued.

### 3. *Post-War Activities*

As soon as practicable after the finish of hostilities arrangements were made to convene a meeting of the Executive Committee of the Union to discuss ways and means of getting the Union's activities restarted. The Committee met in Oxford in December 1945. The following were among the proposals and recommendations made:

(*a*) Professor B. Helland-Hansen, Norway, to be President in place of Dr La Cour who had died in 1942.

(*b*) The next Ordinary Assembly to be held in Norway in 1947.

(*c*) An Extraordinary Assembly to be convened in England during the Summer of 1946 to discuss administrative and financial matters including a new Convention and set of By-laws.

(*d*) Subscriptions to be restarted as from 1 January, 1946 with £100 as the unit of subscription.

(*e*) A Commission to be formed to deal with "the social value of the earth sciences" under the chairmanship of Dr R. M. Field, U.S.A.

(*f*) The General Secretary (Brigadier Winterbotham) asked to be relieved of his duties after sixteen years' service. Dr Stagg was nominated to take over Brigadier Winterbotham's work on release from service abroad.

### 4. *Extraordinary (Administrative) Assembly to be held in Cambridge*

Arrangements have been made for a special Assembly of a single delegate from each country to discuss administrative and financial matters left over from the Washington 1939 Assembly and accumulated during the war years. The Assembly will be held in Cambridge from 29 July to 2 or 3 August, 1946.

### 5. *Present and Prospective Plans*

As indicated in the earlier part of this report interruption of the work of the various Associations, Commissions and Institutions during the war years and more especially the casualties and retirements among the officers have made it impracticable up to now to do much more than keep existing projects in being. Until the various Associations have had an opportunity for meeting and discussing their plans it is not practicable to give information on likely future developments, and financial requirements.

# Rapport sur l'activité de l'Union Internationale de Chimie, 1938–1945

Depuis le dernier rapport à la 3e assemblée générale du Conseil international des Unions scientifiques (Londres, 1937), l'Union internationale de Chimie a tenu sa XIIIe Conférence à Rome du 15 au 21 Mai 1938. La présidence fut dévolue au Professeur Parravano, décédé depuis: 20 nations y furent représentées par 149 délégués. Conjointement se déroula le Xe Congrès de Chimie pure et appliquée.

Les questions les plus importantes qui firent l'objet de rapports d'ailleurs publiés dans les Comptes-rendus de cette Conférence (81 pages, 21 × 27 cm.) sont les suivantes:

— la parution d'une table internationale des isotopes stables aussi régulièrement que celle de la table habituelle des poids atomiques;

— la publication d'un premier rapport couvrant toute la bibliographie des réactifs utilisés en analyse qualitative minérale;

— l'établissement d'un annuaire international de chimie;

— l'unification des méthodes d'analyse relatives à l'industrie du cuir et à certaines méthodes d'analyse des matières grasses;

— la forme définitive des règles de nomenclature en chimie inorganique;

— divers projets sur la nomenclature des cyanines, des noyaux polycycliques, des composés du deutérium, etc....

A l'issue de cette Conférence, M. Marston Taylor Bogert, Professeur émérite à la Columbia University de New-York, fut élu Président de l'Union. Selon les statuts, une partie du Bureau fut renouvelée.

Durant le conflit mondial, l'activité de l'Union fut forcément ralentie. Cependant, certaines recherches purent être continuées et, grâce à l'obligeance de collègues pour assurer les liaisons nécessaires, quelques rapports purent paraître. C'est ainsi que la *Commission des poids atomiques* a envoyé son XIIe Rapport couvrant la période 30 septembre 1940–30 septembre 1941, avec une table ayant cours pour 1942–43. De même, la *table internationale des isotopes stables* 1941–42 a été publiée à la suite du 6e Rapport de la *Commission des atomes*, rédigé après consultation de tous ses Membres. Le Comité de Gestion des *tables annuelles de constantes* a assuré l'impression de sept fascicules se rapportant à diverses années de bibliographie s'échelonnant de 1931 à 1936, cependant qu'aux Etats-Unis, une rédaction des tables fut également entreprise sous la direction du Professeur H. S. Taylor;

cette organisation s'assura le concours du Professeur Timmermans (Bruxelles) réfugié en Angleterre où il prépara une revue d'ensemble sur les étalons physico-chimiques organiques, dont les constantes furent reproduites dans le 1er volume des nouvelles "Annual Critical Tables". A la *Commission des réactions et réactifs analytiques nouveaux*, les membres du Comité de Travail constitué par les Professeurs Van Nieuwenburg (Delft), Gillis (Gand) et Wenger (Genève) purent rester en liaison, et ce dernier, avec la collaboration de P. Duckert, a rédigé un important rapport (288 pages) sur le choix des meilleurs réactifs pour l'analyse qualitative minérale, paru à Bâle (Edit. Wepf et Cie) en 1945.

Notre Union va tenir une réunion de son Bureau, de son Conseil et de ses Commissions (24–27 Juillet) à l'issue de la présente Assemblée Générale. Cette réunion sera d'abord une reprise de contact nécessaire entre personnalités des nations adhérentes, puis elle élaborera le programme de la Conférence de 1947. Néanmoins, certaines questions en cours d'études pourront être plus ou moins discutées.

Notons parmi celles-ci: les étalons du radium à la *Commission des Constantes radio-actives*; les calculs des erreurs relatives aux mesures thermochimiques ainsi que la détermination de l'équivalent énergétique de certains calorimètres par la méthode comparative à la *Commission de Thermochimie*; les travaux entrepris sur l'élément Weston et l'effet des variations de la composition isotopique, tant de l'eau que du mercure, sur la force électromotrice, à la *Commission de la pile Weston*; l'établissement d'une liste internationale des symboles à la *Commission des symboles physico-chimiques et de coordination des terminologies scientifiques*; la définition de l'unité de chaleur, les principes généraux de l'application des mesures physico-chimiques comparatives, les étalons primaires de mesure du *p*H et la définition de l'échelle des valeurs de *p*H, à la *Commission des données physico-chimiques*; diverses règles de nomenclature qui s'avèrent de plus en plus indispensables pour éviter les ambiguités dans les trois *Commissions de chimie inorganique, de chimie organique et de chimie biologique*. Une Commission affiliée à l'Union, celle des *Matières-grasses* a aussi l'intention de se réunir et de continuer son travail d'unification des méthodes d'analyse des lipides, savons, résine et graines oléagineuses.

En dehors des Commissions, le Conseil se préoccupera du problème de la *documentation par extraits*, désorganisée dans plusieurs pays, ainsi que des *ouvrages à caractère encyclopédique* publiés principalement en langue allemande. Il aura enfin à délibérer sur l'éventualité de créer de nouvelles commissions pour étudier notamment: les hauts polymères, la normalisation de la verrerie de laboratoire ou celle de la pureté des produits chimiques, la détermination des traces de substances toxiques dans l'atmosphère.

# Rapport de l'Union Radio-Scientifique Internationale (U.R.S.I:)

## 1. *Origine*

Lors de la Conférence Internationale de l'Heure, tenue à Paris en Octobre 1912, le Docteur Robert B. Goldschmidt de Bruxelles et le Professeur Schmidt de Halle, jetèrent les bases d'un organisme central propre à coordonner les efforts et à accroître les moyens d'action dans le but de faire:

(1°) des recherches sur la propagation des ondes électriques;
(2°) des mesures de radiotélégraphie; et
(3°) d'une manière générale, l'étude des problèmes qui s'y rattachaient.

Le concours d'un certain nombre de personnalités scientifiques fut obtenu pour la constitution de cet organisme qui prit le nom de "Commission Internationale de télégraphie sans fil scientifique" et dont le premier Président fut le regretté physicien anglais Duddell.

L'Allemagne, l'Angleterre, l'Autriche, la Belgique, la France et les Pays-Bas furent représentés à cette Commission à laquelle la première guerre mondiale mit fin.

En 1919, quelques Membres décidèrent de faire renaître cette Commission, sous la dénomination d'Union Internationale de Radiotélégraphie Scientifique qui fut changée en 1928, en celle d'Union Radio-Scientifique Internationale (U.R.S.I.).

## 2. *Objet et Organisation*

L'Union Radio-Scientifique Internationale qui est une des branches du Conseil International des Unions Scientifiques, a pour but de développer les études scientifiques se rapportant à la radioélectricité et notamment:

(1°) de susciter et d'organiser les recherches nécessitant une coopération internationale;

(2°) de permettre la discussion et la publication des résultats de ces recherches;

(3°) de faciliter l'établissement de méthodes communes de mesures ainsi que la comparaison et l'étalonnage des instruments de mesure.

Chaque pays adhérant à l'Union constitue un Comité National qui facilite et coordonne, sur son territoire, l'étude des diverses questions scientifiques se rapportant à la radio, envisagées principalement au point de vue international.

D'autre part, l'Union nomme, pour l'étude de sujets déterminés, des commissions dont le rôle est:

de préparer le programme des recherches, études et expériences relatives aux questions de leur spécialité;

de procéder périodiquement à l'examen des résultats obtenus;

de préparer les rapports et conclusions à soumettre à l'Assemblée Générale de l'Union.

Il existe actuellement cinq commissions:

(1°) Commission des méthodes de mesures et étalonnages;
(2°) Commission de la propagation des ondes;
(3°) Commission des perturbations atmosphériques;
(4°) Commission de liaison avec les amateurs et sciences connexes;
(5°) Commission de Radiophysique.

Le Secrétariat Général, établi à Bruxelles depuis 1919, sert de lien entre les divers Comités Nationaux et les Membres des diverses Commissions; il assure la publication du Bulletin Mensuel de l'U.R.S.I. et des travaux et comptes-rendus des Assemblées Générales de l'Union.

### 3. *Pays adhérents*

Alors qu'en 1922, l'U.R.S.I. ne comptait que six pays adhérents, en 1938 elle en comptait 17 énumérés ci-après: Allemagne—Australie—Belgique—Danemark—Etats-Unis—France—Grande Bretagne—Italie—Japon—Maroc—Norvège—Nouvelle-Zélande—Pays-Bas—Portugal—Suède—Suisse—Union Sud Africaine.

### 4. *Activité de l'U.R.S.I.*

L'activité de l'Union se manifeste par les Assemblées Générales et par l'édition du Bulletin Mensuel et des diverses publications émanant des Comités Nationaux ou des Membres de ceux-ci.

La première Assemblée Générale eut lieu à Bruxelles en 1922, les suivantes eurent lieu en 1927, 1928, 1931, 1934 et 1938.

Depuis 1922, outre les Comptes-Rendus des Assemblées Générales et le Bulletin Mensuel, le Secrétariat Général a mis en circulation 554 publications.

### 5. *Ursigrammes*

Une des réalisations les plus intéressantes au point de vue scientifique de l'Union, fut celle des émissions des Ursigrammes.

En 1928, inspiré par le Comité National de Radiotélégraphie Scientifique, le Gouvernement Français a pris l'initiative d'émettre des dépêches

intéressant non seulement la radioélectricité, mais aussi les autres sciences étudiant les phénomènes cosmiques.

Suivant la voie ouverte par la France, les Etats-Unis, l'Italie et le Japon entreprirent également l'émission de bulletins semblables qui prirent le nom d'URSIGRAMMES.

Ces bulletins contenaient des renseignements relatifs aux phénomènes solaires, magnétiques, cosmiques et à la hauteur des couches Kennelly Heaviside et Appleton.

### 6. *Présidence de l'Union*

C'est aux distingués savants qui se sont succédés à la Présidence de l'Union qu'elle doit son magnifique essor et la continuité de l'effort qu'elle a soutenu depuis plus d'un quart de siècle.

Ces divers Présidents sont:

M. le Général FERRIÉ, Commandant Supérieur des Troupes et Services de Transmission de l'Armée Française (1922 à 1932).

M. le Dr L. W. AUSTIN, du National Bureau of Standards, Washington (de 1932 à 1932).

M. le Professeur A. E. KENNELLY, de Harvard Engineering School, Cambridge (Mass.) (1932 à 1934).

Sir EDWARD V. APPLETON, Department of Scientific and Industrial Research, London (1934).

# Report of the Union of Pure and Applied Physics

Two international meetings of physicists were sponsored jointly by the Union and the Institut International de Co-operation Intellectuelle in the pre-war years under review. The proceedings of both congresses were published: those of the Warsaw meeting (1937) in French and English under the title *Nouvelles théories de la physique*; those of the meeting in Strasbourg (1938) in three volumes (*Magnéto optique*, *Ferromagnétisme*, *Paramagnétisme*). [Publisher: Institut International de Co-opération Intellectuelle.]

During the war the Union became inactive and its very continuity was threatened by the tragic deportation and death of the General Secretary, Professor H. Abraham (Paris), during the German occupation of France. To revive the Union the President, Professor M. Siegbahn (Stockholm), charged in 1946 Professor P. P. Ewald (Belfast) to act as General Secretary, and M. A. Pérard (Paris-Sèvres) to act as Treasurer, both in a temporary capacity.

Thanks to Professor A. Cotton's endeavours the French section of the Union was recently reorganised from members of the Académie des Sciences and of the Société Française de Physique, with M. P. Fleury (3, bd. Pasteur, Paris XV) acting as secretary for the French section.

The archives of the Union, and a small bank account, have been preserved in Paris.

It is planned to call a General Assembly early in 1947, so as to regain a regular bureau and to discuss future policy. Meanwhile steps are being taken to nominate representatives of the Union on four Joint Commissions (Physico-chemical Constants, Viscosity, Ionosphere, Nuclear Chemistry) pending their approval by the General Assembly.

# Rapport sur l'activité de l'Union Géographique Internationale depuis la dernière Assemblée du Conseil International des Union Scientifiques

Les années écoulées depuis la dernière réunion du Conseil International des Unions Scientifiques en août 1937 se classent, sans doute pour toutes les Unions, mais peut-être plus particulièrement pour l'Union Géographique, en deux séries: la première jusqu'au début de la deuxième guerre mondiale, période d'activité normale, et même spécialement intense en raison de la réunion du Congrès International de Géographie à Amsterdam en juillet 1938.

Les Commissions nommées à la suite du Congrès de Varsovie en 1934 y ont apporté des Rapports imprimés importants. La Commission de Phototopographie aérienne donnait un inventaire des travaux accomplis dans 14 Etats.—La Commission des Terrasses avait élaboré un programme de recherche sur les terrasses à la fois en Europe et en Amérique du Nord, dont la mort de son Président et la guerre devaient malheureusement empêcher la réalisation.—La Commission pour la Cartographie des Surfaces d'aplanissement apportait une Bibliographie critique des essais antérieurs et un Rapport particulièrement important fixant les règles recommandées et 12 cartes détaillées des régions étudiées en Europe, chacune accompagnée d'un texte explicatif.—La Commission pour l'étude des variations climatiques, ayant créé des sous-commissions nationales, a produit un grand nombre de rapports et études locales, ainsi qu'un Répertoire bibliographique considérable (4,000 références).—La Commission de l'habitat rural, en activité depuis le Congrès du Caire (1925) s'est séparée après avoir décidé l'élaboration d'un Rapport final, qui n'a pu être achevé, les auteurs de ce travail ayant été isolés par la guerre.

Le Congrès Géographique lui même, dont l'organisation était contrôlée (suivant les Statuts) par le Comité Exécutif de l'Union Géographique Internationale, a dépassé tous les espoirs (1,200 congressistes, 409 communications). Pour répondre à une suggestion qui paraissait difficilement réalisable, on a réussi à distribuer aux membres la totalité des communications imprimées et les livrets-guides de 5 excursions locales, plus un voyage aux Indes Néerlandaises, soit un total de 3,000 pages avec cartes et figures. Sans cette heureuse réussite, la guerre aurait ajourné indéfiniment la publication des Comptes rendus.

Malgré les appréhensions qu'éveillait déjà la situation politique en Europe, le Bureau de l'Union Géographique Internationale est resté

aussi longtemps qu'il a été possible en relation avec les Comités Nationaux des Etats adhérents.

La fixation du lieu du prochain Congrès qu'il avait paru préférable de ne pas décider en Assemblée Générale, précisément à cause de la tension politique, a pu être réglée par le Comité Exécutif auquel on avait laissé le soin de le faire, à la suite d'une correspondance active. Le Portugal a été choisi et la date fixée à 1942; les Comités Nationaux de Géographie en ont été avisés et les Présidents des commissions nommés par l'Union ont été invités à commencer leurs travaux.

Les vœux formulés par les diverses sections du Congrès d'Amsterdam ont été communiqués aussi aux Comités Nationaux pour avis sur la suite à y donner.

Cependant les hostilités éclatèrent et en novembre 1940 le Bureau décidait de réduire l'activité du Comité Exécutif de l'Union aux questions administratives, sans exclure toute action scientifique qui pourrait rester possible dans chaque pays.

L'invasion de la Belgique et les événements suivants devaient reduire aux dernières limites ces actions. En août 1940 deux membres de la Gestapo perquisitionnèrent au Secrétariat de l'Union à Louvain et en enlevaient les archives qui, transportées à Berlin, devaient en revenir au bout de deux ans en complet désordre avec des pièces faisant défaut.

Entre le Président à Paris et le Secrétaire à Louvain quelques communications restèrent possibles. Quand le Président du Comité National de Géographie allemand se présenta au Secrétaire en sollicitant sa collaboration pour préparation d'un Congrès en Allemagne, il fut éconduit, aussi bien que son collègue s'adressant au Président de l'Union Géographique.

C'est à l'état de vie ralentie que l'Union devait traverser les terribles années de guerre jusqu'à la Libération. Cependant l'activité scientifique n'a pas cessé complètement dans certains pays, notamment en France, où on a cherché à réaliser les vœux du Congrès d'Amsterdam touchant la Bibliographie.

La *Bibliographie Géographique Internationale* dirigée à Paris par Elicio Colin au nom du Comité National de Géographie et sous les auspices de l'Union Géographique Internationale a pu paraître pour l'année 1939 et une bibliographie pour les années 1940–44 est en voie d'impression. Malgré des lacunes inévitables cette bibliographie de guerre rendra les plus grands services.

Le Congrès d'Amsterdam avait demandé qu'une Bibliographie Cartographique internationale annuelle fût publiée dans les mêmes conditions. Ce vœu a subi un commencement de réalisations: Mlle. Foncin et Madame

Sommer qui avaient déjà préparé pendant plusieurs années une Bibliographie Cartographique française, ont réussi à réunir la documentation de cartes de tous pays éditées en France et dans les colonies françaises de 1940 à 1944. L'impression en va commencer. C'est un premier pas qui permettra, lorsque les relations normales auront repris, de présenter une Bibliographie cartographique internationale non seulement au point de vue des pays représentés, mais au point de vue du lieu d'édition.

Ces entreprises auront besoin d'une aide financière plus grande que celle accordée jusqu'ici.

Enfin il faut noter l'initiative prise par le Président de l'Union Géographique Internationale pour réunir le plutôt possible, en 1948, l'Assemblée de l'Union et un Congrès International de Géographie, en alertant les Comités Nationaux de Géographie. La moitié des Etats adhérents ont répondu, la plupart se prononçant pour le maintien de la décision prise en faveur du Portugal. Mais des réserves ayant été faites par quelques-uns des pays les plus importants, un échange serré de correspondance s'en est suivi. Toutes les suggestions faites ont été étudiées jusqu'au moment où il apparut possible de faire connaître par une nouvelle circulaire les solutions proposées et les arguments pour ou contre, de façon à ce qu'une décision soit obtenue, par un vote dans des conditions sensiblement pareilles à celles d'une Assemblée générale. La circulaire va être envoyée d'ici quelques jours.

Sitôt la décision obtenue, le Comité Exécutif entrera en rélation avec les Comités Nationaux de Géographie et avec les Commissions nommées à Amsterdam pour la préparation du Congrès.

Cette préparation se trouvant limitée à 2 ans, il est probable que le Congrès n'aura pas l'ampleur des Congrès précédants. Il paraît cependant préférable de s'en tenir à la date de 1948. La reprise de contact entre savants de différents pays est une nécessité particulièrement urgente quand il s'agit d'une discipline aussi complexe que la Géographie.

Tels sont les résultats des efforts qui ont été faits pour maintenir à l'état de vie, ralentie sans doute, l'Union Géographique Internationale et pour préparer la remise en marche des recherches géographiques.

# International Union of Biological Sciences, Report on the Activities for the period 1937—1946

The facts about the International Union of Biological Sciences have to be reported for an unusually long period; the last report by the General Secretary was given before the General Assembly of the International Council in April 1937, and so nine years have elapsed since that date. However, six of these years have been a vacuum; since September 1939 all international contacts were severely hampered and since May 1940 the General Secretary has been isolated from all foreign relations, undesired contacts with the occupation troops and their followers of Gestapo, S.S. and S.D. excepted. So my report will be limited to those seemingly quiet, but already internationally troubled years 1937–39 and the confused, partly promising, partly depressing, after-war years, 1945–46.

First of all we have to pay a just tribute to the memory of Sir Albert Seward, who for so many years devoted a great part of his activity to the Union's welfare and who died on 11 April, 1941, aged 77.

The Executive Committee has to regret the decision by its President, Professor E. D. Merrill, to resign because of his age, the resignation of the Vice-President, Professor D. M. S. Watson, and of the Treasurer, Professor Dr A. Pictet. The Presidency has been left vacant until the next General Assembly; Professor H. Munro Fox kindly put his energy at the disposal of the Union, while he accepted the function of Vice-President. The Treasurer, Professor Pictet, has informed us that he would like to resign at the end of the year; after a most laborious period of twenty years and at his age of 77, he certainly has deserved well of the Union and we have to thank him in a most deferential way for the great pains he took on behalf of the financial administration and the endless patience he displayed in obtaining the contributions from the adhering countries, which sometimes showed an unbelievable indifference to meet their financial obligations. The next General Assembly will have to choose his successor, who certainly will find a heavy task to equal Professor Pictet's punctuality and carefulness.

During this period no new countries have joined the Union; after very long and painful negotiations between three prominent and internationally-minded German biologists (Professors Hartmann, Kühn and Wettstein) and the General Secretary of the Union, Germany decided in the spring of 1939 to join the Union, but before this decision could be realised, the war destroyed this endeavour towards international co-operation promoted by a very small group of really reliable German biologists. Since the war

ended, Professor Fox has visited eight countries on the Continent and he did very valuable work there; as a result Denmark and Norway have promised to join the Union, though the official decisions have not yet been carried out. We have just received information that the Government of India has decided to rejoin the Union; it is with the greatest pleasure that we welcome India again as one of our adhering countries. From the States in Latin America the Argentine thus far is the only adhering country; invitations to join have been sent to the other South-American States; a few preliminary answers have come in showing that our invitation has been welcomed and possibly will have good results. China and the U.S.S.R. have not yet joined the Union; we hope to welcome them amidst our adhering countries before long. As the Treasurer's Report shows, a great number of the members of the Union have failed to pay their contributions for a long period; one of them, Spain, however, has now promised to pay its share for the present period.

Aided by the International Institute of Intellectual Co-operation, the I.U.B.S. organised in the years 1937–39 three international conferences on special themes. The first conference was devoted to the interesting Phytohormones; it was held in Paris, 1–2 October, 1937, and it was attended by delegates from Belgium, Czechoslovakia, Denmark, France, Great Britain, Netherlands, Switzerland and U.S.A.; some German delegates had accepted the invitation, but they were not allowed to be present. The report of this Conference was published by the I.I.I.C. in 1938 as a book of 125 pages. The second Conference took for subject: The measurement of ionising radiations; it took place at Groningen 30 May–1 June, 1939, where delegates from Belgium, France, Germany, Great Britain, Netherlands, Spain and the U.S.A. were present; the report of this Conference has not been published because of the war. Just before the war, 14–15 August, 1939, a third Conference was held on the Terminology and Symbolisation of Genetics and Cytology; the Linnean Society in London acted in a most appreciated way as host for delegates from Denmark, France, Germany, Great Britain, Hungary, India, Netherlands, Norway, Poland, Sweden, Switzerland and the U.S.A. A preliminary report of this conference was published in various periodicals (for instance *Genetica*, vol. **22**, pp. 264–68); a second Conference was planned for 1940, but war conditions postponed it until a more favourable time. Plans for this and other conferences are waiting for co-operation with the U.N.E.S.C.O.

The I.U.B.S. has appointed four delegates to the Joint Committee on Viscosity established by the International Council (Professors Eggleton, Edinburgh; Eyring, Princeton; Frey-Wyssling, Zürich, and van Iterson,

Delft); three delegates have been nominated thus far for the Joint Committee on Oceanography (Professors von Bonde, Pretoria; Boschma, Leiden, and Fish, Washington, D.C.).

As far as international payments could be made, the I.U.B.S. gave subsidies to its Botanical Section, the Office International de Protection de la Nature at Brussels, the Concilium Bibliographicum at Zürich, the Année Biologique at Paris and the Central Bureau for the Cultivation of Fungi at Baarn; new subventions were given to the Dépôt International de Préparations Microscopiques de Cytologie, founded by the late Professor Grégoire at Louvain, and to the Committee for an Index Herbariorum under the charge of Dr J. Lanjouw at Utrecht.

The Secretary of the Botanical Section, Dr F. Verdoorn, editor of the *Chronica Botanica*, left the Netherlands in April 1940 and settled down in Waltham (Mass.); from here he limited his activity to botany outside Europe; for instance he published very valuable books on *Plants and Plant Science in Latin America* (1945, 383 pp.) and *Science and Scientists in the Netherlands Indies* (1945, 491 pp.).

The Executive Committee of the Union held a meeting in London on 18 July, which meeting was kindly attended by Dr Needham from the U.N.E.S.C.O., while a number of biologists from various countries had been invited to attend. In this meeting the organisation of the I.U.B.S., its further development and the valuable help by the U.N.E.S.C.O. to international co-operation have been profoundly discussed. I sincerely do hope that the next report on the Union's activities will testify to a strong and sound prosperity, a large field of operations and activity in international co-operation.

# Appendix I

## LIST OF DELEGATES

### EXECUTIVE COMMITTEE

*President:* Prof. Dr H. R. Kruyt, University of Utrecht, Netherlands.

*General Secretary:* Prof. F. J. M. Stratton, University of Cambridge, England.

### DELEGATES OF THE INTERNATIONAL UNIONS

*Astronomy:* Sir Harold Spencer Jones, Astronomer Royal of Great Britain, President. Prof. Dr H. J. Oort, Director of the Leiden Observatory, Netherlands, General Secretary.

*Geodesy and Geophysics:* Dr W. D. Lambert, Coast and Geodetic Survey, Washington, D.C., U.S.A. Prof. J. Proudman, University of Liverpool, England. Dr J. M. Stagg, Director of Kew Observatory, Richmond, Surrey, England.

*Chemistry:* Colonel Marston T. Bogert, Emeritus Professor, Columbia University, New York, U.S.A., President. Prof. Sir Robert Robinson, President, Royal Society, University of Oxford, Vice-President. Prof. Dr R. Delaby, Société Chimique de France, General Secretary.

*Radio-Science:* Sir Edward Appleton, Department of Scientific and Industrial Research, London, England, President. Dr E. H. Rayner, London, England.

*Physics:* Prof. P. P. Ewald, Queen's University, Belfast, Northern Ireland, Acting General Secretary, Mlle. Cauchois, Paris, France.

*Geography:* Prof. E. de Martonne, Professeur à la Sorbonne, Paris, France, President. Prof. W. E. Boerman, University of Rotterdam, Netherlands, Vice-President. Dr M. A. Lefèvre, Institut Géographique Paul Michotte, Louvain, Belgium, General Secretary.

*Biological Sciences:* Prof. H. Munro Fox, Bedford College, University of London, Vice-President. Dr M. J. Sirks, Genetisch Instituut, Haren, Netherlands, General Secretary.

### REPRESENTATIVES OF ADHERING COUNTRIES

#### Australia

Sir John Madsen, University of Sydney.

#### Belgium

Prof. J. Timmermans, Université Libre, Brussels.
Prof. M. J. Cox, Recteur de l'Université Libre, Brussels.

### Canada

Dr J. G. Malloch, Canada House, London, England (National Research Council).

### China

Dr Chou Pei-Yuan, Research Fellow of the Academia Sinica.

### Czechoslovakia

Prof. B. Bydzouski, Charles University, Prague.

### Denmark

Prof. Dr Niels Bohr, President of the Royal Academy, Copenhagen.
Prof. Dr August Krogh, University of Copenhagen.
Prof. Dr N. E. Nørlund, Director of the Royal Geodetic Institute, Copenhagen.
Prof. Dr Jakob Nielsen, Secretary of the Royal Academy, Copenhagen.

### Egypt

Prof. H. Faouzi, University of Alexandria.

### Finland

Prof. P. Eskola, Helsinki.

### France

Prof. Jacques Hadamard, ancien professeur à la Faculté des Sciences, Paris.
Prof. Emile Borel, ancien ministre de la marine et professeur à la Faculté des Sciences, Paris.
Prof. Louis Blaringhem, Vice-président de l'Académie des Sciences, Paris.
Le duc Armand de Gramont, Président de l'Institut d'optique, Paris.
M. Gaston Fayet, Directeur de l'Observatoire de Nice.
M. Emmanuel de Margerie, ancien directeur du service géologique d'Alsace et de Lorraine.
M. Raymond Jouaust, Directeur honoraire du Laboratoire central d'électricité, Paris.
M. Pierre Tardi, Directeur de l'Ecole nationale des sciences géographiques, Paris.
Prof. Emmanuel de Martonne, professeur à la Sorbonne.

### Great Britain

Prof. A. V. Hill, Foreign Secretary, Royal Society, University College, London.
Sir Harold Spencer Jones, Astronomer Royal, Royal Observatory, Greenwich.
Prof. H. Munro Fox, Bedford College, London.
Prof. Sir Ian Heilbron, Imperial College, London.
Prof. J. Proudman, University of Liverpool.
Prof. H. J. Fleure, Emeritus Professor, University of Manchester.
Prof. P. M. S. Blackett, University of Manchester.
Sir Robert Watson-Watt, London.

### India

Sir Shanti Bhatnagar, Director of Council of Scientific and Industrial Research, New Delhi.
Sir Jnan Chandra Ghosh, Director of the Indian Institute of Science, Bangalore.
Dr J. N. Mukherjee, Imperial Agricultural Research Institute, New Delhi.
Mr D. N. Wadia, formerly Geological Survey.
Dr J. de Graaf Hunter, formerly Survey of India.

### Italy

Prof. Giorgio Abetti, Director of the Astrophysical Observatory, Arcetri, Florence.
General Carlo Matteini, Director General of the Mercantile Marine, Rome.
Prof. Giuseppe Levi, University of Turin.
Prof. Francesco Giordani, University of Naples.

### Netherlands

Prof. Dr H. R. Kruyt, University of Utrecht.
Prof. Dr G. van Iterson, Technical College, Delft.
Prof. Dr J. M. Burgers, Technical College, Delft.

### Netherlands East Indies

Dr A. G. van Veen, Java.

### New Zealand

Sir Theodore Rigg, Director, Cawthorn Institute, Nelson.

NORWAY

Prof. H. Solberg, General Secretary of the Norwegian Academy, Oslo.

PERU

Colonel Gerardo Dianderas, Catedrático de Geodesia, Universidad Nacional Mayor de San Marcos.

Lieut.-Col. Manuel Suarez.

SOUTH AFRICA

Dr B. F. J. Schonland, Council of Scientific and Industrial Research, Pretoria.

SWEDEN

Prof. Bertil Lindblad, Director of the Stockholm Observatory, Saltsjöbaden.

SWITZERLAND

Prof. G. Tiercy, Président de la Société Helvétique des Sciences Naturelles, Directeur de l'Observatoire de Genève.

Prof. André Mercier, Université de Berne.

UNITED STATES

Dr W. D. Lambert, Coast and Geodetic Survey, Washington.

YUGOSLAVIA

Prof. V. V. Michkovitch, Director of the University Observatory, Belgrade.

Prof. E. Marković, University of Zagreb.

## INVITED GUESTS

M. A. Establier, Institut International de Co-opération Intellectuelle, Paris.

Mme. Malterre, Institut International de Co-opération Intellectuelle, Paris.

Dr J. Needham, Head of the Natural Sciences Division, Preparatory Commission of the United Nations Educational, Scientific and Cultural Organisation.

# Appendix II

## REPORT OF THE EXECUTIVE COMMITTEE AND DRAFT AGREEMENT WITH U.N.E.S.C.O.

The Committee report with the deepest regret the deaths of a number of its officers and members.

The President, Professor Charles Fabry, died on 11 December, 1945 having resigned the Presidency on account of failing health in July, 1945.

The Senior Vice-President, Il Marchese Marconi, died on 1 July, 1937 and Professor Joji Sakurai, who was elected to succeed him, died on 28 January 1939.

The following members of the Executive Committee died while serving as representatives of their respective Unions:

Professor Sir Arthur Eddington, President of the International Astronomical Union.

General G. Perrier, Secretary of the International Association of Geodesy of the International Geodetic and Geophysical Union.

Professor M. N. Parravano, President of the International Union of Chemistry.

Dr M. Philippson, Secretary of the International Union of Radio-Science.

Professor H. Abraham, Secretary of the International Union of Pure and Applied Physics.

General J. E. R. Bourgeois, former Vice-President of the Council and a former President of the International Union of Geography.

Professor Sir Albert Seward, President of the International Union of Biological Sciences.

In addition the deaths must be recorded of Sir Henry Lyons, General Secretary of the Council from 1928 to 1937, and of Dr P. Pelseneer who was a member of the Executive Committee from 1931 to 1937.

The Executive Committee elected Dr H. R. Kruyt, Vice-President, as President in succession to Professor Fabry, and Professor M. Siegbahn and Professor E. D. Merrill as Vice-Presidents. Professor E. D. Merrill has since resigned office.

Numerous changes have taken place among the members of the Executive Committee representing the various Unions, the general tendency being for a Union to nominate as its representatives the President

and Secretary with power to appoint substitutes for meetings which they are unable to attend.

The Executive Committee have to report the following changes among adhering organisations. The Principality of Monaco has resigned. The Union of South Africa has changed its adhering organisation from the Department of Mines and Industries to the National Research Council and later to the South African Council for Scientific and Industrial Research. The adhering organisation for Peru has been changed to the Instituto Geográfico Militar.

The Executive Committee met in Paris on 9, 10 July, 1937, jointly with the Committee of Scientific Experts of the International Institute of Intellectual Co-operation. At this meeting an agreement was signed between the Council and the International Organisation of the League of Nations for Intellectual Co-operation. The President, Professor Fabry and Sir Gilbert Murray signed the actual agreement which had been agreed to by the Council at its meeting earlier in 1937 (*Reports of Proceedings of the Third General Assembly of the International Council of Scientific Unions*, p. 14, 1937). As the League of Nations has ceased to exist, this agreement and a number of resolutions adopted at the Paris meeting of the Executive Committee have now only an academic interest.

The Executive Committee, as agreed at the General Assembly in 1937 (*ibid.* p. 20), appointed at its Paris meeting the following members of the Committee on Science and Social Relations: Dr J. M. Burgers, Professor F. J. M. Stratton, Professor S. Chapman, Professor B. Němec, M. Francis Perrin, M. A. Establier, Professor Brønsted and Professor Conklyn with power to co-opt (Professor Conklyn was unable to serve on this committee). The Executive Committee also appointed Dr Kruyt as successor to Sir Henry Lyons to represent the Council at the Congrès Mondial de Documentation.

During the summer of 1939 the position with regard to international scientific co-operation between continental countries began to present acute difficulties and it became clear that the proposed meeting of the General Assembly in Copenhagen in 1940 would be impossible. The President summoned a meeting of the Executive Committee in Paris for 3 October, 1939 to discuss alternative plans for a meeting of the General Assembly, to receive a report from the Committee on Science and Social Relations and to adopt a report for circulation to the adhering organisations. The outbreak of the World War caused the cancellation of this meeting and soon led to a complete cessation of the activities of the Council. The officers and members of the Executive Committee became engaged

in work of national importance and after the summer of 1940 were unable for the most part even to communicate with each other. It was not till the late summer of 1945 that it became possible to gather up the threads and to arrange with the various Unions to restart the pre-war activities.

A meeting of the Executive Committee was called for 4 December, 1945, in London. At this meeting a letter was received from Sir Alfred Zimmern, the organising secretary of the Preparatory Commission of the United Nations Educational, Scientific and Cultural Organisation (U.N.E.S.C.O.). The resolution it contained and the Committee's action upon it are referred to in a later section of this Report. Various resolutions were adopted by the Executive Committee, among these mention must be made of the following.

1. That countries that have paid no subscription since 1936 be invited to send delegates to a meeting of the General Assembly to be held in 1946, but that they should be informed that arrears up to and including 1939 must be paid before the delegates could attend and vote.

2. That annual subscriptions should restart after 1939 for the year 1946, no subscription being charged for the years 1940–45 inclusive: that adhering organisations be invited to make payments for these years if they were able and willing to do so.

3. That international scientific congresses, as they were held, should be approached with a view to new Unions being formed.

4. That the Executive Committee should meet annually and receive and publish annual reports on the activities of the adhering Unions, especially on any development calling for co-operation with other Unions.

5. That joint committees of the Unions be organised by the Council, members being nominated by the Unions concerned; and that where essential the financing of these joint committees be the responsibility of the Council.

6. That a grant of £180 be made for the publication of the *Quarterly Bulletin of Solar Activity* for the years 1942–44 and a further grant of £50 for the year 1945, subject to the approval of the President of the International Astronomical Union.

7. That a grant of £50 be made to the Committee on Science and Social Relations for the year 1945–46.

8. That the Committee on Science and Social Relations prepare a survey on the published scientific attitude to such questions as the use of

atomic energy, the study of drugs, etc. and report to the Executive Committee before the meeting of the General Assembly.

9. That various steps be taken to widen the publicity of the activities of the Council.

10. That certain changes in the Statutes be proposed at the General Assembly in 1946. (Details have been circulated to all adhering organisations.)

11. That new Joint Committees be set up as follows, members to be nominated by the Unions named:

| | |
|---|---|
| Oceanography: | Geodesy and Geophysics, Biological Sciences. |
| The Ionosphere: | Astronomy, Geodesy and Geophysics, Radio-Science, Physics. |
| Viscosity: | Chemistry, Physics, Biological Sciences. |
| Constants of Physical Chemistry: | Chemistry, Physics. |

The resolution from the meeting at which U.N.E.S.C.O. was formed, which was referred to above, was as follows:

That the Preparatory Commission of the United Nations Educational, Scientific and Cultural Organisation be requested by this Conference to instruct its Executive Committee to consult with the International Council of Scientific Unions on methods of collaboration to strengthen the programmes of both bodies in the area of their common concern, and

That the plans thus formulated be reported to the first Conference of U.N.E.S.C.O., with recommendations for a suitable working arrangement with the International Council of Scientific Unions.

The Executive Committee asked the President to nominate a committee of three members to study conjointly with a corresponding committee of the Preparatory Commission of U.N.E.S.C.O. the details of a working agreement in accordance with the terms of the above resolution. The President nominated a committee consisting of the President, the General Secretary and Dr W. D. Lambert.

This Committee met Dr J. Needham, Head of the Natural Sciences Division of the Preparatory Commission of U.N.E.S.C.O., on 29 May when the whole position was discussed. Subsequently a statement and draft agreement were prepared for submission to the General Assembly of the Council and to the Inaugural Meeting of the Permanent Organisation of U.N.E.S.C.O. to be held at the end of 1946.

This draft was discussed at the meeting of the General Assembly on the afternoon of 22 July, 1946 (see pp. 11–14 *supra*) and ultimately the agreement was approved as follows:

1. L'U.N.E.S.C.O. reconnaît les unions scientifiques internationales, comme fournissant une forme naturelle et appropriée pour l'organisation internationale de la science, et le Conseil International des Unions Scientifiques comme leur organisme aux fins de représentation et de coordination.

2. Le Conseil International des Unions Scientifiques reconnaît l'U.N.E.S.C.O. comme l'organisation principale des Nations Unies dans le domaine des relations scientifiques internationales.

3. Eu égard aux deux articles précédents, le Conseil International des Unions Scientifiques et l'U.N.E.S.C.O. se tiendront constamment en contact afin de se consulter en ce qui concerne l'avancement et le progrès de la coopération internationale dans le domaine des sciences exactes et naturelles. A cette fin, le Directeur de la Section des Sciences de l'U.N.E.S.C.O. ou son adjoint, aura le droit d'assister, ès qualité, aux sessions plénières du Conseil International des Unions Scientifiques, ainsi qu'aux réunions de son Comité exécutif en tant qu'observateur. L'U.N.E.S.C.O. recevra également un exemplaire du rapport annuel de chacune des Unions et du Conseil International des Unions Scientifiques.

4. Au moins une personne, chargée de la liaison, fournie d'un personnel nécessaire, sera nommée par le Conseil International des Unions Scientifiques pour représenter cette Organisation et les Unions au siège central de l'U.N.E.S.C.O. L'U.N.E.S.C.O. accordera une subvention au Conseil International des Unions Scientifiques pour couvrir son traitement. L'U.N.E.S.C.O. pourra également fournir des secrétaires (dactylos) aux fonctionnaires élus de diverses Unions.

5. L'U.N.E.S.C.O. facilitera également le travail des Unions en se chargeant de la perception des cotisations nationales alimentant le budget des Unions et du Conseil, ainsi que du versement des subventions accordées par les Unions et le Conseil aux organismes appropriés des pays intéressés.

6. L'U.N.E.S.C.O. prendra toutes mesures nécessaires pour faciliter le passage des frontières au personnel scientifique se rendant aux conférences ou aux réunions organisées sous les auspices des Unions ainsi qu'aux sessions des Comités mixtes nommés par les Unions, notamment l'U.N.E.S.C.O. subviendra en partie aux frais de déplacement des

délégués officiels et accordera à la demande des Unions des allocations spéciales pour aider les savants, et plus spécialement les plus jeunes savants, travailleurs scientifiques, à se rendre aux réunions.

7. L'U.N.E.S.C.O. pourra de temps en temps aider les différentes Unions en se chargeant des responsabilités financières d'entreprises internationales déjà établies et de haute importance tout en laissant aux Unions la responsabilité scientifique et technique des projets. Dans un tel cas l'U.N.E.S.C.O. sera représentée à tout Comité chargé de la gestion du budget annuel de cette entreprise.

8. L'U.N.E.S.C.O. pourra subvenir aux frais de Commissions ou de Commissions mixtes déterminées des Unions et dans chaque cas elle sera réprésentée au Comité financier intéressé.

9. L'U.N.E.S.C.O. pourra de temps en temps fournir aux diverses Unions les fonds nécessaires pour entreprendre la réalisation de projets nouveaux dûment approuvés.

10. Le présent accord est conclu pour une période illimitée. Chaque signataire se réserve le droit de le dénoncer en donnant un préavis de douze mois à dater du 1er janvier. Dans le cas d'une telle dénonciation, les deux organisations se mettront d'accord sur les conditions fixant la façon dont devra se terminer ou se continuer tout projet commun.

1. U.N.E.S.C.O. recognises the international scientific Unions as providing a natural and appropriate form for the international organisation of science and the International Council of Scientific Unions as their co-ordinating and representative body.

2. The International Council of Scientific Unions recognises U.N.E.S.C.O. as the principal agency of U.N.O. in the field of international scientific relations.

3. Having regard to the preceding two articles I.C.S.U. and U.N.E.S.C.O. will maintain at all times close consultative relations for the promotion and development of international science. For this purpose the Head of the Division of Natural Sciences of U.N.E.S.C.O. or his deputy shall have the right *ex officio* to attend plenary sessions of I.C.S.U. and meetings of its executive committee as an observer. U.N.E.S.C.O. shall also receive a copy of the annual report of each of the Unions and of I.C.S.U.

4. At least one liaison officer with secretarial assistance shall be appointed by I.C.S.U. to represent that body and the Unions at the Headquarters

of U.N.E.S.C.O. His stipend will be provided through a grant made by U.N.E.S.C.O. U.N.E.S.C.O. may also provide secretarial (typist) assistance for the various Unions.

5. U.N.E.S.C.O. will further facilitate the work of the Unions by arranging for the collection of the national subscriptions budgeted for by the Unions and Council, and for the payment of grants made by the Unions and Council to the appropriate bodies in the countries concerned.

6. U.N.E.S.C.O. will take all necessary steps to facilitate the movements across frontiers of scientific persons attending conferences or symposia held under the auspices of the Unions, or meetings of Joint Commissions appointed by the Unions; in particular U.N.E.S.C.O. will help towards the travelling expenses of official delegates and may make special grants, on application from the Unions, to help research workers, particularly the younger ones, to attend meetings.

7. U.N.E.S.C.O. may from time to time relieve the various Unions of financial responsibility for established international undertakings of a substantial nature, leaving the scientific and technical control of the projects to the Unions. U.N.E.S.C.O. would in such cases be represented on whatever committee controlled the annual budget of the undertaking.

8. U.N.E.S.C.O. may finance specific Commissions or Joint Commissions of the Unions, being represented in every case on the relevant finance committees.

9. U.N.E.S.C.O. may from time to time provide funds to the various Unions for the opening up of new approved projects.

10. The present agreement is concluded for an unlimited period. Each party reserves the right to terminate it at twelve month's notice as from the first of January in any year. In the event of such termination the two bodies shall agree on the conditions under which any joint projects shall be terminated or carried on.

# Appendix III

## FINANCIAL REPORT FOR THE YEARS 1937–45

### 1937

| Income | £ | s. | d. | Expenditure | £ | s. | d. |
|---|---|---|---|---|---|---|---|
| By Balance in hand 1 Jan., 1934 | 712 | 14 | 2 | To Printing and Stationery ... | 10 | 9 | 3 |
| Subscriptions received ... | 334 | 7 | 5 | Typing ... ... ... ... | 19 | 6 | 9 |
| Sales: Publications ... ... | 1 | 17 | 6 | Postage and Miscellaneous ... | 15 | 7 | 10 |
| Typewriter ... ... | 6 | 0 | 0 | Petty Cash (General Assembly) | 5 | 4 | 0 |
| Unused cheques returned ... | | 10 | 10 | Delegates' expenses ... ... | 10 | 0 | 0 |
| Interest on deposit account ... | 2 | 18 | 3 | Grants: | | | |
| | | | | Committee on Solar and Terrestrial Relationships | 15 | 0 | 0 |
| | | | | Committees on Science and Social Relationships ... | 50 | 0 | 0 |
| | | | | Bulletin of Solar Character Figures ... ... ... | 60 | 0 | 0 |
| | | | | Balance in hand 31 Dec., 1937 | 873 | 0 | 4 |
| | £1058 | 8 | 2 | | £1058 | 8 | 2 |

### 1938

| Income | £ | s. | d. | Expenditure | £ | s. | d. |
|---|---|---|---|---|---|---|---|
| By Balance in hand 1 Jan., 1938 | 873 | 0 | 4 | To Printing and Distribution of Reports ... ... ... | 148 | 16 | 6 |
| Subscriptions ... ... ... | 287 | 19 | 5 | Clerical assistance and Postage | 5 | 16 | 5 |
| Sale of Publications ... ... | | 4 | 6 | Grants: | | | |
| Interest on Deposit Account | 3 | 10 | 2 | C.S.S.R. ... ... ... | 50 | 0 | 0 |
| | | | | Bulletin ... ... ... | 60 | 0 | 0 |
| | | | | Balance in hand 31 Dec., 1938 | 900 | 1 | 6 |
| | £1164 | 14 | 5 | | £1164 | 14 | 5 |

### 1939

| Income | £ | s. | d. | Expenditure | £ | s. | d. |
|---|---|---|---|---|---|---|---|
| By Balance in hand 1 Jan., 1939 | 900 | 1 | 6 | To Printing and Stationery ... | 1 | 0 | 6 |
| Subscriptions ... ... ... | 314 | 10 | 11 | Clerical assistance and Postage | 7 | 1 | 8 |
| Interest on Deposit Account ... | 6 | 10 | 0 | Grants: | | | |
| | | | | Solar and Terrestrial Relationships ... ... ... | 100 | 0 | 0 |
| | | | | C.S.S.R. ... ... ... | 50 | 0 | 0 |
| | | | | Bulletin ... ... ... | 60 | 0 | 0 |
| | | | | Balance in hand 31 Dec. 1939 | 1003 | 0 | 3 |
| | £1221 | 2 | 5 | | £1221 | 2 | 5 |

1940

| Income | £ | s. | d. |
|---|---|---|---|
| By Balance in hand 1 Jan., 1940 | 1003 | 0 | 3 |
| Subscriptions ... ... ... | 85 | 8 | 6 |
| Interest on Deposit Account ... | 4 | 11 | 6 |
| | £1093 | 0 | 3 |

| Expenditure | £ | s. | d. |
|---|---|---|---|
| To Clerical assistance and Postage | 1 | 9 | 1 |
| Grants: | | | |
| Bulletin ... ... ... | 60 | 2 | 6 |
| Balance in hand 31 Dec., 1940 | 1031 | 8 | 8 |
| | £1093 | 0 | 3 |

1941

| Income | £ | s. | d. |
|---|---|---|---|
| By Balance in hand 1 Jan., 1941 | 1031 | 8 | 8 |
| Subscriptions ... ... ... | 21 | 18 | 8 |
| Interest on Deposit Account ... | 4 | 11 | 8 |
| | £1057 | 19 | 0 |

| Expenditure | £ | s. | d. |
|---|---|---|---|
| To Balance in hand 31 Dec., 1941 | 1057 | 19 | 0 |
| | £1057 | 19 | 0 |

1942

| Income | £ | s. | d. |
|---|---|---|---|
| By Balance in hand 1 Jan., 1942 | 1057 | 19 | 0 |
| Interest on Deposit Account ... | 4 | 12 | 2 |
| | £1062 | 11 | 2 |

| Expenditure | £ | s. | d. |
|---|---|---|---|
| To Postage ... ... ... | | 1 | 1 |
| Balance in hand 31 Dec., 1942 | 1062 | 10 | 1 |
| | £1062 | 11 | 2 |

1943

| Income | £ | s. | d. |
|---|---|---|---|
| By Balance in hand 1 Jan., 1943 | 1062 | 10 | 1 |
| Interest on Deposit Account ... | 4 | 12 | 7 |
| | £1067 | 2 | 8 |

| Expenditure | £ | s. | d. |
|---|---|---|---|
| To Balance in hand 31 Dec., 1943 | 1067 | 2 | 8 |
| | £1067 | 2 | 8 |

1944

| Income | £ | s. | d. |
|---|---|---|---|
| By Balance in hand 1 Jan., 1944 | 1067 | 2 | 8 |
| Subscriptions ... ... ... | 17 | 7 | 0 |
| Interest on Deposit Account ... | 4 | 13 | 4 |
| | £1089 | 3 | 0 |

| Expenditure | £ | s. | d. |
|---|---|---|---|
| To Clerical assistance and Postage | | 3 | 2 |
| Balance in hand 31 Dec., 1944 | 1088 | 19 | 10 |
| | £1089 | 3 | 0 |

1945

| Income | £ | s. | d. |
|---|---|---|---|
| By Balance in hand 1 Jan., 1945 | 1088 | 19 | 10 |
| Subscriptions ... ... ... | 17 | 7 | 0 |
| Interest on Deposit Account ... | 4 | 13 | 7 |
| | £1111 | 0 | 5 |

| Expenditure | £ | s. | d. |
|---|---|---|---|
| To Clerical assistance and Postage | 7 | 0 | 4 |
| Delegates' travelling expenses | 20 | 0 | 0 |
| Balance in hand 31 Dec., 1945 | 1084 | 0 | 1 |
| | £1111 | 0 | 5 |

# Appendix IV

## REPORT OF THE COMMITTEE ON SOLAR AND TERRESTRIAL RELATIONSHIPS

Owing to the sad and tragic circumstances of the past years it has been impossible until now to give a complete record of the work of the Committee for the investigation of the relations between solar and terrestrial phenomena to cover the period from 1939, when the fifth report was published in Firenze, up to the present date.

Therefore this is only a short notice in order to inform the Executive Committee of the present situation and to suggest what can possibly be done for our future work.

The international organisation for solar observations carried on during the war with some difficulties, but with few changes, so far as I know.

Some important decisions on solar phenomena were taken at the Copenhagen meeting of the Executive Committee of the International Astronomical Union in March 1946: these must be considered by our Committee.

(1) The *Quarterly Zürich Bulletin* will no longer give the characteristic numbers, but only the sunspot number. Commission 11 of the I.A.U. will arrange to add to the daily record details of coronal phenomena, radio noises of solar origin and luminescence of the night sky and to secure a better index of prominence activity than the present one. The details of solar eruptions will be published as at present and M. d' Azambuja, Chairman of Commission 11, will arrange for the details of the publication during the transition stages, 1945 onwards.

(2) The *Meudon Cartes synoptiques* will be continued as at present.

(3) The *Immagini spettroscopiche* (the series already published goes from 1869 to 1934 with few gaps) will be discontinued from 1934 onwards; but the original complete drawings from 1934 onwards will be available at the Arcetri Observatory.

(4) Commission 11 of the I.A.U. has been asked to study the question of the prediction of terrestrial phenomena of solar origin and the determination of zones of activity on the sun's disk. It will also be important to arrange, when possible, for a continuous cinematographic study of the sun from stations spaced round the globe.

Very remarkable work has been done in recent years by Lyot, with his coronograph and filter, by Menzel in Colorado, U.S.A., and by Waldmeier in Arosa; it will be necessary, as mentioned under (1), to include the new

data of solar activity, together with those secured by Dr Kiepenheuer at Freiburg, in the *Quarterly Bulletin* for a rapid and comprehensive outlook of the daily solar phenomena.

Our Committee must, of course, make arrangements for co-operation with the new Committee on the Ionosphere set up recently by the I.C.S.U., in which four representatives each from the Unions of astronomy, geodesy and geophysics, scientific radio and physics are included.

If it is decided to publish a sixth report, funds must be granted for that purpose by the Executive Committee.

With the decisions of the Executive Committee, the nomination of a new President and new members, there is no doubt that our Committee will draw up a programme for future work which in the approaching maximum of solar activity will certainly increase our knowledge on solar and terrestrial relationships.

GIORGIO ABETTI
*President*

## COMMISSIONE SOLE-TERRA

BILANCIO DI GESTIONE, 1 GENNAIO 1939–15 NOVEMBRE 1945

| Entrate | Lit. |
|---|---|
| Resto di Cassa al 1 Gennaio 1939 | 2.835·80 |
| Incassato lire sterline 100 (11 Gennaio 1939 e 21 Agosto 1939) ... ... ... ... | 8.878·00 |
| | Lit 11.713·80 |

| Spese | Lit. |
|---|---|
| Alla Tipografia Barbéra di Firenze per stampa del volume 5 Rapporto ... ... | 9.100·00 |
| Spese postali e di spedizione del suddetto Rapporto ... ... | 1.537·90 |
| | Lit. 10.637·90 |
| Resto di Cassa al 15.xi.1945 | 1.075·90 |
| | Lit. 11.713·80 |

R. Osservatorio di Arcetri,
15 *Novembre* 1945

*Il Presidente*
GIORGIO ABETTI

*Members of the Committee* 1937–46: Dr G. C. ABBOT; Prof. G. ABETTI; Sir EDWARD APPLETON; Dr L. D' AZAMBUJA; Prof. W. BRUNNER; Prof. S. CHAPMAN; Prof. H. DESLANDRES; Dr J. A. FLEMING; Dr S. B. NICHOLSON; Sir GEORGE SIMPSON; Prof. C. STÖRMER.

# Appendix V

## REPORT OF THE COMMITTEE ON SCIENCE AND ITS SOCIAL RELATIONS (C.S.S.R.) ON THE PUBLIC ATTITUDE OF SCIENTIFIC BODIES WITH REGARD TO THE PROBLEMS RAISED BY RECENT APPLICATIONS OF SCIENCE

§ 1

At the meeting of the Executive Committee of the International Council of Scientific Unions held in London, December 1945, the Committee on Science and its Social Relations was asked to prepare a survey of the published views of scientific bodies on the problems now arising through recent researches into such matters as nuclear physics and drugs. As official scientific institutions do not readily express corporate opinions on the social implications of science, the C.S.S.R. decided to collect also information concerning the attitude of scientific workers with regard to these problems. For this purpose a circular letter was prepared requesting information about statements made by representative scientists, steps taken to promote proper public understanding of the problems, resolutions adopted, etc. The difficulties of communication, consultation and correspondence made it necessary to use whatever channels presented themselves. Many correspondents helped by transmitting the circular letter to their colleagues. A resolution already adopted by the Netherlands Academy of Sciences (see Appendix, p. 68) was reprinted in the circular.

In addition to the information received in reply to the circular the Secretary of the Committee himself collected many published articles on the subject. All this material is referred to and in part summarised in the appendix.

§ 2

It is evident from this material that the problem of nuclear energy today takes the foremost place in all discussions on the relation between science and society. For the moment it overshadows all other problems. Nevertheless various other branches of science, e.g. biochemistry and biology, bacteriology and aerodynamics will present questions of almost

equal importance in their applications. Moreover the whole situation that has resulted from the war (the devastated areas, the disruption of trade and of the social order), presents a series of problems that have now to be faced and mastered.

A situation of unparalleled urgency has arisen requiring new methods for the handling of which international unity and co-operation offer the only safe route to be followed. Not only must mankind be guarded from war and the destructive application of science but also the urgent need of the world must be met for food, clothes, homes, health, the materials of industry and the supply of energy. The political, economic, administrative and technical measures by which these great objectives are to be achieved must inevitably involve the extensive application of scientific knowledge and methods. There must be the closest co-operation of the leading organisations and men of science. The essential part played by science in the recent victory over the forces of aggression and reaction, making possible the continuance of civilised society, points the way to the role it may now play in maintaining and improving the conditions of life in the most varied and vital ways.

§ 3

Science, a major cultural achievement of the present epoch, binds together its workers in a voluntarily accepted discipline of observation, reasoning and criticism. It thrives best in an atmosphere of freedom of thought and co-operation, and the widest interchange of information, plan and results is vital to its full development. Planning in certain branches of science, especially regarding its application, has a due place, but there will always be need for scope for free initiative and the pursuit of researches without any immediate and obvious bearing on the material well-being of mankind. Ready and unhampered interchange of facts and ideas by personal contacts, by letters and by printed papers is essential.

During the past conflict men of science have willingly bound themselves by restrictions of secrecy which have been recognised as necessary in the circumstances. And even in peace there are matters on which secrecy may be justified, in the interest of humanity, for instance dangerous drugs and destructive inventions. Such restrictions are contrary to the spirit of science and their necessity arises from human imperfections, individual and social. As these imperfections will certainly not disappear at once there will remain a proper sphere within which secrecy in scientific matters will continue to be justified: this should, however, be only for the public benefit and for the prevention of the misuse of science in evil or irresponsible hands.

The imposition and control of such secrecy should be exercised only by constitutional authority and in consultation with and under the guidance of representative scientific opinion.

§ 4

The ever-increasing social importance of science must be recognised by scientific workers themselves as fully as by governments and administrators. It is equally inappropriate for scientists to ignore the influence of science on society as to claim that science should determine the purposes of society. It is part of the duty of men of science to urge that the problems of government and administration should be rationally formulated and attacked; they must collectively and individually bring to the solution of these problems their devotion to truth and their unswerving, objective and critical search for facts and their interrelations.

Though science has been drawn deeply into the struggles and competitions that harass mankind, men of science owe it to their fellow men that their work serves beneficial ends, not for one class or nation alone but for all. They should continue to show an international mind and purpose and should try to bring into the direction of world affairs that spirit of international co-operation, which is so fundamental a feature of scientific history.

In order that the beneficial purposes and possibilities of science may be more widely appreciated there rests a duty also on most, if not all, scientists to aid in the continuous enlightenment of the general public in this respect.

§ 5

With the above considerations in mind the C.S.S.R. suggest to the General Assembly of the International Council of Scientific Unions the following resolutions for adoption:

1. The General Assembly of the International Council of Scientific Unions sees in the great powers for good and evil that research on nuclear energy has put at the disposal of mankind a supreme opportunity and occasion for a new international unity, to develop the benefits potential in nuclear energy and to avoid its misuse. The General Assembly strongly supports the efforts now being made under the auspices of the United Nations Organisation to attain this urgent goal, efforts in which the co-operation of representative men of science, so essential for success, is being officially given.

The General Assembly urges that the present opportunity of eliminating war by the attainment of such a new international unity be grasped and that thereby the trammels of secrecy in science may be removed: thus the

free and open co-operation between men of science of all nations, that has in the past so greatly advanced the progress of science and society, may be fully renewed.

The General Assembly hopes that the attainment of an agreement on the application of nuclear energy may provide an important instance of international co-operation in economic and political matters. Extension of this would facilitate the promotion of the welfare of mankind, the judicious use of our national resources, the removal of tensions and the settling of difficulties arising from the continuous change of world conditions in consequence of scientific and technical advances.

2. The General Assembly of the International Council of Scientific Unions, in the name of the men of science of the nations represented, acknowledges the duty on the part of scientific workers

(*a*) to maintain a spirit of frankness, honesty, integrity and co-operation and to work for international understanding;

(*b*) to promote the development of science in the way most beneficial to mankind and to exert their influence as far as possible to prevent its misuse;

(*c*) to serve the community not only by their specialised work but by assisting so far as they are able in the education of the public in the purposes and achievements of science.

The Committee on Science and its Social Relations.

F. J. M. Stratton, *Chairman.*
J. M. Burgers, *Secretary.*

[Note added by the General Secretary:

The above resolutions were fully discussed in a session of the General Assembly together with an additional resolution submitted by Dr A. V. Hill (see 2 below).

Finally the following resolutions were adopted unanimously by the General Assembly:

1. The General Assembly of the International Council of Scientific Unions sees in the great powers for good or evil that research on nuclear energy has put at the disposal of mankind a supreme opportunity and occasion for a new international unity, to develop the benefits potential in nuclear energy and to avoid its misuse. The General Assembly strongly supports the efforts now being made under the auspices of the United Nations to attain this urgent goal, efforts in which the co-operation of representative men of science, so essential for success, is being officially given. The General Assembly urges that the present opportunity of eliminating war by the attainment of such a new international unity be grasped.

The General Assembly hopes that the attainment of an agreement on the application of nuclear energy may provide an important instance of international co-operation in economic and political matters. Extension of this would facilitate the promotion of the welfare of mankind, the judicious use of our natural resources, the removal of causes of dispute and the settling of difficulties arising from the continuous change of world conditions in consequence of scientific and technical advances.

2. The General Assembly is aware that nuclear energy is not unique among scientific advances in its possible effects for good or ill. Biological and biochemical warfare, for example, were not applied during the late conflict, but their potential menace may be as great as that of the atomic bomb: equally, the discoveries on which they depend could bring the greatest benefits to mankind.

The General Assembly is convinced that international security and welfare will be impossible if in any country for the future military secrecy is allowed to dominate scientific discovery or to prevent the frank discussion and open publication of scientific results. "There can be no international control and no international co-operation which does not presuppose an international community of knowledge."

3. The General Assembly of the International Council of Scientific Unions, in the name of the men of science of the nations represented, acknowledges the duty on the part of scientific workers

(*a*) to maintain a spirit of frankness, honesty, integrity and co-operation and to work for international understanding;

(*b*) to promote the development of science in the way most beneficial to mankind and to exert their influence as far as possible to prevent its misuse;

(*c*) to serve the community not only by their specialised work but by assisting so far as they are able in the education of the public in the purposes and achievements of science.]

## APPENDIX

In the following pages some of the more noteworthy articles are mentioned. Naturally these have come mostly from Great Britain and the United States. The Committee on Science and its Social Relations regret in particular not to be able to bring material from the U.S.S.R.

We begin with some leading articles in *Nature*.

Immediately after the dropping of the atomic bombs on the Japanese cities there appeared in *Nature* of 11 August, 1945 (vol. **156**, p. 153) a leading article "Atomic Energy: An International Responsibility", from which we quote:

"There is another facet of the world situation which this scientific and technical development has brought to the forefront, namely, the immense

responsibility now placed in the hands of those with exact knowledge of the steps necessary to release atomic energy. It has been stated that adequate measures have been taken to secure patents on all vital processes, and all rights in such patents have been assigned to the Governments concerned. At present, this must mean that the United Nations, and especially Great Britain, the United States and Canada, hold in their hands a weapon with which they can dominate the world—a responsibility the discharge of which will require the highest degree of statesmanship. They also hold a potential source of power capable of contributing immensely to the welfare and material progress of mankind—a further and even greater responsibility. How will they use it? Governments are notoriously impersonal, and they come and go. It therefore devolves upon the individual, be he man of science or layman, to understand the potentialities of atomic energy, even if he comprehends little of the method of its release, and to ensure that his elected representatives, from whom his Government is chosen, are also aware of their responsibilities in the matter. It is not a matter of exact knowledge so much as an appreciation of right and wrong in dealing with our neighbours, who are now every nation of the world; indeed, the alternatives would seem to be an international brotherhood of nations or chaos. There can be no question of halting investigations until mankind is fitter to receive them; if material research has outstripped the progress of knowledge of man, then the tempo of investigation of man as a social being must be increased until both can progress, side by side, carrying man onwards to the higher ideals of life for which the best of each generation are always striving."

This was followed in the issue of 18 August, 1945 (vol. **156**, p. 187) by "The End of the Second World War". The following passage may be quoted:

"...The release of atomic energy in manageable fashion, as we have already pointed out (*Nature*, 11 August, p. 153), is a landmark in the history of mankind—it marks the beginning of a new era, an era in which the quality of the work of men of science of the world will not only be of immense importance, but will also be acknowledged as such. It is not suggested that men of science should become, as it were, a ruling caste, to whom all others would defer; they themselves would be the first to dispute any such intention, for their training does not of necessity develop the qualities needed for administration. Rather we would anticipate that they will be expected to take a share in the tasks of government, as they have done during the war, at the direct request of the ruling authority and with a conspicuous success which has been generally acknowledged and acclaimed. Gone, it is hoped, are the days when men of science were regarded as useful standbys, to be called in when things go wrong and speedily relegated to the background after use has been made of their knowledge. But scientific workers must also play their part; they must not allow their preoccupation with their particular interests to make them

oblivious to their responsibilities as citizens of a world which is becoming increasingly dependent on their efforts, and they must maintain their high standard of integrity."

In connection with these articles it is of importance to state that on several occasions before the first bomb was exploded, scientists had attempted to convey to the U.S. Government their views on the social and political implications of the release of atomic energy, particularly its use for military purposes. Reference must be made to the issue of 1 May, 1946, of the *Bulletin of the Atomic Scientists* (vol. **1**, No. 10) in which is published a report presented 11 June, 1945, to the U.S. Secretary of War, by a "Committee on Social and Political Implications", appointed by the Director of the Metallurgical Laboratory in Chicago, its chairman being Professor James Franck; and to the comments upon that report on the front page of the same issue.

*Nature* almost at the same time drew attention to the implications which the development of the atomic bomb has had upon scientific intercourse. We quote the first and second paragraphs of the leading article in the issue of 25 August, 1945 (vol. **156**, p. 215), "Freedom of Scientific Intercourse":

"Speculations as to the implications for material progress no less than for destructive purposes of the immense co-operative scientific effort that went to the evolution of the atomic bomb may tend to distract attention from some important issues relating to the progress of science itself. The profound secrecy in which this effort has been enveloped should emphasise the fact that for some six years the normal channels for communication between scientific men have been interrupted, and to restore such intercourse across national frontiers is the first step to stimulate the creative thought and exchange of knowledge and ideas upon which the progress of science finally depends. Sir Henry Dale has been prompt to point out, in a letter in *The Times*, that the preservation of civilisation itself may now well depend on the fullest freedom of scientific intercourse. The abandonment of any national claim to secrecy about scientific discoveries, he suggests, must be a prerequisite for any kind of international control such as will be indispensable if we are to use atomic energy to its full value and avoid the final disaster which its misuse might bring.

There may be no immediate opportunity for a national, still less for an international, exchange of scientific opinion, but the magnificent loyalty with which scientific workers have kept this greatest of war secrets cannot disguise the fact that those concerned, and their colleagues in science everywhere, are increasingly impatient for the revival of the world community of science to which Sir Henry referred. The importance of removing the restrictions on the scientists' liberty "to know, to utter, and to argue freely according to conscience" has already been stressed in the discussions on the development of scientific and industrial research in Britain,

and has been emphatically endorsed in the report which Dr Vannevar Bush recently presented to President Truman under the title *Science: the Endless Frontier*, published in July 1945. That report showed unmistakably that authoritative scientific opinion in the United States has come to recognise the need for more official methods of carrying on international scientific activity. Not merely the removal of war-time restrictions and hindrances, but also the positive encouragement of the exchange of knowledge and ideas by means of international scientific congresses, international fellowships and the like is strongly advocated."

The article: "Atomic Energy and its Utilisation" (*Nature*, **156**, p. 547, 10 November, 1945), again starts with the problem of the restoration of full freedom and of scientific intercourse, and the earliest and fullest possible relaxation of the secrecy imposed by the exigencies of war-time. It mentions that already so far back as 1943 the Barlow Committee (compare *Nature*, **156**, p. 643, 1945) came out with strong recommendations regarding the fullest possible removal of secrecy restrictions, and the encouragement of publication and of discussion between scientific workers in different fields, within and without the Government service, above all in fundamental research. It points to the report by Dr Vannevar Bush, *Science: the Endless Frontier*, already mentioned above, which shows how scientific opinion in the United States of America has reached similar conclusions; and further states that the visit of Allied men of science to the U.S.S.R., in connection with the 250th anniversary of the Academy of Sciences of Moscow, left no room for doubt that the scientific men in the U.S.S.R. are equally anxious for the prompt resumption of contact and communications with their colleagues in other countries. The article gives a clear summary of the position at the time of its writing in the United States and in Great Britain.

In the same issue under "News and Views", p. 546, there are mentioned a speech by Professor M. L. Oliphant at Birmingham on 3 November and a joint conference of the "World Unity Movement" and the "Council for World Airways", in which several scientists participated, and where the following resolution, moved by Mr Caradog Jones, was passed: "Believing that no scientific knowledge should or can willingly be kept secret, this Conference urges that the development of atomic energy be made subject without delay to international control and that the advice and co-operation of scientists be sought in order to devise the best means to exploit its use under a world authority solely and fully in the interest of the world community."

The following resolution was carried unanimously at the meeting of the Physical Science Section of the Royal Netherlands Academy of Sciences at Amsterdam, held on 27 October, 1945:

"The Royal Netherlands Academy of Sciences, Physical Science Section, wish to state:

(1) that as a result of scientific research, intra-atomic energy has been made available to human society as a new source of energy;

(2) that, consequently, far-reaching possibilities offer themselves for a better world economy;

(3) that, however, these discoveries have first of all been developed into the atomic bomb, the implement of which is an abhorrent destructive power;

(4) that men of science, who have created these possibilities, are well aware of their responsibilities in this respect;

(5) that it is unacceptable with regard to the furthering of science and with regard to the entailing development of social welfare and social hygiene, that results of scientific research be kept secret.

The Academy therefore appeal to the sense of responsibility of Governments and of scientific institutions, to collaborate in making available the fruits of scientific research solely for the benefit of civilisation, and preventing them from becoming a threat.

The Academy herewith express their desire that the world of science shall be adequately and permanently represented in the discussions on these matters.

The Academy request all scientific institutions in other countries to support this motion, so that the whole world of science may express their desire to be entrusted with their full share of responsibility for the results of scientific research, and their desire to offer their best services in the application of these results for the benefit of mankind."

This resolution was forwarded to the Netherlands Government and to the national academies, etc., of other countries. The following bodies have expressed their adhesion, have adopted similar resolutions and in most cases forwarded them to their respective governments:

Académie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique (Brussels);
Institut de France (Paris);
Institut National Genévois (Genève);
Académie Arabe (Damascus);
Institut d'Egypte (Cairo);
Royal Society of South Africa (Capetown);
Academia Românâ (Bucarest);
Academia Chilena de la Lengua (Santiago de Chile);
K. Svenska Vetenskapsakademie (Stockholm);
Royal Society of Tasmania (Hobart);
American Federation of Scientists;
Canadian Association of Scientific Workers.

An article by Professor Niels Bohr, "Science and Civilisation", was published in *The Times* of Saturday, 11 August, 1945 (simultaneously with the first-mentioned leading article in *Nature* on "Atomic Energy as a Social Responsibility"). A further article was published by Professor Bohr under the title "A Challenge to Civilisation" in *Science*, vol. **102**, p. 363, 12 October, 1945. After having spoken on the importance of free and open access to information about all scientific and technical progress, the article continues:

"In all the circumstances it would appear that the possibility of producing devastating weapons, against which no defence may be feasible, should be regarded not merely as a new danger added to a perilous world, but rather as a forceful reminder of how closely the fate of all mankind is coupled together. Indeed, the crisis with which civilisation is at present confronted should afford a unique opportunity to remove obstacles to peaceful collaboration between nations and to create such mutual confidence as will enable them jointly to benefit from the great promises, as regards human welfare, held out by the progress of science.

The attainment of this goal, which places upon our generation the gravest responsibility towards posterity, will of course depend on the attitude of all people. Valuable services, however, may be rendered by scientists all over the world in bringing about a genuine appreciation of what is at stake and in pointing out how the great development of our resources may contribute to progress for humanity. In a matter of such universal scope, help may be found in the intimate connections between scientists, created by international co-operation which proved so fertile just in a domain of research that was to have such overwhelming consequences.

For meeting the challenge to civilisation in the proper spirit it should be a most fortunate omen that we have to do with implications of pure scientific studies pursued with no other aim than to widen the borders of our knowledge and to deepen our understanding of that nature of which we ourselves are a part. Let us hope that science which, through the ages, has stood as a symbol of the progress to be obtained by common human striving, by its latest emphasis on the necessity of concord, may contribute decisively to a harmonious relationship between all nations."

We further mention:

An address delivered before the American Philosophical Society and National Academy of Sciences, on 16 November, 1945, by Professor A. H. Compton, reprinted in *Nature*, vol. **157**, p. 146, 1946, under the title "Atomic Energy as a Human Asset".

The presidential address to the Royal Society of London, delivered by Sir Henry Dale, at the meeting of 30 November, 1945, published in *Nature*, vol. **156**, p. 677, 1945, under the title "The Mission of Science".

Several articles by Professor A. V. Hill, e.g. an address delivered

31 January, 1945, before the Royal Empire Society, London, "Scientific co-operation within the British Commonwealth" published in *United Empire*, vol. **36**, p. 56, March-April, 1945, in which, although pronounced before the application of atomic energy, a long passage is devoted to the problems arising if science should be misapplied; and a speech made 17 February, 1945, before the conference on "Science and the Welfare of Mankind", organised by the Association of Scientific Workers in London, on the "Moral Responsibilities of Scientists" (published in the *Bulletin of the Atomic Scientists*, vol. **1**, No. 7, p. 3, 15 March, 1946), in which Professor Hill pointed to the necessity (already expressed in his address of welcome to the Executive Committee of the International Council on 4 December, 1945) of framing a common standard of ethics for scientific workers all over the world. The following passage may be quoted:

"But the matter is urgent and these are critical times, and a clear and unambiguous statement of the problem may help—as it helps any scientific problem—towards its solution. There is no suggestion—at least I make none—that scientific men as such need feel an obligation to spend their time directly in political, social or economic affairs: they have their own contribution to make to public and international welfare, and their experience in natural science gives them no special qualification for politics, sociology or economics. Indeed a dislike of misrepresentation and of compromise with the truth makes them usually pretty inefficient politicans. Like other citizens they have their political rights and social duties: they exercise them not as scientists but as citizens. As scientists, however, they *have* the right, and duty, to question and discuss the nature of their own calling and its special contribution to national and international welfare. They should feel an honourable and unbreakable obligation to keep the scientific faith of frankness, honesty and integrity: to avoid secrecy and secretiveness as necessary conditions of their work: to treat all honest scientific men anywhere as their co-workers in a common cause: not to exploit the common property of science for base or selfish ends: and to refuse conditions of employment or advancement, however otherwise attractive, which do not meet the ethical requirements of one of the most important common interests of mankind. I would add one further duty, to refuse to co-operate in tasks in which they, or their representatives, are not allowed a reasonable share or partnership in the responsibility of deciding on the purpose, policy or probable result of their work."

Speeches referring to the problems raised by the release of atomic energy were made at the same conference by Dr John A. Simpson, chairman of the Chicago Atomic Scientists Committee; Professor M. L. Oliphant; Professor J. D. Bernal and Professor P. M. S. Blackett.

Twelve discourses given by scientists and economists of the first rank were delivered at a symposium arranged by the American Philosophical

Society; they have been published under the title "A Symposium on Atomic Energy and its Implications", *Proc. Amer. Phil. Soc.* **90**, No. 1 (Philadelphia, Pa.; see *Nature*, **157**, p. 826, 1946).

Attention is drawn also to a lecture by Professor E. U. Condon, Director of the National Bureau of Standards, Washington, delivered at the George Washington University on 2 May, 1946, entitled "Restoring International Co-operation in Science" (*Bull. Atomic Scientists*, vol. **1**, No. 11, p. 8).

Coming to literature directed more to the public at large, we must mention the widespread activity of the American scientists, in particular through the Federation of American Scientists and numerous affiliated bodies, who are making every effort to educate the people of the U.S. on problems of nuclear energy, to explain that keeping the secret of the atomic bomb by their country cannot bring safety to them, and to make clear that the only solution which may prevent an atomic war in the future is to be found in international control. Clearly the United States had to take the lead in this field. The American scientists moreover have exerted their influence in order to modify the atomic energy bill before the U.S. Senate in such a way that control is not laid primarily in military hands and that interference of secrecy in research on nuclear physics is diminished.

The following publications may be enumerated by way of example:

*Bulletin of the Atomic Scientists* (office: 1126 E. 59th Street, Chicago, Ill., appearing twice a month);

*Atomic Information* (published by the National Committee on Atomic Information, 1749 Street, N.W., Washington 6, D.C., appearing with intervals of 2 or 3 weeks);

*Los Alamos News Letter* (published weekly by the Association of Los Alamos Scientists, P.O. Box 1663, Santa Fé, New Mexico);

Broadcast talks and periodic news-letters from the Association of Scientists of Cornell University, Ithaca, N.Y. (with some notes on biological warfare in *The Cornell Scientist* of 3 June, 1946);

Numerous pamphlets; special issues of various periodicals;

*The Atomic Bomb* (Facts and Implications), by the Atomic Scientists of Chicago;

*One World or None*, a report to the public on the full meaning of the atomic bomb, edited by Dexter Masters and Katherine Way (McGraw-Hill Book Co., Inc., New York, 1946), with a foreword by Niels Bohr, an introduction by Arthur H. Compton, and contributions from H. H. Arnold, Hans Bethe, E. U. Condon, Albert Einstein, Irving Langmuir, Walter Lippmann, Philip Morrison, J. R. Oppenheimer, Louis Ridenour, Frederick Seitz, Harlow Shapley, Leo Szilard, Harold Urey, Eugene P. Wigner and Gale Young.

Copies of the *Report on the International Control of Atomic Energy*, prepared

by the Acheson Committee of the U.S. State Department (see p. 75 *infra*), are distributed widely and free of charge.

A plan has also been adopted for widely stimulating personal correspondence between American scientists and those of other countries, in order to strive to convince the latter of the strong desire of the American scientists to work toward world peace and co-operation, and of their determination to avoid an atomic armament race.

In Great Britain it is the Association of Scientific Workers, the Social Science Association, and the recently formed Atomic Scientists Association, who take a leading part.—The Atomic Scientists Association had prepared a memorandum on the international control of atomic energy for submission to the U.N.O. Atomic Energy Commission, which has received a wide support from leading British nuclear and atomic scientists. In its main lines the recommendations made follow closely those made by the Acheson Committee. In their memorandum to U.N.O. the British scientists also recommend that existing secrecy rules be lifted, starting forthwith with the release of all basic scientific information and that eventually all research and development be carried on freely and openly, with a duty to report to U.N.O. any significant results, which will, in general, also be published.

From Canada we mention: *Atomic Energy* by G. M. Volkoff and P. R. Wallace, published by the Canadian Association of Scientific Workers.

As contributions from representatives of the humanities we mention:

A public lecture delivered on 3 November, 1945, in the University of Oxford by Professor E. L. Woodward, *Some Political Consequences of the Atomic Bomb* (published by the Oxford University Press, 1945);

Two addresses: "A Chance for Peace", by Senator Joseph H. Ball, and "Responsibilities of Peace", by Dr Harold C. Urey, delivered to the "Cincinnati Foreign Policy Association", 9 November, 1945;

"Atomic Energy and American Policy" (Official and Unofficial Pronouncements), published by the Carnegie Endowment for International Peace (405, West 117th Street, New York 27, N.Y.), in *International Conciliation*, December 1945, no. 416;

*The First One Hundred Days of the Atomic Age* (6 August–15 November, 1945), published by the Woodrow Wilson Foundation (45, East 65th Street, New York 21, N.Y.).

Professor Quincy Wright, Professor of International Law at Chicago, working together with members of the Atomic Scientists of Chicago and the Office of Inquiry into the Social Aspects of Atomic Energy of the University, has prepared a preliminary version of a Draft Convention for

international control of atomic energy. This Draft Convention, which consists of 48 articles, under the headings: Definitions; Prohibitions; Atomic Energy Commission; Inspection Commission; Administrative Commission; Scientific Information; Individual Offences; Enforcement; Amendments; Signature and Ratification, has been published in the *Bulletin of the Atomic Scientists* (vol. **1**, No. 8, 1 April, and No. 12, 1 June, 1946).

With regard to the ethical aspects of science we must finally point to an important contribution "Science and Ethics", by John A. Ryle, Professor of Social Medicine at Oxford, published in *Nature*, vol. **156**, p. 619, 24 November, 1945, which corroborates the views expressed by Professor A. V. Hill on the moral responsibilities of scientists, and likewise points to the importance the Hippocratic oath has had in the development of medicine. In a comment upon Professor Ryle's article in the same issue (p. 623), it is stated in particular that absolute scientific freedom in every country is essential if any form of charter is to have the desired effect. Here also an "Ethical Declaration for the Times" for men of science, suggested by Mr L. L. Whyte, is recalled (published originally in *Nature*, vol. **141**, p. 827, 1938), which reads as follows:

"*Declaration.*

I am the inheritor of the tradition of civilisation which has proved more lasting than empires. Whenever I use the language or the products of science I unconsciously pay homage to the countless men for whom no sacrifice was too great in the struggle to develop the human mind and establish the truth. Toleration and freedom are the heart of this tradition; for individual thought and love of truth are the basis not only of science, but also of justice and of civilisation.

I declare my loyalty to this tradition, my belief in the freedom of the individual to develop his talents for the enrichment of the community, and my conviction that man's community is now the whole human race, within which each nation must play its characteristic part. The natural balance between personal freedom and the proper demands of society, which is the life and health of civilisation, is to-day doubly threatened: in certain societies by the denial of freedom and in the democratic countries by the irresponsibility of individuals. In the face of this threat:

I pledge myself to use every opportunity for action to uphold the great tradition of civilisation, to protect all those who may suffer for its sake, and to pass it on to the coming generations. I recognise no loyalty greater than that to the task of preserving truth, toleration, and justice in the coming world order."

The position in France is set forth by M. P. Bonét-Maury in an article "L'énergie atomique" in the *Bulletin de l'Association des Travailleurs Scientifiques* (No. 2 of March 1946). In France a Commissariat de l'Energie

Atomique was nominated in 30 October, 1945, directed by a committee composed of the *Président du Gouvernement, un administrateur général*, four scientists (Professor F. Joliot, Mme I. Joliot-Curie, Professor P. Auger and Professor F. Perrin) and *le président du comité de coordination des recherches intéressant la Défense nationale*. Professor Joliot, in a statement published in *Les Etoiles* of 25 December, 1945, considers it to be a very serious situation that results of scientific research on nuclear properties can be kept secret and are not permitted to be known. In complete accord with their American and British colleagues, the French scientists urgently demand a wide diffusion of scientific information and the creation of a security council formed by scientific experts.

The following resolution was adopted 11 November, 1945, by the Association des Travailleurs Scientifiques and was transmitted to the Union Nationale des Intellectuels:

"The Association des Travailleurs Scientifiques with anxiety is aware that in certain countries extended domains of scientific research remain subjected to strict censorship which prohibits publication of the results obtained. This censorship, which was justified during the course of the war against the powers of the "Axis", ought to have been lifted when the hostilities ended.

This serious infringement of the liberty of communication can have disastrous consequences for civilisation, by retarding progress and creating an atmosphere of suspicion, unfavourably influencing the establishment of peaceful international relations.

In complete accord with the great majority of their comrades abroad, the French scientific workers insist on the full publication of the results of scientific investigation and in particular of those referring to the release of nuclear energy. They express their confidence in the Security Council of the United Nations to ensure, by making an appeal to the qualified scientists of all countries, the effective control of atomic energy, to prohibit a military application which would be catastrophic to the whole world, and to develop speedily the beneficial and peaceful applications of this discovery."

In Belgium Professor De Donder has taken much trouble to inform the public on the points at issue, by means of a broadcast in which the resolution of the Amsterdam Academy was made known, while at the same time the necessity of the conservation of complete freedom of scientific investigators was stressed.

Lastly, for completeness, we mention the following official publications:

Henry D. Smyth, *Atomic Energy* (a general account of the development of methods of using atomic energy for military purposes under the auspices of the United States Government), U.S. Government Printing Office,

Washington, 1945; reprinted in Great Britain by H.M. Stationery Office, London, 1945; also reprinted with minor variations and additions by the Princeton University Press, Princeton, N.J., 1945.

*Statements relating to the Atomic Bomb* (H.M. Stationery Office, London, 1945).

The *Three Power Declaration on Atomic Energy*, signed by the President of the United States, the Prime Minister of the United Kingdom and the Prime Minister of Canada on 15 November, 1945 (reprinted in *Nature*, vol. **156**, p. 615 (1945), and commented upon in the leading article on "Atomic Energy" at p. 609 of the same issue). From this declaration we quote that a commission should be set up under the United Nations to consider the problems and to submit recommendations; and that amongst the subjects to be dealt with by this commission is mentioned "To make proposals for extending between all nations the exchange of basic scientific information for peaceful ends"; and further: "Specifically it is considered that the commission might well devote its attention first to the wide exchange of scientists and scientific information."

The *Report on the International Control of Atomic Energy*, prepared by the board of consultants (Ch. I. Barnard, Dr J. R. Oppenheimer, Dr Ch. A. Thomas, H. A. Winne and D. E. Lilienthal, chairman) appointed by the U.S. Secretary of State's Committee on Atomic Energy (Dean Acheson, Undersecretary of State, chairman), U.S. Government Printing Office, Washington, 1946; reprinted in Great Britain by H.M. Stationery Office, London, 1946. For comments upon this document the reader may be referred to the *Bulletin of the Atomic Scientists*, vol. **1**, No. 8, 1 April, 1946, and No. 12, 1 June, 1946, where a comparison is made with a "Draft Convention" prepared at Chicago by a group of scientists under the leadership of Professor Quincy Wright; to *Nature* of 25 May, 1946 (vol. **157**, p. 679) *Control of Atomic Energy*, by M. L. Oliphant, and further to *Nature* of 22 and 29 June, 1946 (vol. **157**, pp. 817, 853) *International Control of Atomic Energy*, where also references are given to a report of a commission appointed by the British Council of Churches, with Dr J. H. Oldham as chairman.

The Atomic Energy Commission of the United Nations in the meantime has been appointed and its first meeting has taken place (14 June, 1946). According to a communication in *Nature* of 22 June (p. 834), the U.S. Government have proposed the setting up of an "Atomic Development Authority", which proposal in its main lines seems to follow the report just mentioned.

The discussions in this Commission came too late to be referred to here.

# Appendix VI

## COMMISSIONS MIXTES

### Commission sur l'Ionosphère

*Membres:* (*Astronomie*) MM. Fesenkov, B. Lyot, D. H. Menzel, R. v. d. R. Woolley; (*Géodésie et Géophysique*) MM. L. V. Berkner, Leiv Harang, S. Chapman, A. H. R. Goldie; (*Radio-Science*) Sir Edward Appleton, Dr J. H. Dellinger; et (*Physique*).

### Commission sur l'Océanographie

*Membres:* (*Géodésie et Géophysique*) MM. B. Helland Hansen, H. U. Sverdrup, H. Petterson, J. Proudman; (*Biologie*) MM. H. Boschma, Charles J. Fish, C. von Bonde.

### Commission sur les Constantes Physico-chimiques

*Membres:* (*Chimie*) P. Jolibois, F. Sugden, W. Swietoslawski, J. Timmermans; et (*Physique*).

### Commission sur les Relations Solaires et Terrestres

(*Astronomie, Géodésie et Géophysique, Radio-Science et Physique*)

### Commission sur la Rhéologie.

*Membres:* (*Géodésie et Géophysique*) Dr T. von Karman, Sir Geoffrey Taylor; (*Chimie*) Mme. Dobry, M. Signer; (*Biologie*) MM. P. Eggleton, H. Eyring, G. van Iterson, A. Frey Wyssling.

# Appendix VII

## UNION ASTRONOMIQUE INTERNATIONALE

*Bureau de l'Union*

*Président:* Sir HAROLD SPENCER JONES, Astronomer Royal, Royal Observatory, Greenwich, London, S.E. 10, Angleterre.

*Vice-présidents:* Prof. G. ABETTI, Direttore del R. Osservatorio Astrofisico, Arcetri-Firenze (3 R), Italie. Dr W. S. ADAMS, Mount Wilson Observatory, Pasadena, Cal., Etats-Unis. Prof. W. BRUNNER, Kilchbergstrasse 125, Zürich 2, Suisse. Prof. A. DANJON, Directeur de l'Observatoire de Paris, Paris (14*e*), France. Dr A. A. MIKHAILOV, Sternberg Astronomical Institute, Moscow, U.S.S.R.

*Secrétaire général:* Prof. J. H. OORT, Sterrewacht, Leiden, Pays-Bas.

*Présidents des Commissions*

3. Commission des Notations, des Unités, et de l'Economie des Publications: M. E. STRÖMGREN.
4. Commission des Ephémérides: M. FAYET.
5. Commission des Analyses de Travaux et de Bibliographie: M. LUNDMARK.
6. Commission des Télégrammes astronomiques: M. SPENCER JONES. *Directeur du Bureau:* M. E. STRÖMGREN.
8. Commission de l'Astronomie méridienne: M. H. R. MORGAN.
9. Commission des Instruments astronomiques: M. CARROLL.
10. Commission des Taches solaires et des Nombres caractéristiques: M. BRUNNER.
11. Commission des Phénomènes chromosphériques et de la Couronne solaire: *Président d'honneur:* M. DESLANDRES. *Président:* M. D'AZAMBUJA. Sous-commission pour la Cinématographie des Protubérances: M. LYOT.
12. Commission de la Radiation solaire et de la Spectroscopie solaire: M. ABETTI.
13. Commission des Eclipses du Soleil: M. MITCHELL.
14. Commission des Etalons de Longueur d'Onde et des Tables de Spectres solaires: M. MEGGERS. *Secrétaire:* M. G. R. HARRISON.
    Sous-commission des Tables d'Intensités: M. R. B. KING.

15. Commission pour l'Etude physique des Comètes: M. BALDET.
16. Commission pour les Observations physiques des Planètes et des Satellites: M. LYOT.
17. Commission du Mouvement et de la Figure de la Lune: M. BANACHIEWICZ.
18. Commission des Longitudes par Télégraphie sans Fil: M. TARDI.
19. Commission de la Variation des Latitudes: M. SPENCER JONES. *Directeur du Bureau:* M. CARNERA.
20. Commission des Positions et des Mouvements des Petites Planètes, des Comètes, et des Satellites: *Président d'honneur:* M. LEUSCHNER. *Président:* M. DELPORTE. *Vice-président:* M. BROUWER.
    Sous-commission pour l'Etude des Comètes périodiques: Mlle. VINTER HANSEN.
22. Commission des Météores, de la Lumière zodiacale et des Problèmes analogues: M. WHIPPLE.
    Sous-commission de la Lumière zodiacale et de la Lumière du Ciel nocturne: M. DUFAY.
23. Commission de la Carte du Ciel: *Président d'honneur:* M. ESCLANGON. *Président:* M. J. BAILLAUD.
24. Commission des Parallaxes stellaires et des Mouvements propres: M. J. JACKSON.
25. Commission de Photométrie stellaire: M. HERTZSPRUNG.
    Sous-commission des Etalons de Grandeur stellaire: M. GREAVES.
    Sous-commission des Séquences de Magnitudes: Mme. PAYNE GAPOSCHKIN.
26. Commission des Etoiles doubles: *Président d'honneur:* M. AITKEN. *Président:* M. VAN DEN BOS.
27. Commission des Etoiles variables: M. DANJON.
    Sous-commission pour la Dénomination des Etoiles variables: M. DANJON.
28. Commission des Nébuleuses extragalactiques: M. HUBBLE.
29. Commission des Spectres stellaires: M. STRUVE.
    Sous-commission des Novae: M. STRATTON.
    Sous-commission des Bandes moléculaires dans les Spectres stellaires: M. MCKELLAR.
30. Commission des Vitesses radiales stellaires: M. PEARCE.
    Sous-commission des Vitesses radiales fondamentales: M. SANFORD.
    Sous-commission de Coordination des Observations des Vitesses radiales: M. J. H. MOORE.

31. Commission de l'Heure: M. Nörlund. *Vice-président:* M. Jouaust. *Directeur du Bureau:* M. Danjon.
32. Commission des "Selected Areas": M. van Rhijn.
33. Commission de la Statistique stellaire: M. Lindblad.
34. Commission de la Matière interstellaire et des Nébuleuses galactiques: M. Stebbins.
35. Commission de la Constitution des Etoiles: M. Russell.
36. Commission de la Spectrophotométrie: M. Minnaert.
37. Commission des Amas stellaires: M. Shapley.
38. Commission pour l'Echange des Astronomes: M. Stratton.

### PAYS AFFILIÉS À L'UNION ASTRONOMIQUE INTERNATIONALE

| | | |
|---|---|---|
| Afrique du Sud. | France. | Portugal. |
| République Argentine. | Grande-Bretagne. | Roumanie. |
| Belgique. | Grèce. | Suède. |
| Canada. | Italie. | Suisse. |
| Chine. | (Japon.) | Tchécoslovaquie. |
| Danemark. | Mexique. | U.R.S.S. |
| Egypte. | Norvège. | Cité du Vatican. |
| Espagne. | Pays-Bas. | Yougoslavie. |
| Etats-Unis. | Pologne. | |

La prochaine réunion aura lieu en 1948.

## UNION GÉODÉSIQUE ET GÉOPHYSIQUE INTERNATIONALE

*Bureau de l'Union*

*Président:* Prof. B. Helland-Hansen, Det Geofysiske Institutt, Bergen, Norvège.

*Secrétaire général:* Dr J. M. Stagg, Kew Observatory, Richmond, Surrey, Angleterre.

*Associations Internationales*

Géodésie. *Président:* Dr W. D. Lambert, Coast and Geodetic Survey, Washington, D.C., Etats-Unis.

Séismologie. *Président:* Dr R. C. Stoneley, Pembroke College, Cambridge, Angleterre.

Météorologie. *Président (sortant):* Prof. S. CHAPMAN, The Queen's College, Oxford, Angleterre.

Magnétisme et Electricité Terrestres. *Président:* Dr J. A. FLEMING, Carnegie Institution, Washington, D.C., Etats-Unis.

Océanographie. *Président:* Dr H. U. SVERDRUP, Scripps Institution of Oceanography, University of La Tolla, Cal., Etats-Unis.

Vulcanologie. *Président:* Prof. A. MICHEL-LEVY, 26 rue Spontini, Paris, France.

Hydrologie. *Président:* Dr G. SLETTENMARK, Statens Meteorologisk-Hydrografiska Anstalt, Stockholm 12, Sweden.

Commission on Continental and Oceanic Structure. *Président:* Dr R. M. FIELD.

Committee on Social Value of the Earth Sciences. *Président:* Dr R. M. FIELD.

### PAYS AFFILIÉS À L'UNION GÉODÉSIQUE ET GÉOPHYSIQUE INTERNATIONALE

| | | |
|---|---|---|
| Afrique du Sud | Grande-Bretagne. | Pérou. |
| Argentine. | Grèce. | Pologne. |
| Belgique. | Inde. | Portugal. |
| Canada. | Indo-Chine. | Roumanie. |
| Chili. | Italie. | Siam. |
| Danemark. | Maroc. | Suède. |
| Egypte. | Mexique. | Suisse. |
| Etats-Unis. | Norvège. | Tchécoslovaquie. |
| Finlande. | Nouvelle-Zélande. | Yougoslavie. |
| France. | Pays-Bas. | |

La prochaine réunion aura lieu en Norvège en 1948.

## UNION INTERNATIONALE DE CHIMIE

*Bureau de l'Union*

*Président:* M. MARSTON-TAYLOR BOGERT, membre de l'Académie Nationale des Sciences et du Conseil National de la Recherche, Professeur émérite à la Columbia University, New York, N.Y., 27.

*Vice-présidents:* M. J. BOUGAULT, membre de l'Académie de Médecine, professeur honoraire à la Faculté de Pharmacie, 4 avenue de l'Ob-

servatoire, Paris (6e). M. Dony-Hénault, membre de l'Académie Royale des Sciences, professeur à l'Université, 50 rue de l'Ermitage, Bruxelles. M. A. Nesnemyanov, membre de l'Académie des Sciences, professeur à l'Institut de Chimie organique à Moscou. Sir Robert Robinson, président de la "Royal Society", professeur à l'Université d'Oxford. M. E. Swain, professeur émérite à l'Université de Stanford (Californie, Etats-Unis). M. Th. Svedberg, professeur à l'Université d'Uppsala (Suède). M. W. Swietoslawski, Senior Fellow, Mellon Institute of Industrial Research, Pittsburgh 13 (Pensylvanie, Etats-Unis). M. D. Tomitch, président de la Société Chimique de Yougoslavie, professeur à l'Université de Belgrade.

*Secrétaire général:* M. R. Delaby, professeur à la Faculté de Pharmacie, secrétaire général de la Fédération Nationale des Associations de Chimie de France, 4 avenue de l'Observatoire, Paris (6e).

*Président sortant:* M. Einar Biilmann, membre de l'Académie Royale des Sciences et des Lettres du Danemark, président du Danske Kemiske Foreningers Fallesraad for Internationalt Samarbejde, professeur de Chimie à l'Université de Copenhague.

*Commissions de l'Union*

Commission des Finances. *Président:* L. H. Lampitt.

Commission des Poids Atomiques. *Président:* G. P. Baxter.

Commission Internationale des Atomes.

Commission des Constantes Radio-actives.

Commission de Thermochimie. *Président:* F. Rossini.

Commission Internationale de la Pile Weston. *Président:* G. W. Vinal.

Commission des Symboles Physico-Chimiques et de Coordination des Terminologies Scientifiques. *Président:* A. Findlay.

Commission des Tables Annuelles de Constantes. *Président:* E. Briner.

Commission du Bureau International des Etalons Physico-Chimiques. *Président:* W. Swietoslawski.

Commission des Données Physico-Chimiques. *Président:* W. Swietoslawski.

Commission des Réactions et Réactifs Analytiques Nouveaux. *Président:* C. J. van Nieuwenburg.

Commission de Réforme de la Nomenclature de Chimie Inorganique. *Président:* W. P. Jorissen.

Commission de Réforme de la Nomenclature de Chimie Organique. *Président:* P. VERKADE.

Commission de Réforme de la Nomenclature de Chimie Biologique. *Président:* P. KARRER.

Commission Affiliée: Commission Internationale pour l'Etude des Matières-grasses. *Président:* G. L. VOERMAN.

Commission de Chimie Macromoléculaire.

Commission de Toxicologie.

Commission de Normalisation du Matériel de Laboratoires.

Commission de Normalisation de le Pureté des Produits Chimiques.

PAYS AFFILIÉS À L'UNION INTERNATIONALE DE CHIMIE

| | | |
|---|---|---|
| Argentine. | France. | Suède. |
| Belgique. | Grande-Bretagne. | Suisse. |
| Brésil. | Italie. | Tchécoslovaquie. |
| Bulgarie. | Norvège. | U.R.S.S. |
| Canada. | Pays-Bas. | Yougoslavie. |
| Danemark. | Pologne. | |
| Etats-Unis. | Roumanie. | |

La prochaine réunion aura lieu à Londres, 21–24 juillet, 1947.

## UNION RADIO-SCIENTIFIQUE INTERNATIONALE

*Bureau de l'Union*

*Président:* Sir EDWARD APPLETON, London, Angleterre.

*Vice-présidents:* Dr J. H. DELLINGER, Washington, Etats-Unis. Prof. R. JOUAUST, Paris, France. Dr H. STERKY, Stockholm, Swède. Dr B. VAN DEN POL, Eindhoven, Pays-Bas.

*Secrétaire-général:* Le Commandant A. DORSIMONT, 42 Rue des Minimes, Bruxelles, Belgique.

*Secrétaire:* Major Ing. E. HERBAYS, 42 Rue des Minimes, Bruxelles, Belgique.

Pour les listes des Commissions et des Pays Affiliés voir p. 36 *supra*.

La prochaine réunion aura lieu en 1948.

## UNION INTERNATIONALE DE PHYSIQUE PURE ET APPLIQUÉE

*Bureau de l'Union*

*Président:* Prof. M. Siegbahn, Forskningsinstitut der Fysik, Stockholm, Suède.

*Secrétaire général:* Prof. P. P. Ewald, Department of Mathematical Physics, Queen's University, Belfast, L'Irelande du Nord.

### PAYS AFFILIÉS À L'UNION INTERNATIONALE DE PHYSIQUE PURE ET APPLIQUÉE

| | | |
|---|---|---|
| Australie. | France. | Pologne. |
| Belgique. | Grande-Bretagne. | Suède. |
| Canada. | Italie. | Suisse. |
| Chine. | (Japon) | Tchécoslovaquie. |
| Danemark. | Mexique. | Union Sud-Africaine. |
| Espagne. | Norvège. | |
| Etats-Unis. | Pays-Bas. | |

La prochaine réunion aura lieu à Paris en 1947.

## UNION GÉOGRAPHIQUE INTERNATIONALE

*Bureau de l'Union*

*Président:* Prof. E. de Martonne, Institut de Géographie, Rue St Jacques 191, Paris 5e, France.

*Vice-présidents:* Sir Charles Arden-Close, Eastbourne, Angleterre. Prof. W. E. Boerman, Rotterdam, Pays-Bays. Prof. A. Tonioli, Bologne, Italie. Dr C. B. Wright, Etats-Unis.

*Secrétaire général:* Dr M. A. Lefèvre, Institut Géographique Paul Michotte, Rue des Doyens 2, Louvain, Belgique.

*Commissions de l'Union*

Commission pour l'Etude du Peuplement. *Président:* H. J. Fleure.

Commission pour l'Etude des Terrasses pliocènes et pléistocènes. *Président:* H. Baulig.

Commission pour l'Etude des Variations Climatiques. *Président:* H. Arctowski.

Commission pour la Publication et Réproduction des Cartes anciennes. *Président:* W. A. Englbrecht. *Secrétaire:* M. Y. Goblet.

Commission de Photographie Aérienne. *Président:* J. M. Torroja. *Secrétaire:* Commandant Barrère.

Commission pour la Cartographie des Surfaces d'Aplanissement tertiaires. *Président:* E. de Martonne. *Secrétaire:* A. Cholley.

## PAYS AFFILIÉS À L'UNION GÉOGRAPHIQUE INTERNATIONALE

Afrique du Sud.
(Allemagne).
République Argentine.
Belgique.
Canada.
République de Cuba.
Danemark.
Egypte.
Espagne.
Etats-Unis.
France.
Grande-Bretagne.
Grèce.
Italie.
(Japon.)
Maroc.
Nouvelle-Zélande.
Norvège.
Pays-Bas.
Pologne.
Portugal.
Roumanie.
Suède.
Suisse.
Tchécoslovaquie.
Yougoslavie.

## UNION INTERNATIONALE DES SCIENCES BIOLOGIQUES

*Bureau de l'Union*

*Président:*

*Vice-président:* Prof. H. Munro Fox, Bedford College, Sussex Lodge, Regent's Park, London, N.W. 1, Angleterre.

*Secrétaire général:* Prof. Dr M. J. Sirks, Genetisch Instituut, Huis de Wolf, Haren (Gron.), Pays-Bas.

*Trésorier:* Prof. Dr A. Pictet, 102 Rue de Lausanne, Genève, Suisse.

Section Botanique. *Président:* Prof. Dr N. E. Svedelius, Botaniskes Trädgarden, Uppsala, Suède. *Secrétaire:* Dr F. Verdoorn, P.O. Box 151, Waltham 54, Mass., Etats-Unis.

Sections de Zoologie, Génétique, Cytologie expérimentale.

## PAYS AFFILIÉS À L'UNION INTERNATIONALE DES SCIENCES BIOLOGIQUES

| | | |
|---|---|---|
| Afrique du Sud. | Grande-Bretagne. | Portugal. |
| Argentine. | Inde. | Suède. |
| Belgique. | Italie. | Suisse. |
| Espagne. | Maroc. | Tchécoslovaquie. |
| Etats-Unis. | Pays-Bas. | Yougoslavie. |
| France. | Pologne. | |

La prochaine réunion aura lieu à Copenhagen en 1947.

# Appendix VIII

## CONSEIL INTERNATIONAL DES UNIONS SCIENTIFIQUES

### STATUTS

#### I. Objets du Conseil International

1. Le Conseil International a pour but:

(*a*) D'établir des liaisons d'une part entre les organisations nationales adhérentes, et d'autre part entre les diverses Unions internationales.

(*b*) D'orienter l'activité scientifique internationale dans les domaines où il n'existe pas d'associations compétentes.

(*c*) D'entrer, par l'intermédiaire des organisations nationales adhérentes, en relation avec les Gouvernements des pays adhérents pour recommander des mesures favorables au développement scientifique de ces pays.

#### II. Siège

2. Le siège légal du Conseil International est fixé à Bruxelles, où se tiendront normalement les Assemblées générales, et où seront conservées les archives.

Les dons et legs seront reçus et gérés suivant la législation belge.

#### III. Constitution et Administration du Conseil

3. Le Conseil International des Unions Scientifiques se compose d'une organisation scientifique et nationale de chaque pays adhérent au Conseil, et des Unions scientifiques internationales. Par "organismes adhérents" on entendra dans la suite les organisations nationales adhérentes et les Unions internationales.

L'Assemblée générale du Conseil se compose des délégués des organisations scientifiques et nationales, des délégués des Unions scientifiques internationales, et des membres du Comité exécutif.

4. Un pays peut adhérer au Conseil International, soit par son Académie nationale, soit par son Conseil national de recherches, soit par d'autres

institutions ou groupement d'institutions nationales similaires, soit, à défaut de ceux-ci, par son Gouvernement.

Dans le mot "pays" sont compris les Dominions, les protectorats diplomatiques, ainsi que les territoires ayant une activité scientifique indépendante.

5. Pour adhérer au Conseil International une Union doit communiquer ses Statuts au Conseil, et ces Statuts doivent:

(i) Indiquer les buts de l'Union.

(ii) Mentionner que le contrôle de l'activité de l'Union est exercé par une Assemblée générale de ses membres.

(iii) Indiquer le barème des cotisations payées par les organisations nationales.

(iv) Faire connaître les règles relatives aux votes.

6. Toute proposition de création d'une Union et toute demande d'adhésion d'une Union doivent être communiquées aux membres du Comité exécutif.

L'approbation de deux tiers des voix des membres est nécessaire.

7. Les travaux du Conseil sont dirigés par l'Assemblée générale formée de l'ensemble des Délégués accrédités à cette fin par les organismes adhérents et des membres du Comité exécutif.

L'Assemblée désigne parmi les membres des organismes adhérents un Président, deux Vice-Présidents, et un Secrétaire général. Le Président conserve ses fonctions jusqu'à la fin de la réunion de l'Assemblée générale ordinaire suivante; il ne peut être réélu immédiatement.

8. Il est constitué un Comité exécutif qui gère les affaires du Conseil dans l'intervalle de deux Assemblées générales.

Ce Comité comprend:

(i) Le Président.

(ii) Les Vice-Présidents, le Secrétaire général et deux membres élus directement par l'Assemblée générale.

(iii) Deux délégués de chacune des Unions internationales rattachées au Conseil et désignés par cette Union.

(iv) Le Président sortant, pendant les trois ans qui suivent sa démission.

Le Président, les Vice-Présidents, et le Secrétaire général du Conseil exercent les mêmes fonctions dans le Comité exécutif. Les membres visés à la ligne (ii) conservent leurs fonctions de membres du Comité exécutif

jusqu'à la fin de la seconde réunion de l'Assemblée générale ordinaire, mais ils ne peuvent être réélus immédiatement, sauf le Secrétaire général qui est de suite rééligible.

9. Le Comité exécutif peut pourvoir lui-même aux vacances qui surviennent dans son sein parmi les membres élus par l'Assemblée générale. Toute personne désignée dans ces conditions demeure en fonction jusqu'à la fin de l'Assemblée générale suivante.

Les vacances produites parmi les délégués des Unions sont comblées par les Unions elles-mêmes.

10. Le Secrétaire général expédie la correspondance et assure la gestion des ressources, ainsi que la préparation et la distribution des publications décidées par l'Assemblée générale du Conseil.

## IV. Attributions du Comité exécutif

11. Dans l'intervalle de deux Assemblées générales du Conseil, le Comité exécutif peut soumettre des propositions à l'approbation des organismes adhérents; il est tenu de le faire lorsqu'il en est requis par un tiers des voix des organismes adhérents.

12. Le Comité exécutif accepte les Statuts des Unions remplissant les conditions indiquées au paragraphe 5, avec possibilité d'appel à la prochaine Assemblée générale.

13. Le Comité exécutif peut nommer des Commissions spéciales pour l'étude de toute question de la compétence du Conseil International; leurs membres ne sont pas nécessairement choisis parmi les délégués près le Conseil. Ces Commissions spéciales peuvent, à leur tour, s'adjoindre, par cooptation, de nouveaux membres à la majorité des deux tiers des voix de ceux qui les composent.

Le Comité exécutif peut prier les Unions de nommer des membres de commissions mixtes pour l'étude de toute question de la compétence des Unions.

14. Le Comité exécutif doit présenter un rapport annuel aux organismes adhérents au Conseil.

## V. Assemblées générales

15. Le Conseil International se réunit en principe tous les trois ans en Assemblée générale ordinaire. Le Comité exécutif donnera communication du lieu et de l'époque six mois à l'avance aux divers organismes adhérents.

16. Dans des cas spéciaux, le Président peut, avec le consentement du Comité exécutif, convoquer une Assemblée générale extraordinaire; il est tenu de le faire à la demande d'un tiers des voix des organismes adhérents.

17. Les délégués près l'Assemblée générale sont nommés par les organismes adhérents au Conseil.

18. Le Président peut, de sa propre initiative, inviter tout homme de science à assister, à titre consultatif, aux séances de l'Assemblée générale ordinaire.

Les membres des Commissions spéciales et des Commissions mixtes mentionnées au paragraphe 13, ont le droit d'assister, dans les mêmes conditions, aux séances de l'Assemblée générale où sont traitées les questions rentrant dans leurs attributions.

19. L'ordre du jour d'une session est fixé par le Comité exécutif et communiqué aux organismes adhérents au moins trois mois avant l'ouverture de cette session. Toute question ne figurant pas à l'ordre du jour n'est prise en considération qu'avec l'assentiment préalable des deux tiers au moins des voix des organismes adhérents représentés à l'Assemblée générale du Conseil.

## VI. Budget et Droit de Vote

20. Dans les Assemblées générales du Conseil les résolutions concernant les questions d'ordre scientifique sont prises à la majorité des voix de tous les délégués présents, et des membres du Comité exécutif.

21. Pour les questions d'ordre administratif et pour les questions mixtes, le vote a lieu par organisation nationale adhérente, à raison d'une voix pour chacune, et par Union scientifique internationale à raison de trois voix pour chacune. Les résolutions sont prises à la majorité des voix.

S'il y a doute sur la catégorie dans laquelle doit être rangée une question á discuter, le Président décide.

Dans les Commissions, les décisions sont prises à la majorité des voix des membres qui les composent.

En toute circonstance, s'il y a égalité de voix, celle du Président est prépondérante.

Pour les questions administratives figurant à l'ordre du jour, un organisme adhérent qui n'est pas représenté peut envoyer par écrit son vote au Président. Pour être valable, ce vote doit être reçu avant le dépouillement du scrutin.

22. Les pays et les Unions apportent chacun leur contribution au Budget du Conseil.

La cotisation annuelle de chaque pays adhérent est de 500 francs or.

Dans chaque pays, l'autorité qui adhère au Conseil est responsable du paiement de la cotisation de ce pays.

La part de chaque Union est fixée à 1·5 % de son revenu au maximum.

23. Le Comité exécutif prépare un budget de prévision pour chaque année de la période comprise entre deux sessions. Une Commission financière, nommée par l'Assemblée générale du Conseil, est chargée de l'étude de ce budget et de la vérification des comptes de l'exercice précédent. Elle établit sur ces deux questions des rapports distincts qui sont soumis à l'Assemblée générale.

A la suite de cet examen financier, le Conseil fixe la part de chaque Union pour les trois ans suivants.

24. Les ressources provenant de dons sont utilisées par le Conseil International en tenant compte des désirs exprimés par les donateurs.

Tout organisme qui se retire du Conseil abandonne de ce fait ses droits à l'actif de l'Association.

## VII. Modification aux Statuts

25. Ces Statuts entreront en vigueur après avoir reçu l'approbation de l'Assemblée générale de 1931. Aucun changement ne pourra être apporté aux termes de ces Statuts sans l'approbation des deux tiers des voix des organismes adhérents.

26. Le présent texte français servira exclusivement pour l'interprétation à donner aux Statuts.

# STATUTES

## I. Objects of the International Council

1. The purpose of the International Council is:

(*a*) To co-ordinate the national adhering organisations, and also the various international Unions.

(*b*) To direct international scientific activity in subjects which do not fall within the purview of any existing international associations.

(*c*) To enter, through the national adhering organisations, into relation with the Governments of the countries adhering to the Council in order to promote scientific investigation in these countries.

## II. Domicile

2. The legal domicile of the International Council shall be at Brussels, where the General Assemblies will normally be held and the archives will be kept.

Donations and legacies will be received and administered according to Belgian law.

## III. Constitution and Administration of the Council

3. The International Council of Scientific Unions consists of a national scientific organisation from each country which has adhered to the Council, and of the international Unions.

The term "adhering organisations" includes both national adhering organisations and international Unions.

The General Assembly of the Council consists of delegates from national scientific organisations, delegates from the international Unions, and the Members of the Executive Committee.

4. A country may join the International Council either through its principal Academy, or through its National Research Council, or through some other national institution or association of institutions, or, in the absence of these, through its Government.

The term "country" is to be understood as including Dominions, diplomatic Protectorates, and any dependency in which independent scientific activity has been developed.

5. A Union desiring to join the International Council will communicate its Statutes to the Council. Such Statutes will:

(i) Indicate the objects of the Union.

(ii) Provide for the direction of the work of the Union by a General Assembly of its members.

(iii) State the basis of calculation of the dues received from national organisations.

(iv) Set forth the rules governing voting.

6. Any proposal to form a new Union and any application from a Union to join the Council will be communicated to the members of the Executive Committee.

A favourable majority of two-thirds of the votes of the members is necessary for its adoption.

7. The work of the Council is directed by the General Assembly consisting of delegates appointed by the adhering organisations, and of the members of the Executive Committee.

The Assembly shall appoint from members of the adhering organisations a President, two Vice-Presidents and a General Secretary.

The President shall hold office until the end of the next ordinary General Assembly, and shall not be eligible for re-election immediately.

8. There shall be an Executive Committee which shall direct the affairs of the Council between two General Assemblies.

This Committee consists of:

(i) The President.

(ii) The Vice-Presidents, the General Secretary, and two members elected by the General Assembly.

(iii) Two delegates from each of the Unions connected with the Council, who shall be nominated by the Union.

(iv) The retiring President, for three years after retirement.

The President, the Vice-Presidents and Secretary General of the Council shall exercise the same functions in the Executive Committee. The members enumerated in (ii) shall hold office until the end of the second Ordinary General Assembly, and shall not be eligible for re-election immediately,

except that this shall not apply to the General Secretary, who may be re-elected.

9. The Executive Committee may fill up by co-optation any vacancy occurring in its body among the members elected by the General Assembly. Any person so appointed shall hold office until the end of the next General Assembly.

Vacancies occurring among the delegates of the Unions are filled by the Unions concerned.

10. The General Secretary shall be responsible for the conduct of the correspondence, the administration of funds, and the preparation and distribution of the publications authorised by the General Assembly of the Council.

## IV. Powers and Functions of the Executive Committee

11. The Executive Committee may, in the interval between two meetings of the General Assembly of the Council, submit proposals to the organisations adhering to the Council for their approval. It shall do so when requested by one-third of the adhering organisations.

12. The Executive Committee may accept in the name of the Council the Statutes of the Unions fulfilling the conditions laid down in Statute 5, and subject to appeal to the next General Assembly.

13. The Executive Committee may nominate special Committees for the discussion of any question falling within the purview of the International Council. The members of such Committees need not necessarily have been delegates at one of the General Assemblies. These special Committees may themselves co-opt other members by a majority of two-thirds.

The Executive Committee may ask Unions to nominate members of joint commissions for the study of any question in the sphere of their respective activities.

14. The Executive Committee shall present an Annual Report to each adhering organisation.

## V. Meetings of the General Assembly

15. An ordinary meeting of the General Assembly of the International Council shall, as a rule, be held every three years. The Executive Committee shall communicate the place and date to the adhering organisations at least six months before the date of the meeting.

16. For special reasons the President may, with the consent of the Executive Committee, summon an extraordinary meeting of the General Assembly. He is obliged to do so at the request of one-third of the votes of the adhering organisations.

17. The delegates taking part in the meetings of the General Assembly of the International Council shall be appointed by the organisations adhering to International Council.

18. The President may invite any scientific man to an ordinary meeting of the General Assembly. Such invited guests may take part in the discussions, but shall have no power of voting. Members of any of the special Committees and of the joint commissions mentioned in Article 13 shall have the right, under the same conditions, to attend those meetings of the General Assembly which deal with the subjects referred to the Committee.

19. The agenda of business to be transacted at a meeting shall be determined by the Executive Committee, and communicated to the adhering organisations at least three months before the first day of the meeting. No question which has not been placed on the agenda shall be discussed, unless a proposal to that effect be approved by not less than two-thirds of the total votes of the organisations represented at the General Assembly of the International Council.

## VI. Finance and Voting Power

20. At the General Assembly of the International Council votes upon scientific questions shall be decided by the majority of votes cast by the delegates present.

21. In questions of an administrative character, and all questions not purely scientific, the vote shall be taken by adhering national organisations, each having a single vote, and by international Unions, each having three votes. Such questions shall be decided by the majority of votes cast. In case of doubt as to the category to which a question belongs, the Chairman of the meeting shall decide. Votes taken in Committees shall be counted individually and not by countries. When there is an equal division of votes, the Chairman shall in all cases have a second or casting vote.

In questions of an administrative character, any adhering organisation which is not represented by a delegate may forward its vote to the President by post, and such votes shall be valid if received before the votes are counted.

22. Countries and Unions shall contribute their share to the Budget of the Council.

The annual contribution due from each country is 500 gold francs.

In each country the organisation adhering to the International Council shall be responsible for the payment of the contribution.

The contribution from each Union shall not exceed 1·5 % of its revenue.

23. The Executive Committee shall prepare an estimate of the budget for each of the years intervening between two General Assemblies. A Finance Committee, nominated for the purpose by the General Assembly of the Central Council, shall examine this estimate, together with the accounts for the preceding years. This Committee shall submit separate reports on the two questions to the General Assembly, which, having considered these reports, shall fix the contribution from each Union for the succeeding period of three years.

24. Funds derived from donations shall be used by the International Council in accordance with the wishes expressed by the donors.

If any adhering organisation withdraws from the International Council, it resigns at the same time its rights to a share in the assets of the Council.

## VII. Modifications in Statutes

25. These Statutes shall come into force as soon as they have received the approval of the General Assembly of 1931. No change shall be made in these Statutes except with the approval of two-thirds of the votes of the adhering organisations.

26. The French text (of which the above is a translation) shall be considered to be the authoritative text.

# Appendix IX

## UNION ASTRONOMIQUE INTERNATIONALE

### STATUTS

### I. Objets de l'Union

1. L'Union Astronomique Internationale a pour but:

(1) De faciliter les relations entre les astronomes des divers pays lorsqu'il est utile ou nécessaire d'avoir recours à une coopération internationale.

(2) De favoriser l'étude de l'Astronomie dans toutes ses branches.

2. L'Union adhère au Conseil International des Unions Scientifiques.

### II. Adhésion des Pays

3. Un pays qui adhère au Conseil International des Unions Scientifiques peut adhérer à l'Union (*a*) par l'organisme par lequel il adhère au Conseil International, ou (*b*) par un Comité National d'Astronomie, formé ou autorisé par cet organisme.

Un pays qui n'adhère pas au Conseil International peut adhérer à l'Union par un Comité National d'Astronomie accepté par le Comité exécutif de l'Union.

Dans le mot "pays" sont compris les Dominions, les protectorats diplomatiques, ainsi que les territoires ayant une activité astronomique indépendante.

### III. Assemblées générales

4. Les travaux de l'Union sont dirigés par les Assemblées générales.

5. Dans les Assemblées générales, les résolutions concernant les questions d'ordre scientifique sont prises à la majorité des voix de tous les membres présents.

Pour les questions d'ordre administratif et pour les questions mixtes, le vote a lieu par pays. Chaque organisme adhérent doit faire connaître au Comité exécutif le nom de la personne qui votera au nom de son pays. Le nombre de voix attribuées à chaque pays est réglé d'après le barème suivant:

| Population du pays | Nombre de voix |
|---|---|
| Moins de 5 millions d'habitants | 1 |
| Entre 5 et 10 ,, ,, | 2 |
| 10 et 15 ,, ,, | 3 |
| 15 et 20 ,, ,, | 4 |
| Plus de 20 ,, ,, | 5 |

6. Pour les questions administratives figurant à l'ordre du jour, un pays qui n'est pas représenté peut envoyer par écrit son vote au Président. Pour être valable, ce vote doit être reçu avant le dépouillement du scrutin.

7. L'Assemblée générale peut établir des règlements concernant toutes questions non prévues par les Statuts.

## IV. Budget

8. Le Comité exécutif prépare un budget de prévision pour chaque année de la période comprise entre deux sessions. Une Commission financière, nommée par l'Assemblée générale, est chargée de l'étude de ce budget et de la vérification des comptes de l'exercice précédent. Elle établit, pour le budget et pour la vérification des comptes, des rapports distincts qui sont soumis à l'Assemblée générale.

A la suite de cet examen financier, l'Union fixe le taux de la part contributive unitaire. La cotisation unitaire ne pourra dépasser 500 francs-or.

9. La cotisation due par un pays est réglée d'après le barème suivant:

| Population du pays | Nombre de parts unitaires contributives |
|---|---|
| Moins de 5 millions d'habitants | 1 |
| Entre 5 et 10 ,, ,, | 2 |
| 10 et 15 ,, ,, | 3 |
| 15 et 20 ,, ,, | 5 |
| Plus de 20 ,, ,, | 8 |

Dans chaque pays l'organisme qui adhère à l'Union est responsable du paiement de la cotisation.

## V. Modifications des Statuts

10. Les présents Statuts entreront en vigueur au moment de leur adoption par l'Assemblée générale et seront valables jusqu'au 31 décembre 1943. Après cette date, ils seront renouvelés pour une autre période de douze ans, sauf avis contraire des organismes adhérents.

11. Aucun changement ne pourra être apporté aux Statuts sans l'approbation des deux tiers des voix des pays adhérents.

12. Le présent texte français servira seul pour l'interprétation à donner aux statuts et règlements.

## PROJET DE RÈGLEMENT

### I. Membres de l'Union

1. L'Union est constituée par des membres de trois catégories: (*a*) tous les membres de comités nationaux d'Astronomie des pays adhérents, (*b*) les personnes désignées par les organismes adhérents ou par les comités nationaux d'Astronomie, et (*c*) tous les membres des commissions de l'Union.

La liste des membres est mise à jour par le Secrétaire générale après chaque réunion ordinaire de l'Assemblée générale.

### II. Assemblée générale

2. Les membres de l'Union se réunissent en principe en Assemblée générale tous les trois ans. Si l'époque et le lieu de cette réunion n'ont pas été arrêtés par l'Assemblée générale précédente, ils sont fixés par le Comité exécutif et communiqués, six mois au moins à l'avance, aux organismes adhérents et aux comités nationaux.

3. Dans des cas spéciaux, le Président peut, avec le consentement du Comité exécutif, convoquer une Assemblée générale extraordinaire; il est tenu de le faire à la demande d'un tiers des voix des pays adhérents.

4. L'ordre du jour d'une session est fixé par le Comité exécutif et communiqué au moins quatre mois avant l'ouverture de cette session. Toute question ne figurant pas à l'ordre du jour n'est prise en considération qu'avec l'assentiment préalable de la moitié au moins des voix des pays représentés à l'Assemblée générale.

5. Toute proposition à soumettre à l'Assemblée générale doit être reçue par le Secrétaire général au moins cinq mois avant l'ouverture de l'Assemblée générale. Toute proposition soumise par un comité national d'Astronomie ou par une commission de l'Union, et reçue par le Secrétaire général cinq mois en avance, doit être inscrite à l'ordre du jour.

6. Le Président de l'Union peut inviter des hommes de science à assister, à titre consultatif, aux séances de l'Assemblée générale.

7. S'il y a doute sur la catégorie (scientifique ou administrative) dans laquelle doit être rangée une question à discuter, le Président décide.

8. En toutes circonstances, s'il y a égalité de voix, celle du Président est prépondérante.

9. L'Assemblée générale désigne les deux membres qui doivent représenter l'Union au Conseil International, des Unions Scientifiques.

## III. Comité exécutif

10. Le Comité exécutif de l'Union comprend un Président, cinq Vice-Présidents au plus et un Secrétaire général, élus par l'Assemblée générale.

11. Le Président demeure en fonction jusqu'à la fin de la réunion ordinaire de l'Assemblée générale qui suit celle de son élection: les Vice-Présidents et le Secrétaire général demeurent en fonction jusqu'à la fin de la deuxième Assemblée générale ordinaire qui suit celle de leur élection. Le Président et les Vice-Présidents ne sont pas immédiatement rééligibles. L'élection des membres à remplacer dans le comité exécutif a lieu dans la dernière séance, la présentation des candidats ayant été faite dans l'avant-dernière séance.

12. Le Comité exécutif peut pourvoir aux vacances qui surviendraient dans son sein. Toute personne désignée dans ces conditions demeure en fonction jusqu'à la réunion ordinaire de l'Assemblée générale suivante, qui doit procéder à une élection définitive. Le membre ainsi élu achève le mandat de celui qu'il s'agissait de remplacer.

13. Un Bureau administratif, sous la direction du Secrétaire général de l'Union, expédie la correspondance, gère les ressources et assure la conservation des archives ainsi que la préparation et la distribution des publications approuvées par l'Assemblée générale.

## IV. Commissions

14. L'Assemblée générale nomme des Commissions pour l'étude de sujets déterminés d'astronomie, pour l'encouragement d'entreprises collectives et pour l'examen de questions de conventions et de standardisations internationales.

Ces Commissions présentent des rapports sur les travaux dont elles sont chargées.

15. Le Président et les membres de chacune de ces Commissions sont élus par l'Assemblée générale sur la proposition du Comité exécutif de l'Union parmi les savants appartenant aux pays adhérents. Ils restent en fonction jusqu'à la fin de l'Assemblée générale ordinaire suivante et sont rééligibles.

Lorsqu'une Commission comprend des membres désignés en partie par l'Union Astronomique et en partie par une autre Union rattachée au Conseil International des Unions Scientifiques, elle a la faculté d'élire elle-même son Président.

Les Commissions établissent elles-mêmes leur règlement d'ordre intérieur; elles peuvent s'adjoindre de nouveaux membres par cooptation et à la majorité des deux tiers des voix. Si les nouveaux membres n'appartiennent pas à des pays adhérents, ils ne prennent part aux travaux de la Commission et de l'Assemblée générale qu'à titre consultatif.

16. Avec l'approbation du Comité exécutif, une Commission peut avoir ses propres publications et confier une partie quelconque de ses travaux à des institutions ou même à des particuliers.

17. Dans les Commissions les décisions sont prises à la majorité des voix des membres qui les composent et non par pays.

## V. Comités nationaux

18. Les Comités nationaux ont pour attributions de faciliter et de coordonner, sur leurs territoires respectifs, l'étude des diverses branches de l'Astronomie, envisagées principalement au point de vue international.

Ils ont le droit de soumettre au Comité exécutif des propositions à discuter par l'Assemblée générale.

## VI. Finances

19. Les recettes de l'Union sont consacrées à couvrir les dépenses suivantes:

(1) Frais de publication et dépenses accessoires d'administration.

(2) Aide financière à des entreprises astronomiques qui nécessitent la coopération internationale.

(3) Cotisation due par l'Union au Conseil International des Unions Scientifiques.

20. Les ressources provenant de dons sont utilisées par l'Union en tenant compte des désirs exprimés par les donateurs.

21. Tout pays qui se retire de l'Union abandonne de ce fait ses droits à l'actif de l'Union.

## VII. Publications

22. Les publications de l'Union sont envoyées gratuitement:

(1) Aux membres du Comité exécutif et des commissions.

(2) Aux observatoires dont la liste sera approuvée par le Comité exécutif.

(3) Aux organismes adhérents et aux comités nationaux d'Astronomie.

23. Les membres de l'Union peuvent acheter les publications de l'Union à prix réduit.

### VIII. Modification du Règlement

24. Aucun changement ne pourra être apporté au règlement de l'Union sans l'approbation des deux tiers des voix des organismes adhérents et représentés à l'Assemblée générale.

## UNION GÉODÉSIQUE ET GÉOPHYSIQUE INTERNATIONALE

L'on est en train de modifier les Statuts de cette Union.

## UNION INTERNATIONALE DE CHIMIE

### STATUTS

1. Il est institué une *Union Internationale de Chimie*, ayant pour but:

D'organiser une coopération permanente entre les Associations de Chimie des pays adhérents;

De coordonner leurs moyens d'action scientifiques et techniques;

De contribuer à l'avancement de la Chimie dans toute l'étendue de son domaine, notamment par la réunion de conférences et de congrès.

Elle a son siège provisoire à Paris. Un vote conforme aux statuts fixera tous les quatre ans le lieu du siège de l'Union.

2. L'action de l'Union, telle qu'elle est définie à l'article 1, s'exerce par un Conseil, par une Assemblée générale et par des Commissions.

L'ensemble des réunions du Conseil, de l'Assemblée générale et des Commissions prend le nom de *Conférence de l'Union Internationale de Chimie*.

3. Un pays peut adhérer à l'Union par son Conseil national de chimie, par sa Fédération nationale, par son Association nationale représentant la chimie, ou, à défaut par l'Académie nationale des Sciences ou, provisoirement, si de tels organismes n'existent pas encore, par son Gouvernement.

4. La cotisation annuelle est fixée, pour chaque pays, à un taux proportionnel au nombre de ses habitants, conformément au tableau suivant:

| Catégories | Population en millions d'habitants | Cotisation annuelle minima |
|---|---|---|
| A | de moins de 5 | 75 dollars |
| B | de 5 à 10 | 150 |
| C | de 10 à 15 | 225 |
| D | de 15 à 20 | 375 |
| E | de 20 à 30 | 525 |
| F | de plus de 30 | 675 |

Les habitants des colonies et protectorats d'un pays, qui ne se gouvernent pas librement, sont comptés dans la population de ce pays, si celui-ci le désire, et d'après les indications de son gouvernement.

Tout pays adhérent à l'Union n'est engagé que pour les dépenses relatives à l'administration générale.

Toute autre dépense ne pourra lui incomber sans son approbation préalable.

5. Tout pays peut se retirer de l'Union à condition d'avoir rempli ses obligations.

La radiation peut être prononcée pour non paiement de cotisation ou pour motifs graves, par le Conseil, à la majorité des trois quarts des suffrages exprimés, le pays intéressé ayant été préalablement appelé à fournir ses explications.

6. Le Conseil de l'Union est composé de délégués de chacun des pays adhérents, le nombre des délégués étant fixé d'après leur catégorie, comme il est indiqué ci-après:

| Catégories | Nombre de délégués |
|---|---|
| A | 1 |
| B | 2 |
| C | 3 |
| D | 4 |
| E | 5 |
| F | 6 |

Les délégués au Conseil sont nommés par l'organisme adhérent à l'Union.

7. Le pouvoir exécutif au Conseil est confié à un Bureau composé d'un Président, de huit Vice-Présidents, d'un Secrétaire général, et, en outre, des trois derniers Présidents.

Le Conseil choisit le Président parmi les Vice-Présidents anciens ou en fonction et les Vice-Présidents parmi les membres du Conseil.

Le mandat du Président, des Vice-Présidents et du Secrétaire général est de quatre années, les Vice-Présidents étant renouvelables par moitié tous les deux ans.

Les membres du Bureau, excepté le Secrétaire général, ne sont pas rééligibles immédiatement dans les même fonctions.

8. Le Conseil se réunit au moins tous les deux ans et, en outre, chaque fois qu'il est convoqué par son Président ou encore chaque fois que la demande en est faite par le quart des pays adhérents.

Il fixe les dates et lieu des Conférences de l'Union, qui se tiendront au moins tous les deux ans.

Il établit le budget.

Il reçoit et examine les rapports des Commissions.

Les recommandations d'ordre scientifique sont adoptées à la majorité relative des délégués présents.

Toutefois les décisions du Conseil au sujet de l'établissement d'usages scientifiques internationaux (nomenclature, symboles, étalons, etc.) doivent être appliquées, à titre d'essai, pendant un an. Le vote final sur de telles décisions sera fait par correspondance, chaque nation ayant un nombre de voix égal à celui de ses représentants au Conseil. Une motion est acceptée quand elle a réuni les suffrages des deux tiers des votants, à la condition que le nombre des suffrages exprimés soit au moins égal à la moitié plus un des délégués au Conseil.

Pour les questions d'ordre administratif et financier, les suffrages sont exprimés par pays, chaque pays ayant un nombre de voix égal à celui de ses délégués. Dans ce cas, il n'est pas nécessaire que ceux-ci soient tous présents. Un mandataire peut être désigné par les délégués d'une nation au Conseil pour les représenter et prendre part au vote en leur nom.

Il ne pourra être voté que sur les questions portées à l'ordre du jour, qui sera envoyé quatre mois au moins avant la réunion du Conseil.

Néanmoins, en cas d'urgence, une question pourra être inscrite à l'ordre du jour par décision prise à l'unanimité des membres présents.

Le vote par correspondance est admis. S'il y a égalité de voix, le vote est nul.

9. Il sera tenu procès-verbal des séances; les minutes des procès-verbaux seront établies en deux exemplaires et signées par le Président et le Secrétaire de séance.

Le Secrétaire aura la garde des archives et sera chargé de l'exécution des

décisions prises par le Conseil et le Bureau, en particulier de l'envoi de l'ordre du jour.

10. Le Bureau a pour fonctions:

(1) De veiller à la stricte observation des Statuts;

(2) De fixer l'ordre du jour des réunions du Conseil et de l'Assemblée générale. Cet ordre du jour comportera obligatoirement toute question qui aura été transmise au Bureau par l'un des pays adhérents, six mois avant la session;

(3) D'exécuter le programme d'action élaboré par le Conseil et notamment d'assurer la réunion des *Congrès internationaux de Chimie pure et appliquée*;

(4) D'accomplir, pendant tout le temps qui s'écoule entre deux réunions du Conseil, les actes d'administration nécessaires;

(5) De soumettre au Conseil le rapport sur l'état général de l'Union les comptes de l'exercice clos et le projet de budget;

(6) De représenter l'Union ou de désigner ses représentants.

11. L'Assemblée générale se compose des membres du Conseil et des autres délégués des pays adhérents à l'Union.

Les délégués à l'Assemblée générale sont nommés par l'organisme adhérent à l'Union. En aucun cas le nombre total des représentants d'un pays à l'Assemblée générale ne doit dépasser quinze.

Son bureau est celui du Conseil.

Elle se réunit lors des Conférences.

L'Assemblée générale entend les rapports sur l'état général de l'Union et sur la situation financière.

Les rapports et les comptes sont adressés aux pays adhérents quatre mois au moins avant la session de l'Union.

12. Les dépenses sont ordonnancées par le Président et réglées par le Secrétariat.

L'Union est représentée dans tous les actes de la vie civile et en justice par le Président, qui peut déléguer ses pouvoirs à un membre du Conseil ou au Secrétaire général.

13. Une modification quelconque des Statuts ne peut être soumise au Conseil que sur la proposition du Bureau de l'Union ou sur la demande de l'un des pays adhérents.

Les propositions de modifications figureront à l'ordre du jour du

Conseil, à la condition d'avoir été reçues, par écrit, par le Bureau au moins six mois à l'avance.

Les suffrages sont exprimés par pays conformément à l'article 8.

Le vote par correspondance est admis.

Les Statuts ne peuvent être modifiés qu'à la majorité des deux tiers des suffrages exprimés.

14. Le Conseil, appelé à se prononcer sur la dissolution de l'Union, est convoqué spécialement à cet effet trois mois à l'avance. Il doit comprendre au moins les représentants des trois quarts des pays adhérents.

Si cette proportion n'est pas atteinte, le Conseil est convoqué de nouveau dans un délai minimum de six mois et, cette fois, il peut valablement délibérer quel que soit le nombre des pays représentés.

Le vote par correspondance est admis.

Dans tous les cas, la dissolution ne peut être votée qu'à la majorité des deux tiers des suffrages exprimés.

15. En cas de dissolution, le Conseil désigne un ou plusieurs commissaires chargés de la liquidation des biens de l'Union. Il fait don de l'actif net à une ou plusieurs institutions internationales.

16. Le présent texte français servira exclusivement pour l'interprétation à donner aux articles des Statuts.

## RÈGLEMENT

### *Chapitre I*

1. Un pays adhère à l'Union par un organisme assurant la collaboration des groupements scientifiques nationaux qui se consacrent spécialement au progrès de la Chimie pure et appliquée.

2. Cet organisme est de préférence un Conseil national composé de représentants de ces groupements ou une Fédération de ces groupements.

Dans le cas où il n'existe qu'un seul groupement chimique, l'adhésion peut émaner de ce groupement.

A titre provisoire, un pays peut adhérer par son Académie Nationale des Sciences ou, à son défaut, par son Gouvernement, lorsqu'il n'existe encore aucun groupement chimique ou que les groupements existants n'ont pu constituer de Conseil national ou de Fédération. Dans ce cas, le pays adhérent aura l'obligation de créer un groupement, un Conseil national ou une Fédération dans un délai de six ans à dater de son entrée dans l'Union. La même obligation incombera, le cas échéant, aux pays déjà membres de

l'Union dans un délai de six ans après la promulgation du présent règlement.

3. Les pays non encore affiliés à l'Union pourront être admis sur leur demande. Cette demande sera soumise par le Président au Conseil de l'Union, qui décidera de leur admission à la majorité des trois quarts des voix de l'ensemble des pays déjà associés.

4. En cas d'empêchement du Président, sa suppléance sera assurée jusqu'à la prochaine conférence par l'un des Vice-Présidents que le Bureau aura désigné dès son élection.

### *Chapitre II.* Commissions

5. Le Conseil de l'Union peut décider l'institution de Commissions permanentes ou temporaires.

Ces Commissions sont chargées soit de la gestion des divers organismes de l'Union, soit de l'étude de questions déterminées.

6. Les membres des Commissions permanentes sont nommés pour quatre ans par le Conseil de l'Union. Ils sont rééligibles.

Les Commissions scientifiques peuvent s'adjoindre des membres supplémentaires par cooptation unanime. Ces membres supplémentaires ne deviennent titulaires qu'après ratification par le Conseil.

Les Commissions constituent elles-mêmes leur Bureau.

7. Les questions soumises aux Commissions font l'objet d'un rapport écrit, signé par les Commissaires, qui doit être envoyé au Conseil de l'Union, six mois avant sa session ordinaire.

Les rapporteurs ne faisant pas partie du Conseil peuvent être convoqués à la séance du Conseil au cours de laquelle on examine les questions soumises aux Commissions.

8. La session du Conseil, de l'Assemblée générale et des Commissions prend le nom de *Conférence de l'Union Internationale de Chimie.*

9. La Conférence de l'Union Internationale de Chimie ne se réunit pas deux fois de suite dans le même pays.

10. D'accord avec le Conseil de l'Union, une Commission, nommée par l'organisme officiel adhérent du pays désigné comme siège de la Conférence, est chargée de l'organisation de cette dernière. Elle en élabore le programme et veille à la réception et au logement des délégués.

## *Chapitre III.* Congrès

11. Le *Congrès international de Chimie pure et appliqué*, organisé sous les auspices de l'Union, se réunit en principe tous les quatre ans.

Son organisation est confiée à un Comité institué par le pays siège du Congrès.

Le Conseil de l'Union charge une Commission de collaborer à cette organisation.

12. Le Comité d'organisation établit le programme et le règlement du Congrès, d'accord avec la Commission de l'Union.

13. Le choix de la langue dans laquelle seront faites les communications est facultatif.

En vue d'éviter les erreurs d'interprétation, tous les rapports relatifs aux questions administratives, les vœux, les résolutions et les actes officiels, s'ils ne sont pas rédigés originellement en français, doivent être traduits en cette langue.

14. Le Bureau de l'Union présentera à la Conférence qui suivra le Congrès un rapport général sur les résolutions adoptées

15. La collaboration de l'Union à l'organisation des Congrès n'engage pas sa responsabilité financière.

## *Chapitre IV.* Règlement

16. Le règlement devient exécutoire après son acceptation par le Conseil.

17. Une modification du règlement ne peut être soumise au Conseil que sur la proposition du Bureau de l'Union ou sur la demande de l'un des organismes adhérents.

Les propositions de modifications figureront à l'ordre du jour du Conseil à la condition d'avoir été reçues, par écrit, par le Bureau de l'Union, au moins six mois à l'avance.

Les suffrages sont exprimés par pays conformément à l'article 8 des Statuts de l'Union.

Le vote par correspondance est admis.

Le règlement ne peut être modifié qu'à la majorité des deux tiers des suffrages exprimés.

18. Le présent texte français servira exclusivement pour l'interprétation à donner aux articles du règlement.

# UNION RADIO-SCIENTIFIQUE INTERNATIONALE

## STATUTS

### I. Objets de l'Union

1. L'Union a pour but de développer les études scientifiques se rapportant à la radiotélégraphie et notamment:

(1) De susciter et organiser les recherches nécessitant une coopération internationale et permettre la discussion et la publication des résultats de ces recherches.

(2) De faciliter l'établissement de méthodes communes de mesures ainsi que la comparaison et l'étalonnage des instruments de mesure.

### II. Comités nationaux

2. Un Comité national est constitué dans chacun des pays adhérents à l'Union. Il est créé sur l'initiative, soit de son Académie nationale, soit de son Conseil national de Recherches ou d'autres institutions ou groupements d'institutions nationales similaires, soit de son Gouvernement.

3. Les Comités nationaux ont pour attribution de faciliter et de coordonner, sur leurs territoires respectifs, l'étude des diverses questions scientifiques se rapportant à la Radiotélégraphie, envisagées principalement au point de vue international.

Chaque Comité national, soit seul, soit de concert avec un ou plusieurs autres Comités nationaux, a le droit de soumettre à l'Union des questions à discuter, rentrant dans la compétence de celle-ci.

Les Comités nationaux désignent des délégués chargés de les représenter aux Assemblées de l'Union.

### III. Administration de l'Union

4. Les travaux de l'Union sont dirigés par l'Assemblée générale des délégués.

5. Le Comité exécutif de l'Union est composé de membres désignés par les Comités nationaux, à raison d'un membre par nation appartenant à l'Union. Il est chargé de l'étude de toutes les questions relatives à l'organisation et à l'administration de l'Union. Il pourra être consulté éventuellement par correspondance.

Ses membres sont désignés par les Comités nationaux eux-mêmes. Lorsque le membre choisi par un Comité national est empêché d'assister à une Assemblée générale, ce Comité lui donne un remplaçant provisoire pour la durée de l'Assemblée générale.

6. Le Bureau de l'Union comprend un Président, des Vice-Présidents et un Secrétaire général, élus par l'Assemblée générale.

Le Président entre en fonctions après l'Assemblée générale qui a prononcé son élection et y demeure jusqu'à la fin de l'Assemblée générale ordinaire suivante. Il est immédiatement rééligible.

Tous les Membres du Bureau devront appartenir à des nations différentes. Ils demeurent en fonctions jusqu'à la fin de l'Assemblée générale ordinaire qui suit celle de leur élection.

Les membres sortants sont rééligibles.

Le Comité exécutif peut pourvoir aux vacances qui surviendraient inopinément dans le Bureau. Toute personne désignée dans ces conditions demeure en fonctions jusqu'à la réunion de l'Assemblée générale suivante qui doit procéder à une élection définitive. Le membre ainsi élu achève le mandat de celui qu'il remplace.

## IV. Commissions

7. L'Union nomme des Commissions pour l'étude de sujets déterminés.

Ces Commissions présentent des rapports sur les travaux dont elles sont chargées.

8. Le Président de chacune de ces Commissions est élu par l'Assemblée générale sur la proposition du Comité exécutif. Il reste en fonctions jusqu'à la fin de l'Assemblée générale ordinaire qui suit celle de son élection et est rééligible.

Les Membres des Commissions sont désignés par le Comité exécutif.

Les Commissions peuvent s'adjoindre par cooptation et à la majorité des deux tiers des voix, de nouveaux membres appartenant aux pays adhérents à l'Union, mais ne faisant pas partie de Comités nationaux. La désignation de tels membres ne peut être faite qu'avec l'approbation de chaque Comité national intéressé.

9. Avec l'approbation du Comité exécutif, une Commission peut avoir ses propres publications et confier une partie quelconque de ses travaux à des institutions nationales ou même à des particuliers.

## V. Secrétariat général

10. Un Secrétariat administratif, sous la direction du Secrétaire général de l'Union, expédie la correspondance, gère les ressources et assure la conservation des archives ainsi que la préparation et la distribution des publications approuvées par l'Assemblée générale.

11. Toutes les informations pouvant intéresser l'Union sont transmises aux Comités nationaux par l'intermédiaire du Secrétariat général.

12. Le Secrétariat général pourra, sur l'initiative d'un Comité national, d'une Commission ou du Bureau, consulter les Comités nationaux et les commissions et entreprendre auprès de ces organismes des enquêtes sur des questions spéciales.

Il pourra, d'accord avec le Président, tirer des conclusions de ces consultations et enquêtes pour autant que trois Comités nationaux au moins aient répondu et après un délai qui ne sera pas inférieur à six mois. Ce délai pourra être réduit lorsque les circonstances l'imposeront. Cependant, le Secrétariat général, d'accord avec le Président, pourra prendre en considération par la suite et dans la mesure du possible, les éléments nouveaux que fourniraient les Comités nationaux et les Commissions.

## VI. Assemblées générales

13. L'Union se réunit si possible tous les deux ans en Assemblée générale. L'époque et le lieu de cette réunion sont fixés par l'Assemblée générale. Toutefois, certaines Commissions pourront se réunir dans les intervalles des Assemblées générales avec l'approbation du Comité exécutif.

14. Dans des cas spéciaux, le Président peut, avec le consentement du Comité exécutif, convoquer une Assemblée générale extraordinaire; il est tenu de le faire à la demande d'un tiers des voix des pays adhérents.

15. Tous les membres des Comités nationaux peuvent assister aux réunions de l'Assemblée générale et prendre part aux discussions, mais seuls ont voix délibérative les délégués officiels des Comités nationaux dont le nombre ne peut dépasser celui des voix attribuées au pays en vertu de l'article 17.

Le Président de l'Union peut inviter des hommes de science, appartenant à des pays adhérents, ou susceptibles d'adhérer à l'Union, à assister, à titre consultatif, aux séances de l'Assemblée générale.

Les personnalités nommées par les Commissions conformément à l'article 8, ont le droit d'assister, dans les mêmes conditions, aux séances de l'Assemblée générale où sont traitées les questions rentrant dans leurs attributions.

16. L'ordre du jour d'une session est fixé par le Comité exécutif et communiqué au moins six mois avant l'ouverture de cette session. Toute question ne figurant pas à l'ordre du jour n'est prise en considération qu'avec l'assentiment préalable de la moitié au moins des voix des pays représentés à l'Assemblée générale.

## VII. Budget et Droit de Vote

17. Le Comité exécutif prépare un budget de prévision pour chaque année. Une commission financière, nommée par l'Assemblée générale, est chargée d'étudier ce budget et de vérifier les comptes de l'exercice précédent. Elle établit sur ces deux questions des rapports distincts qui sont soumis à l'Assemblée générale.

La cotisation due par un pays et le nombre correspondant de voix qui lui sont attribuées sont réglés d'après le barème suivant:

| Population du pays | Nombre de voix | Nombre de parts unitaires contributives |
|---|---|---|
| Moins de 5 millions d'habitants | 1 | 1 |
| Entre 5 et 10 ,, ,, | 2 | 2 |
| 10 et 15 ,, ,, | 3 | 3 |
| 15 et 20 ,, ,, | 4 | 5 |
| Plus de 20 ,, ,, | 5 | 8 |

Les habitants des colonies et protectorats d'un pays sont comptés dans la population de ce pays, si celui-ci le désire, et d'après les indications de son Gouvernement.

Chaque Dominion (Afrique du Sud, Australie, Canada, Nouvelle-Zélande) a un nombre de voix correspondant à sa population, et fixé d'après le barème précédent.

Les protectorats diplomatiques, pays sous mandat et les colonies ayant un budget indépendant jouissent du même droit. Leur cotisation sera fixée par le Comité exécutif en tenant compte de leur activité scientifique.

La cotisation annuelle unitaire est de *100 francs-or*.

Dans chaque pays, l'autorité qui adhère à l'Union est responsable du paiement de la cotisation de ce pays.

18. Les recettes de l'Union, provenant des contributions des divers pays, sont consacrées à payer:

(1) Les frais de publication et les dépenses accessoires d'administration.

(2) Les frais de rédaction et de discussion des observations y compris la rémunération d'assistants.

Les ressources provenant de dons, sont utilisées par l'Union en tenant compte des désirs exprimés par les donateurs.

Tout pays qui se retire de l'Union abandonne de ce fait ses droits à l'actif de l'association.

19. Dans les Assemblées générales, les résolutions concernant les questions d'ordre scientifique sont prises à la majorité des voix de tous les délégués présents. Pour les questions d'ordre administratif et pour les questions mixtes, le vote a lieu par Etat, le nombre de voix de chaque Etat étant fixé à l'article 17.

S'il y a doute sur la catégorie dans laquelle doit être rangée une question à discuter, le Président décide.

Pour les commissions, les décisions sont prises à la majorité des voix des membres qui la composent et non par pays.

En toutes circonstances, s'il y a égalité de voix, celle du Président est prépondérante.

20. Pour toutes les questions soumises à l'avance aux Assemblées générales, un pays qui n'est pas représenté peut envoyer par écrit son vote au Président. Pour être valable, ce vote doit être reçu avant le dépouillement du scrutin.

## VIII. Règlements intérieurs

21. L'Assemblée peut édicter des règlements intérieurs concernant soit la conduite de ses travaux, soit les devoirs généraux qui incombent aux membres du Bureau de l'Union, soit, en général, tous objets non prévus dans les statuts.

De même, chaque Commission peut élaborer des règlements pour la conduite de ses propres travaux. Avant d'entrer en vigueur, ces règlements doivent être approuvés par l'Assemblée générale; aucun d'eux ne peut contenir des prescriptions contraires aux termes des présents statuts.

## IX. Durée de la Convention et Modifications

22. La présente convention est valable jusqu'à 1940. Après cette date, elle sera renouvelée pour une période de douze ans, avec l'assentiment des pays adhérents.

23. *Aucun changement ne pourra être apporté aux termes de la présente convention sans l'approbation des deux tiers des voix des pays intéressés.*

24. Le présent texte français servira exclusivement pour l'interprétation à donner aux articles de la convention.

C'est également dans cette langue que seront rédigés les procès-verbaux et pièces officielles de l'Union; toutefois, les travaux scientifiques seront publiés dans la langue originale.

## RÈGLEMENT

1. Le Bureau de chaque Commission comprend: un Président nommé par l'Assemblée générale de l'Union; des Vice-Présidents et un Secrétaire s'il y a lieu, nommés par la Commission elle-même.

2. Le rôle des Commissions est: de préparer le programme des recherches, études et expériences relatives aux questions de leur spécialité; de procéder périodiquement à l'examen des résultats obtenus; de préparer les rapports et conclusions à soumettre à l'Assemblée générale de l'Union.

3. L'exécution des travaux que comportent les programmes préparés par les Commissions, incombe aux Comités nationaux qui acceptent de collaborer avec elles.

4. Les résultats obtenus par les Comités nationaux sont communiqués périodiquement, par eux, au Président de la Commission intéressée, avec leurs observations et propositions. Celui-ci les transmet aux membres de la Commission en provoquant, s'il y a lieu, une discussion, et adresse également au Secrétaire général de l'Union copie de tous les documents ainsi qu'un résumé des résultats obtenus, destiné à être communiqué à tous les Comités nationaux et aux Présidents des autres Commissions.

5. Les Comités nationaux pourront transmettre directement au Secrétariat général en même temps qu'au Président de la Commission intéressée, s'il y en a une, les résultats obtenus par eux ou par les Commissions nationales qu'ils auraient instituées.

Le Secrétariat général transmettra ces résultats aux autres Comités nationaux, ainsi qu'au Président de l'U.R.S.I.

Le Bureau de l'U.R.S.I. se mettra éventuellement d'accord avec la Commission internationale compétente en ce qui concerne la présentation de ces résultats à l'Assemblée générale.

# UNION INTERNATIONALE DE PHYSIQUE

## STATUTS

### I. Objets de l'Union et Conditions d'Admission

1. L'Union a pour but:

(1) De créer et d'encourager une coopération internationale en physique;

(2) De coordonner les efforts de préparation et de publication des extraits de mémoires et de tables de constantes de physique;

(3) De réaliser une entente internationale sur les questions d'unités, d'étalonnage, de nomenclature et de notations;

(4) D'aider la poursuite de recherches intéressantes.

Elle peut organiser des Congrès internationaux.

Dans chaque pays, l'adhésion à l'Union peut être donnée soit par son Académie nationale, soit par son Conseil national de recherches, soit par d'autres institutions similaires, soit par des sociétés scientifiques ou groupements de telles institutions ou sociétés, soit à défaut de ceux-ci par son Gouvernement.

Pour un même pays, des adhésions données séparément par plusieurs organisations distinctes ne peuvent être admises que sous la réserve d'une entente préalable entre ces organisations pour la répartition des cotisations et le partage des droits de vote.

Dans le mot pays sont compris les Dominions, les protectorats diplomatiques, ainsi que les territoires ayant une activité scientifique indépendante.

### II. Comités nationaux

2. Un Comité national est constitué dans chacun des pays adhérents comme organisme de liaison avec l'Union. Il est créé sur l'initiative, soit de son Académie nationale, soit de son Conseil national de Recherches ou d'autres institutions ou groupements d'institutions nationales similaires, soit à défaut de ceux-ci de son Gouvernement.

3. Les Comités nationaux ont pour attributions de faciliter et de coordonner, sur leurs territoires respectifs, l'étude des diverses branches de la Physique, envisagées principalement au point de vue international. Chaque Comité national, soit seul, soit de concert avec un ou plusieurs autres Comités nationaux, a le droit de soumettre à l'Union des questions à discuter rentrant dans la compétence de celle-ci.

Les Comités nationaux désignent les délégués chargés de les représenter aux Assemblées de l'Union.

## III. Administration de l'Union

4. Les travaux de l'Union sont dirigés par l'*Assemblée générale* des délégués.

5. Le "Bureau" de l'Union comprend un Président, des Vice-Présidents et un Secrétaire général élus par l'Assemblée générale; ils demeurent en fonctions jusqu'à la fin de l'Assemblée générale ordinaire qui suit celle de leur élection.

Les anciens présidents sont membres de droit du Bureau.

Les membres élus du Bureau sont immédiatement rééligibles. Toutefois, à l'exception du secrétaire général, ils ne peuvent exercer une même fonction sans interruption pendant plus de deux périodes.

Dans l'intervalle des sessions, le Bureau forme le *Comité exécutif* de l'Union.

Le Comité exécutif peut pourvoir aux vacances qui surviendraient dans son sein. Toute personne désignée dans ces conditions achève le mandat de celui qu'il remplace.

Il existe, en outre, un *Bureau administratif*, qui, sous la direction du Secrétaire général de l'Union, expédie la correspondance, gère les ressources et assure la conservation des archives ainsi que la préparation et la distribution des publications approuvées par l'Assemblée générale.

## IV. Commissions

6. L'Assemblée générale peut constituer des *Commissions* pour l'étude de sujets déterminés de physique.

Ces Commissions présentent des rapports sur les travaux dont elles sont chargées.

7. Les membres de chacune de ces Commissions sont élus par l'Assemblée générale sur la proposition du Comité exécutif de l'Union. Ils restent en fonctions jusqu'à la fin de l'Assemblée générale ordinaire suivante et sont rééligibles.

L'Assemblée générale peut designer le Président de la Commission.

Lorsqu'une Commission comprend des membres désignés en partie par l'Union de Physique et en partie par une autre Union, elle a la faculté d'élire elle-même son Président.

Les Commissions peuvent s'adjoindre de nouveaux membres par cooptation et à la majorité des deux tiers des voix.

L'Assemblée générale peut charger le Comité exécutif de constituer des Commissions.

8. Avec l'approbation du Comité exécutif, une Commission peut avoir ses propres publications et confier une partie quelconque de ses travaux à des institutions nationales ou mêmes à des particuliers.

## V. Assemblées générales

9. L'Union se réunit en principe tous les trois ans en Assemblée générale ordinaire. Si l'époque et le lieu de cette réunion n'ont pas été arrêtés par l'Assemblée générale précédente, ils sont fixés par le Comité exécutif et communiqués, quatre mois au moins à l'avance, aux organismes adhérents.

10. Dans des cas spéciaux, le Président peut, avec le consentement du Comité exécutif, convoquer une Assemblée générale extraordinaire; il est tenu de le faire à le demande d'un tiers des voix des pays adhérents.

11. Tous les membres des Comités nationaux peuvent assister aux réunions de l'Assemblée générale et prendre part aux discussions, mais seulement avec voix consultative.

Le Président de l'Union peut inviter des hommes de science, non délégués, à assister, à titre consultatif, aux séances de l'Assemblée générale.

Les membres, non délégués, des Commissions mentionnées à l'article 7, ont le droit d'assister, dans les mêmes conditions, aux séances de l'Assemblée générale où sont traitées les questions rentrant dans leurs attributions.

12. L'ordre du jour d'une session est fixé par le Comité exécutif et communiqué au moins quatre mois avant l'ouverture de cette session. Toute question ne figurant pas à l'ordre du jour n'est prise en considération qu'avec l'assentiment préalable de la moitié au moins des voix des pays représentés à l'Assemblée générale.

## VI. Congrès internationaux

13. Les Congrès internationaux sont organisés par le Comité exécutif de l'Union.

## VII. Budget et Droit de Vote

14. Le Comité exécutif prépare un budget de prévision pour chaque année de la période comprise entre deux sessions. Une Commission financière, nommée par l'Assemblée générale, est chargée de l'étude de ce budget et de la vérification des comptes de l'exercice précédent. Elle établit, sur ces deux questions, des rapports distincts qui sont soumis à l'Assemblée générale.

A la suite de cet examen financier, l'Union fixe le taux de la part contributive unitaire, si elle doit dépasser le minimum statuaire.

Pour chaque pays le nombre des voix et le montant de la cotisation sont réglés d'après le barème suivant:

| Population du pays | Nombre de voix | Nombre de parts unitaires contributives |
|---|---|---|
| Moins de 5 millions d'habitants | 1 | 1 |
| Entre 5 et 10 ,, ,, | 2 | 2 |
| 10 et 15 ,, ,, | 3 | 3 |
| 15 et 20 ,, ,, | 4 | 5 |
| Plus de 20 ,, ,, | 5 | 8 |

Les habitants des colonies et protectorats d'un pays sont comptés dans la population de ce pays, si celui-ci le désire, et d'après les indications de son Gouvernement.

Chaque Dominion (Afrique du Sud, Australie, Canada, Nouvelle-Zélande) a un nombre de voix correspondant à sa population et fixé d'après le barème précédent.

Les Protectorats diplomatiques jouissent du même droit.

La cotisation unitaire perçue pendant la première période de la Convention est de 200 francs annuellement.

Dans chaque pays les organismes adhérents sont responsables du paiement des cotisations.

15. Les recettes de tout ordre de l'Union provenant des contributions des divers pays sont consacrées:

(1) à payer les frais de publication et les dépenses accessoires d'administration;

(2) à atteindre les buts prévus à l'article 1.

Les ressources provenant de dons sont utilisées par l'Union en tenant compte des désirs exprimés par les donateurs.

Tout pays qui se retire de l'Union abandonne de ce fait ses droits à l'actif de l'Association.

16. Dans les Assemblées générales, les résolutions concernant les questions d'ordre scientifique sont prises à la majorité des voix de tous les délégués présents. Pour les questions d'ordre administratif et pour les questions mixtes, le vote a lieu par pays, le nombre de voix de chaque pays étant fixé à l'article 14.

S'il y a doute sur la catégorie dans laquelle doit être rangée une question à discuter, le Président décide.

Dans les Commissions, les décisions sont prises à la majorité des voix des membres qui les composent et non par pays.

En toutes circonstances, s'il y a égalité de voix, celle du Président est prépondérante.

17. Pour les questions administratives figurant à l'ordre du jour, un pays qui n'est pas représenté peut envoyer par écrit son vote au Président. Pour être valable, ce vote doit être reçu avant le dépouillement du scrutin.

## VIII. Règlements intérieurs

18. L'Assemblée générale peut édicter des règlements intérieurs concernant, soit la conduite de ses travaux, soit les devoirs généraux qui incombent aux Membres du Comité de l'Union, soit, en général, tous objets non prévus dans les statuts.

De même, chaque Commission peut élaborer des règlements pour la conduite de ses propres travaux. Aucun de ces règlements ne peut contenir de prescriptions contraires aux termes des présents Statuts.

## IX. Durée de l'Union et Modifications aux Statuts

19. La durée de l'Union n'est pas limitée.

20. Aucun changement ne pourra être apporté aux présents statuts sans l'approbation des deux tiers des voix de l'ensemble des pays adhérents.

21. En cas de dissolution de l'Union, votée par l'Assemblée générale à la majorité des deux tiers des voix de l'ensemble des pays adhérents, les fonds disponibles sont attribués par l'Assemblée à une ou plusieurs organisations scientifiques.

22. Le présent texte français servira exclusivement pour l'interprétation à donner aux articles des présents Statuts.

*Ces Statuts ont été votés par l'Assemblée générale de* 1931.

# UNION GÉOGRAPHIQUE INTERNATIONALE

## STATUTS

### I. Objets de l'Union et Conditions d'Admission

1. L'Union Géographique a pour but:

(1) De favoriser l'étude des problèmes qui concernent la géographie.

(2) De provoquer et coordonner les recherches exigeant la coopération de plusieurs pays, et d'en assurer la discussion scientifique ainsi que la publication.

(3) D'organiser des congrès internationaux et des commissions qui en dépendent.

2. Dans chaque pays, l'adhésion à l'Union peut être donnée par son Académie nationale, soit par son Conseil national de Recherches, soit par d'autres institutions similaires, soit par des sociétés scientifiques ou groupements de telles institutions ou sociétés, soit, à défaut de ceux-ci, par son Gouvernement.

Pour un même pays, des adhésions séparées par plusieurs organisations distinctes ne peuvent être admises que sous la réserve d'une entente préalable entre ces organisations pour la répartition des cotisations et le partage des droits de vote.

Dans les mots pays sont compris les Dominions, les protectorats diplomatiques, ainsi que les territoires ayant une activité scientifique indépendante.

### II. Comités nationaux

3. Un Comité national est constitué dans chacun des pays adhérents à l'Union. Il est créé sur l'initiative, soit de son Académie nationale, soit de son Conseil national de Recherches, ou d'autres institutions ou groupements d'institutions nationales similaires, soit de son Gouvernement.

4. Les Comités nationaux ont pour attribution de faciliter et de coordonner, sur leurs territoires respectifs, l'étude des diverses branches de la géographie, envisagées principalement au point de vue national. Chaque Comité national, soit seul, soit de concert avec un ou plusieurs autres Comités nationaux, a le droit de soumettre à l'Union des questions à discuter rentrant dans la compétence de celle-ci.

Les Comités nationaux désignent les délégués chargés de les représenter aux Assemblées de l'Union.

16. Dans les Assemblées générales, les résolutions concernant les questions d'ordre scientifique sont prises à la majorité des voix de tous les délégués présents. Pour les questions d'ordre administratif et pour les questions mixtes, le vote a lieu par pays, le nombre de voix de chaque pays étant fixé à l'article 14.

S'il y a doute sur la catégorie dans laquelle doit être rangée une question à discuter, le Président décide.

Dans les Commissions, les décisions sont prises à la majorité des voix des membres qui les composent et non par pays.

En toutes circonstances, s'il y a égalité de voix, celle du Président est prépondérante.

17. Pour les questions administratives figurant à l'ordre du jour, un pays qui n'est pas représenté peut envoyer par écrit son vote au Président. Pour être valable, ce vote doit être reçu avant le dépouillement du scrutin.

## VIII. Règlements intérieurs

18. L'Assemblée générale peut édicter des règlements intérieurs concernant, soit la conduite de ses travaux, soit les devoirs généraux qui incombent aux Membres du Comité de l'Union, soit, en général, tous objets non prévus dans les statuts.

De même, chaque Commission peut élaborer des règlements pour la conduite de ses propres travaux. Aucun de ces règlements ne peut contenir de prescriptions contraires aux termes des présents Statuts.

## IX. Durée de l'Union et Modifications aux Statuts

19. La durée de l'Union n'est pas limitée.

20. Aucun changement ne pourra être apporté aux présents statuts sans l'approbation des deux tiers des voix de l'ensemble des pays adhérents.

21. En cas de dissolution de l'Union, votée par l'Assemblée générale à la majorité des deux tiers des voix de l'ensemble des pays adhérents, les fonds disponibles sont attribués par l'Assemblée à une ou plusieurs organisations scientifiques.

22. Le présent texte français servira exclusivement pour l'interprétation à donner aux articles des présents Statuts.

*Ces Statuts ont été votés par l'Assemblée générale de* 1931.

# UNION GÉOGRAPHIQUE INTERNATIONALE

## STATUTS

### I. Objets de l'Union et Conditions d'Admission

1. L'Union Géographique a pour but:

(1) De favoriser l'étude des problèmes qui concernent la géographie.

(2) De provoquer et coordonner les recherches exigeant la coopération de plusieurs pays, et d'en assurer la discussion scientifique ainsi que la publication.

(3) D'organiser des congrès internationaux et des commissions qui en dépendent.

2. Dans chaque pays, l'adhésion à l'Union peut être donnée par son Académie nationale, soit par son Conseil national de Recherches, soit par d'autres institutions similaires, soit par des sociétés scientifiques ou groupements de telles institutions ou sociétés, soit, à défaut de ceux-ci, par son Gouvernement.

Pour un même pays, des adhésions séparées par plusieurs organisations distinctes ne peuvent être admises que sous la réserve d'une entente préalable entre ces organisations pour la répartition des cotisations et le partage des droits de vote.

Dans les mots pays sont compris les Dominions, les protectorats diplomatiques, ainsi que les territoires ayant une activité scientifique indépendante.

### II. Comités nationaux

3. Un Comité national est constitué dans chacun des pays adhérents à l'Union. Il est créé sur l'initiative, soit de son Académie nationale, soit de son Conseil national de Recherches, ou d'autres institutions ou groupements d'institutions nationales similaires, soit de son Gouvernement.

4. Les Comités nationaux ont pour attribution de faciliter et de coordonner, sur leurs territoires respectifs, l'étude des diverses branches de la géographie, envisagées principalement au point de vue national. Chaque Comité national, soit seul, soit de concert avec un ou plusieurs autres Comités nationaux, a le droit de soumettre à l'Union des questions à discuter rentrant dans la compétence de celle-ci.

Les Comités nationaux désignent les délégués chargés de les représenter aux Assemblées de l'Union.

## III. Administration de l'Union

5. Les travaux de l'Union sont dirigés par l'Assemblée générale des délégués.

6. Le Bureau de l'Union comprend un Président, six Vice-Présidents au plus, et un Secrétaire général, qui sont élus par l'Assemblée générale.

Le Président de l'Union est élu par l'Assemblée générale, qui se réunit environ tous les trois ans, en conformité avec les statuts. Il entre en fonctions après la clôture de l'Assemblée générale, ou, si cette dernière a lieu pendant un Congrès, après la clôture dudit Congrès. Il reste en fonctions jusqu'à la clôture de la prochaine séance ordinaire de l'Assemblée générale, qui se réunira à peu près trois ans après, ou, si un Congrès a lieu en même temps, jusqu'à la clôture dudit Congrès. Il n'est pas rééligible comme Président pour la période suivante.

En conformité avec les statuts, il y a six Vice-Présidents, dont l'un est nommé par l'Union premier Vice-Président pour suppléer le Président en cas d'empêchement. Trois de ces Vice-Présidents se démettront de leurs fonctions, ou changeront d'office, à tour de rôle, à la fin de chaque période d'environ trois ans ci-dessus indiquée. Un Vice-Président, dont le tour sera venu de se démettre de ses fonctions ou de changer d'office, ne sera pas rééligible comme Vice-Président pour la période suivante.

Un Secrétaire général est élu à chaque séance ordinaire de l'Assemblée générale, qui a lieu environ tous les trois ans. Il est rééligible pour la période suivant.

Ce Bureau forme le Comité exécutif de l'Union.

Le Comité exécutif peut pourvoir aux vacances qui surviendraient dans son sein. Toute personne désignée dans ces conditions demeure en fonctions jusqu'à la réunion de l'Assemblée générale suivante, qui doit procéder à une élection définitive.

Le Comité exécutif est chargé de l'organisation des Congrès internationaux.

Il existe, en outre, un bureau administratif qui, sous la direction du Secrétaire général de l'Union, expédie la correspondance, gère les ressources et assure la conservation des archives ainsi que la préparation et la distribution des publications approuvées par l'Assemblée générale.

## IV. Commissions

7. L'Assemblée générale, ou, en cas d'urgence, dans l'intervalle des Sessions, le Bureau de l'Union peut confier à des Commissions la direction

des travaux relatifs à des branches importantes de la Géographie, telles que:

(*a*) La Topographie et la Cartographie;

(*b*) La Géographie physique;

(*c*) La Géographie humaine;

(*d*) La Géographie historique;

(*e*) La Géographie biologique;

(*f*) La diffusion de la culture géographique et les échanges internationaux.

8. Le Président et les membres de chaque Commission sont élus par l'Assemblée générale, sur la proposition du Comité exécutif de l'Union. Ils restent en fonctions jusqu'à la fin de l'Assemblée générale suivante et sont rééligibles.

Quand une Commission est composée de membres désignés en partie par l'Union Géographique Internationale et en partie par une autre Union en rapport avec le Conseil International des Unions Scientifiques, elle a le pouvoir de nommer elle-même son Président.

Les Commissions présentent des rapports sur leurs travaux à l'Assemblée générale de l'Union.

9. Avec l'approbation du Comité exécutif, une Commission peut avoir ses propres publications et confier une partie quelconque des travaux à des institutions nationales ou même à des particuliers.

## V. Assemblées générales

10. L'Union se réunit en principe tous les trois ans en Assemblée générale ordinaire. Si l'époque et le lieu de la réunion n'ont pas été arrêtés par l'Assemblée générale précédente, ils sont fixés par le Comité exécutif et communiqués, quatre mois au moins à l'avance, aux organismes adhérents.

11. Dans des cas spéciaux, le Président de l'Union peut, avec le consentement du Comité exécutif, convoquer une Assemblée générale extraordinaire. Il est tenu de le faire à la demande d'un tiers des voix des pays adhérents.

12. Tous les membres des Comités nationaux peuvent assister aux réunions de l'Assemblée générale ou des Commissions et prendre part aux discussions, mais seulement avec voix consultative.

Le Président de l'Union peut inviter à assister, à titre consultatif, aux

séances de l'Assemblée générale, les représentants d'institutions scientifiques internationales, ainsi que, après entente avec les Comités nationaux des pays auxquels ils appartiennent, des hommes de science non délégués par les Comités eux-mêmes.

13. L'ordre du jour d'une session est fixé par le Comité exécutif, et communiqué au moins quatre mois avant l'ouverture de cette session. Toute question ne figurant pas à l'ordre du jour ne peut être tranchée; cependant, elle pourra être discutée avec l'assentiment du Président.

## VI. Budget et Droit de Vote

14. Le Comité exécutif prépare un budget de prévision pour chaque année de la période comprise entre deux sessions. Une Commission financière, nommée par l'Assemblée générale, est chargée de l'étude de ce budget et de la vérification des comptes de l'exercice précédent. Elle établit, sur ces deux questions, des rapports distincts qui sont soumis à l'Assemblée générale.

A la suite de cet examen financier, l'Union fixe le taux de la part contributive unitaire.

La cotisation due par un pays et le nombre correspondant de voix qui lui sont attribuées sont réglés d'après le barème suivant:

| Population du pays | Nombre de voix | Nombre de parts unitaires contributives |
|---|---|---|
| Moins de 5 millions d'habitants | 1 | 1 |
| Entre 5 et 10 ,, ,, | 2 | 2 |
| 10 et 15 ,, ,, | 3 | 3 |
| 15 et 20 ,, ,, | 4 | 5 |
| Plus de 20 ,, ,, | 5 | 8 |

Les habitants des colonies et protectorats d'un pays sont comptés dans la population de ce pays, si celui-ci le désire et d'après les indications de son gouvernement.

Les Dominions britanniques ont un nombre de voix correspondant à leur population et fixé d'après le barème précédent.

Les Protectorats diplomatiques jouissent du même droit.

L'unité de cotisation est fixée à 400 francs français.

Dans chaque pays, l'autorité qui adhère à l'Union est responsable du payement de la cotisation de ce pays.

15. Les recettes de l'Union, provenant des contributions des divers pays, doivent être tout d'abord consacrées à payer:

(1) Les dépenses d'administration;

(2) Les frais des publications faites sous la direction de l'Union, y compris la rémunération des assistants;

(3) Eventuellement, les frais d'études entreprises sous la direction de l'Union.

L'excédent peut, avec l'agrément de l'Assemblée générale, être utilisé pour le progrès des œuvres générales de l'Union, définies à l'article premier.

Les ressources provenant de dons sont utilisées par l'Union en tenant compte des désirs exprimés par les donateurs.

Tout pays qui se retire de l'Union abandonne de ce fait ses droits à l'actif de l'Association.

16. En Assemblée générale ou en séance de Commission, les résolutions concernant les questions d'ordre scientifique sont prises à la majorité des voix de tous les délégués présents. Pour les questions d'ordre administratif et pour les questions mixtes, le vote a lieu par Etat, si ce mode de votation est demandé par un pays; le nombre de voix de chaque Etat étant fixé conformément à l'article 14.

S'il y a doute sur la catégorie dans laquelle doit être rangée une question à discuter, le Président décide. En toutes circonstances, s'il y a égalité de voix, celle du Président est prépondérante.

17. Pour les questions administratives figurant à l'ordre du jour, un pays qui n'est pas représenté peut envoyer, par écrit, son vote au Président. Pour être valable, ce vote doit être reçu avant le dépouillement du scrutin.

## VII. Règlements intérieurs

18. L'Assemblée générale peut édicter des règlements intérieurs concernant, soit la conduite de ses travaux, soit les devoirs généraux qui incombent aux membres du Comité exécutif, soit, en général, tous objets non prévus dans les statuts.

De même, chaque Commission peut élaborer des règlements pour la conduite de ses propres travaux. Avant d'entrer en vigueur, ces règlements doivent être approuvés par l'Assemblée générale; aucun d'eux ne peut contenir des prescriptions contraires aux termes de la présente Convention.

### VIII. Durée de la Convention et Modifications

19. La durée de l'Union n'est pas limitée.

20. Aucun changement ne pourra être apporté aux présents statuts sans l'approbation des deux tiers des voix de l'ensemble des pays adhérents.

21. En cas de dissolution de l'Union, votée par l'Assemblée générale à la majorité des deux tiers des voix de l'ensemble des pays adhérents, les fonds disponibles sont attribués par l'Assemblée à une ou plusieurs organisations scientifiques.

22. Le présent texte français servira exclusivement pour l'interprétation à donner aux articles des présents statuts.

## UNION INTERNATIONALE DES SCIENCES BIOLOGIQUES

### STATUTS

### I. Objet de l'Union et Conditions d'Admission

1. L'Union Internationale des Sciences biologiques a pour objet de faire progresser l'étude des différentes branches de la Biologie, pure ou appliquée, notamment:

(1) En provoquant et organisant des recherches que peut faciliter la coopération de plusieurs pays;

(2) En aidant à la discussion scientifique et à la publication des résultats de ces recherches;

(3) En facilitant l'établissement et le perfectionnement d'instituts de recherches accessibles aux travailleurs de toute nationalité;

(4) En favorisant l'organisation de Congrès internationaux et d'excursions scientifiques internationales;

(5) En facilitant la préparation et la publication de recueils de documentation bibliographique.

2. Un pays qui le désire peut adhérer à l'Union par un Comité national général et à une ou à plusieurs Sections ou Sous-sections de l'Union par un ou plusieurs organismes spéciaux couvrant un terrain limité de la biologie.

## II. Comités nationaux

3. Comme Comités nationaux généraux, mentionnés dans l'article 2, sont considérés un Comité de Biologie national, un Conseil national de Recherches, une autre institution ou groupement d'institutions nationales similaires, ou, à leur défaut, et pour un terme maximum de six ans, les délégués d'un Gouvernement.

4. Les Comités nationaux généraux, soit seuls, soit de concert avec un ou plusieurs de ces Comités, ont le droit de soumettre à l'Union des questions à discuter rentrant dans la compétence de celle-ci. Les Comités nationaux généraux désignent les délégués chargés de les représenter aux Assemblées de l'Union.

## III. Administration de l'Union

5. Les travaux de l'Union sont dirigés par l'Assemblée générale.

6. Le Bureau de l'Union se compose d'un Président, un Vice-Président, un Secrétaire général et un Trésorier, élus par l'Assemblée générale ordinaire, auxquels sont adjoints les Présidents et Secrétaires des Sections.

Le mandat des membres du Bureau expire à la fin de chaque Assemblée générale ordinaire.

À l'exception du Secrétaire général et du Trésorier, les membres sortants ne sont pas immédiatement rééligibles.

## IV. Sections.

7. L'Union se compose d'une Section Centrale, de Biologie générale, et d'un nombre indéterminé de Sections spécialisées.

La création de nouvelles Sections devra être ratifiée par l'Assemblée générale.

Le contrôle des travaux de Biologie générale appartient à l'Assemblée générale.

8. Chaque Section élit son Président, son Vice-Président et son Secrétaire-Trésorier et les autres Membres de son Bureau selon son règlement d'ordre intérieur.

9. Les Sections sont tenues de fournir à l'Assemblée générale un compte rendu de leur activité scientifique.

## V. Assemblées

10. L'Union se réunit en principe tous les trois ans en Assemblée générale ordinaire. Si l'époque et le lieu de la réunion n'ont pas été arrêtés par l'Assemblée générale précédente, ils sont fixés par le Bureau et communiqués, six mois au moins à l'avance, aux organismes adhérents.

Chaque Section tient une séance ordinaire au cours de l'Assemblée générale et en toute autre circonstance.

11. Dans des cas spéciaux, le Président peut, avec le consentement du Bureau, convoquer une Assemblée générale extraordinaire; il est tenu de le faire à la demande d'un tiers des pays adhérents.

12. Tous les membres des Comités nationaux généraux et tous les membres des bureaux des organismes spéciaux adhérents peuvent assister aux réunions de l'Assemblée générale ou des Sections et prendre part aux discussions, mais seulement avec voix consultative.

13. L'ordre du jour d'une session est fixé par le Bureau et communiqué au moins six mois avant l'ouverture de cette session. Toute question ne figurant pas à l'ordre du jour n'est prise en considération qu'avec l'assentiment préalable des deux tiers au moins des voix des pays représentés à l'Assemblée générale.

## VI. Budget et Droit de Vote

14. Le Bureau prépare un budget de prévision pour la période comprise entre deux sessions. L'Assemblée générale nomme deux vérificateurs des comptes et procède à l'étude du budget.

À la suite de cet examen financier, l'Union fixe le taux de la part contributive unitaire à payer par les Comités nationaux généraux selon les propositions faites par le Bureau six mois au moins à l'avance.

La cotisation due par un pays est réglée comme suit:

| Population du pays | Nombre de parts contributives |
|---|---|
| Moins de 5 millions d'habitants | 1 |
| Entre 5 et 10 ,, ,, | 2 |
| 10 et 15 ,, ,, | 3 |
| 15 et 20 ,, ,, | 5 |
| Plus de 20 ,, ,, | 8 |

Les Comités nationaux qui n'auraient pas payé leur cotisation pendant trois années consécutives seront considérés, sur notification préalable du Trésorier, comme démissionnaires, les trois annuités arriérées étant, bien entendu, exigibles.

15. Les organismes spéciaux adhérents à une Section, payent une contribution fixée par la Section impliquée, qui remettra 10 % de cette somme à l'Union. Les organismes spéciaux adhérents à une Sous-section, payent une contribution fixée par la Section impliquée, qui affectra au moins 50 % de cette somme aux activités spéciales de cette Sous-section et remettra 10 % de cette somme à l'Union.

16. Les ressources provenant de dons sont utilisées par l'Union ou par ses Sections en tenant compte des désirs exprimés par les donateurs. À leur défault, elles iront à la caisse générale de l'Union ou de la Section impliquée.

17. En Assemblée générale ou en séance de Sections, les résolutions concernant les questions d'ordre scientifique sont prises à la majorité des voix présentes. Pour les questions d'ordre administratif et pour les questions mixtes, le vote a lieu par Etat, chaque Etat ayant une voix.

Les représentants des organismes spéciaux, qui n'adhèrent pas à l'Union elle-même, n'ont que voix consultative.

S'il y a doute sur la catégorie dans laquelle doit être rangée une question à discuter, le Président décide. En toutes circonstances, s'il y a égalité de voix, celle du Président est prépondérante.

18. Pour les questions d'ordre administratif figurant à l'ordre du jour, un pays qui n'est pas représenté peut envoyer par écrit son vote au Président.

## VII. Règlements intérieurs

19. L'Assemblée générale peut édicter des règlements intérieurs concernant, soit la conduite de ses travaux, soit les devoirs généraux qui incombent aux Membres du Bureau de l'Union, soit, en général, tous objets non prévus dans les statuts.

De même, chaque Section peut élaborer des règlements pour la conduite de ses propres travaux et de son administration intérieure. Aucun d'eux ne peut contenir de dispositions contraires aux termes des présents Statuts.

## VIII. Durée des Statuts et Modifications

20. Les présents Statuts sont valables jusqu'au 31 décembre 1943. Après cette date ils seront remis en vigueur pour une période de douze ans, avec l'assentiment des pays adhérents.

21. Aucun changement ne sera apporté aux termes des présents Statuts sans l'approbation des deux tiers des voix des pays adhérents.

22. Le présent texte français servira exclusivement pour l'interprétation à donner aux articles des Statuts.

Sur p 40.

INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

# REPORT OF THE EXECUTIVE COMMITTEE

July 1947

INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

# REPORT OF THE EXECUTIVE COMMITTEE

## July 1947

edited by

F. J. M. STRATTON

*General Secretary*

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# TABLE DES MATIÈRES


Comité Exécutif *page* v

Organisations adhérentes au Conseil vii

Rapports:

Comité Exécutif 1
Union Astronomique Internationale 6
Union Géodesique et Géophysique Internationale 7
Union Internationale de Chimie 13
Union Radio-Scientifique Internationale 18
Union Internationale de Physique Pure et Appliquée 26
Union Géographique Internationale 30
Union Internationale des Sciences Biologiques 33
Union Internationale de Crystallographie 36
Union Internationale de Mécanique Théorique et Appliquée 38
Union Internationale d'Histoire des Sciences 40
Commission Mixte sur l'Ionosphère 41
Commission Mixte sur l'Océanographie 41
Commission Mixte sur les constantes Physico-Chimiques 44
Commission Mixte sur les Relations Solaires et Terrestres 44
Commission Mixte sur la Rhéologie 48
Commission Mixte sur la Radio-Météorologie 50
Commission sur la Science et les Relations Sociales 50

Accord entre l'Organisation des Nations Unies pour l'Education, la Science et la Culture et le Conseil International des Unions Scientifiques 52

Les Statuts d'Unions:

Union Géodesique et Géophysique Internationale 60
Union Internationale des Sciences Biologiques 66
Union Internationale de Crystallographie 70
Union Internationale de Mécanique Théorique et Appliquée 75
Union Internationale d'Histoire des Sciences 78

# INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS
# EXECUTIVE COMMITTEE 1946—1947

PRESIDENT: Dr John A. Fleming (washington)

VICE-PRESIDENTS: Prof. B. Nemeč (prague)
Prof. Emile Borel (paris)

GENERAL SECRETARY: Prof. F. J. M. Stratton (cambridge)

MEMBERS:

I. *Elected by the General Assembly*

Prof. J. N. Mukherjee (new delhi)
Prof. H. Solberg (oslo)

II. *Representatives of International Unions*

Astronomy:
Sir Harold Spencer Jones (london)
Prof. J. H. Oort (leiden)

Geodesy and Geophysics:
Prof. B. Helland-Hansen (bergen)
Dr J. M. Stagg (london)

Chemistry:
Dr L. H. Lampitt (london)
Prof. R. Delaby (paris)

Radio-Science:
Sir Edward Appleton (london)
Commandant A. Dorsimont (brussels)

Physics:
Prof. H. A. Kramers (leiden)
Prof. P. Fleury (paris)

Geography:
Prof. E. de Martonne (paris)
Prof. W. E. Boerman (rotterdam)

Biology:

Prof. H. Munro Fox (london)
Dr M. J. Sirks (haren)

Crystallography:

Dr R. C. Evans (cambridge)
Prof. P. P. Ewald (belfast)

Mechanics:

Dr R. V. Southwell (london)
Prof. J. M. Burgers (delft)

SECRETARIATE: Gonville and Caius College, Cambridge, England

# ORGANISATIONS ADHERENTES AU CONSEIL

| *Pays* | *Organisation Nationale* |
|---|---|
| Afrique du Sud | Council of Scientific and Industrial Research, Pretoria. |
| Argentine | Academia Nacional de Ciencias, Buenos Aires. |
| Australie | National Research Council, Sydney. |
| Belgique | Académie Royale de Belgique, Bruxelles. |
| Brésil | Academia Brasileira de Ciencias, Rio de Janeiro. |
| Bulgarie | Gouvernement. |
| Canada | National Research Council, Ottawa. |
| Chili | Gouvernement. |
| Chine | Academia Sinica, Nanking. |
| Etat de la Cité du Vatican | Pontifica Accademia delle Scienze i Nuovi Lincei, Rome. |
| Cuba | Academia de Ciencias Medicas, Fisicas y Naturales, La Ravane. |
| Danemark | Kongelige Danske Videnskabernes Selskab, Copenhague. |
| Egypte | Gouvernement. |
| Etats-Unis | National Research Council, Washington. |
| Finlande | Suomalainen Tiédeakatemia, Helsinki. |
| France | Académie des Sciences, Paris. |
| Grande-Bretagne | Royal Society, London. |
| Grèce | Académie d'Athènes, Athènes. |
| Hongrie | Magyar Tudományos Akadémia, Budapest. |
| Inde | National Institute of Sciences of India, New Delhi. |
| Indes Néerlandaises | Natuurbetenschappelijke Raad van Nederlandsch-Indië, Batavia, Java. |
| Italie | Il Consiglio Nazionale di Ricerche, Roma. |
| Japon | National Research Council, Tokyo. |
| Maroc | Gouvernement. |
| Mexique | Academia de Ciencias, Mexico. |
| Norvège | Det Norske Videnskaps-Akademi, Oslo. |
| Nouvelle-Zélande | The Royal Society of New Zealand, Wellington. |
| Pays-Bas | Koninklijke Akademie van Wetenschappen, Amsterdam. |
| Pérou | Instituto Geografico Militar, Lima. |
| Îles Philippines | National Research Council, Manila. |
| Pologne | Polska Akademja Umiejetnosci, Cracovie. |
| Portugal | Gouvernement. |
| Roumanie | Académie Roumaine, Bucuresti. |

| *Pays* | *Organisation Nationale* |
|---|---|
| Suède | Kungl. Vetenskapsakademien, Stockholm. |
| Suisse | Société Helvétique des Sciences Naturelles, Académie Suisse des Sciences, Genève. |
| Tchécoslovaquie | Conseil National de Recherches, Prague. |
| Tunisie | Gouvernement. |
| Uruguay | Instituto Geográfico, Montevideo. |
| Yougoslavie | Académie de Serbie, Belgrade. |

## UNIONS SCIENTIFIQUES INTERNATIONALES

Union Astronomique internationale.
Union internationale de Géodésie et Géophysique.
Union internationale de Chimie.
Union Radio-Scientifique internationale.
Union internationale de Physique pure et appliquée.
Union internationale de Géographie.
Union internationale des Sciences biologiques.
Union internationale de Crystallographie.
Union internationale de Mécanique théorique et appliquée.
Union internationale d'Histoire des Sciences.

# International Council of Scientific Unions

## REPORT OF THE EXECUTIVE COMMITTEE TO ADHERING ORGANISATIONS, 1947

1. The most important item of the activities of the Executive Committee during the year 1946–47 was the conclusion of a definitive agreement with the United Nations Educational Scientific and Cultural Organisation (U.N.E.S.C.O.). The agreement which was drawn up by U.N.E.S.C.O. at its General Conference at the end of 1946 was accepted by the Executive Committee and signed by Dr Julian Huxley, Director-General of U.N.E.S.C.O. and by Professor E. Borel, Vice-President of I.C.S.U. It is given in full below (pp. 52–59). It differs in a number of details from the draft agreement as passed by the General Assembly of the Council at its meeting in London (see *Reports of Proceedings of the Fourth General Assembly*, vol. IV, p. 53, 1946). Some of the details of the draft agreement proved to be legally impossible for U.N.E.S.C.O. to accept. Others were dropped as being contrary to U.N.E.S.C.O. policy or as being impracticable under a diminished budget. The following grants were made from U.N.E.S.C.O. for the year 1947.

| Name of organisation | Grant allocated |
|---|---|
| | ($ U.S.) |
| I.C.S.U. (International Council of Scientific Unions) | 26,941 |
| I.U.P.A.P. (International Union of Pure and Applied Physics) | 16,056 |
| I.A.U. (International Astronomical Union) | 11,740 |
| I.U.S.R. (International Union of Scientific Radio) | 5,628 |
| I.B.W.M. (International Bureau of Weights and Measures) | 3,680 |
| I.U.Cr. (International Union of Crystallography) | 8,000 |
| I.U.C. (International Union of Chemistry) | 26,450 |
| I.G.U. (International Geographical Union) | 3,680 |
| I.U.G.G. (International Union of Geodesy and Geophysics) | 25,400 |
| I.U.B.S. (International Union of Biological Sciences) | 20,800 |
| International Marine Biological Station, Naples | 10,000 |
| I.C.Z.N. (International Commission on Zoological Nomenclature) | 10,936 |
| I.S.E.C. (International Society of Experimental Cytology) | 3,208 |
| I.S.M.B. (International Society of Microbiology) | 31,200 |
| International High Altitude Station, Jungfraujoch | 4,000 |
| I.A.H.S. (International Academy of the History of Science) | 12,600 |
| Bureau of Physico-Chemical Standards of I.U.C. | 6,000 |
| | 226,319 |

The early agreement with U.N.E.S.C.O. made it possible for the Council and the Unions to apply to U.N.E.S.C.O. for grants for the year 1947 under Articles VII and VIII of the agreement, and the above generous grants were provisionally made by U.N.E.S.C.O. and have already been paid in part. One or two items may, or may not, be paid and administered through the Unions, but the figures given in the table may be regarded as substantially the sums granted to meet Union activities.

The details of the grant to the Council are as follows:

| | $ U.S. |
|---|---|
| For travelling expenses of the Executive Committee, liaison officer and members of Joint Commissions | 17,661 |
| Office expenses including salary of liaison officer | 7,520 |
| Publication and correspondence | 1,760 |
| | $26,941 |

Doctor A. Establier was appointed liaison officer at a salary of $4800 for the year 1947.

At the meeting of the Executive Committee in Paris in July 1947, the Chairman expressed the Committee's appreciation of the generous way in which U.N.E.S.C.O. had interpreted and acted on its agreement with I.C.S.U.

2. The Council was invited to be represented at the U.N.O. Conference on non-governmental international organisations held at Lake Success on 12 February 1947 and following days. Colonel Marston-Taylor Bogert, President of the International Union of Chemistry, represented the Council.

3. A resolution proposed by Professor Hadamard at the Fourth General Assembly on the difficulties imposed by currency control on the exchange of scientific publications (*Reports*, vol. IV, p. 17) was referred to the Executive Committee for discussion with U.N.E.S.C.O. A scheme, not yet adopted but still under discussion, has been worked out by U.N.E.S.C.O. in terms of a Book Coupon Scheme. Its details are as follows:

(*a*) Coupons will be sold by U.N.E.S.C.O. to the Ministry of Education of a country or to some suitable national agency.

(*b*) This agency will sell the coupons to libraries, research institutions and individual scholars.

(*c*) The library or scholar will send coupons, with a completed U.N.E.S.C.O. coupon order form, to a bookseller in another country who will send him the books, and the coupons and order form to U.N.E.S.C.O.

4. The following new International Unions have been admitted as adhering bodies by the Executive Committee under Statute III *b*.

The International Union of Crystallography.

The International Union of Theoretical and Applied Mechanics.

The International Union of the History of Science.

The statutes of these Unions are given below (pp. 70–79) following the revised statutes of the International Union of Geodesy and Geophysics.

5. A Joint Commission on Radio-Meteorology was formed with members nominated by the Unions of Radio-Science, Geodesy and Geophysics and Physics.

6. The Executive Committee held its annual meeting at U.N.E.S.C.O. House, 19 Avenue Kléber, Paris, on 1 and 2 July 1947, Professor B. Nemeč, Vice-President, in the Chair. The following were present either as members or as representing members unable to attend: Professor E. Borel (Vice-President), Professor H. Solberg (member), Professor F. J. M. Stratton (General Secretary), Sir H. Spencer Jones and Professor J. H. Oort (I.A.U.), Dr J. M. Stagg and Professor P. Tardi (I.G.G.U.), Dr L. H. Lampitt and Professor R. Delaby (I.U.C.), Commandant A. Dorsimont and Maj.Ing. Herbays (I.U.R.S.), Professor P. Fleury and Professor A. Mercier (I.U.P.A.P.), Professor E. de Martonne, Professor W. E. Boerman and Dr M. A. Lefèvre (I.U.G.), Professor H. Munro Fox and Dr M. J. Sirks (I.U.B.S.), Professor P. P. Ewald and Dr R. C. Evans (I.U.Cr.) and Professor J. M. Burgers (I.U.T. and A.M.). The following were also present for part of the time: Dr Needham, Head of the Natural Sciences Division of U.N.E.S.C.O. and, representing him, Dr Malina; also Monsieur A. Establier, Liaison Officer between U.N.E.S.C.O. and I.C.S.U.

Dr Laves, Deputy Director-General of U.N.E.S.C.O., in welcoming the Committee sketched the line of development of U.N.E.S.C.O., especially on the scientific side; U.N.E.S.C.O. was only in the second month of its work in carrying out the programme for 1947 approved by its Executive Committee at the end of April; the preparation for this programme had involved extensive study and delays in getting to work. U.N.E.S.C.O. was a specialised inter-governmental organisation under the United Nations and charged with one of the principal tasks underlying the Charter. The two dominant interests of U.N.E.S.C.O. were the development of international understanding and the improvement of the well-being of the peoples of the globe. U.N.E.S.C.O. was particularly concerned with the first, as without it the second goal could not be reached. Certain decisions had already been taken on the financial help that U.N.E.S.C.O. could

bring to scientific organisations, but the problem was still under discussion and had to be examined in all its aspects. This year was still the experimental stage for U.N.E.S.C.O., which had to justify its outgoings to thirty-one nations. The International Council would greatly help the Secretariate if its financial report showed clearly the use made of the money granted and the results achieved by the assistance received. He appealed to the Unions to make clear the link between their activities and the peace of the world. He hoped that the Committee would devote some attention to the social implications of science.

In preparing their programme for 1948 U.N.E.S.C.O. would pay attention to the following three points which would interest the Committee.

(1) The organisation of a scientific inquiry into the causes of international tensions and the methods of overcoming them.

(2) Positive action to help forward international scientific organisation for research.

(3) The development of free exchange of scientific information.

The Chairman in reply thanked U.N.E.S.C.O. for the generous financial help it was giving to the Council and the Unions. He emphasized that the Council and its Unions had always worked successfully for better mutual understanding between nations. The personal contacts between scientific colleagues of different countries that were made easier by the grants of U.N.E.S.C.O. for travelling expenses were of fundamental importance in this matter. He welcomed the encouragement given by the increasing possibility of international co-operation in all the activities of science which served to benefit mankind.

A message from the President, who had been prevented by private reasons from attending, was read. In it he referred to the needs of the scientifically undeveloped areas and to the importance of the free exchange of scientific information; he also stressed the value in advancing international understanding of the mutual appreciation of each other's problems which was fostered by co-operation in scientific work. He urged the importance of exchanging scholars and students between countries and the need of wider publicity for the Council's work. Natural science projects played as large a part in promoting human welfare as the projects of the so-called humanitarian sciences. People must be educated in the benefits derived from science and its application to their well-being. National committees could greatly help the Council and the separate Unions.

Reports from the Unions, the Joint Commissions and the Committee on Science and Social Relations were received (see below, pp. 6–51). The following were among the decisions made by the Committee:

(*a*) It was agreed that a new Union should only be admitted at a meeting of the Executive Committee at which a representative of the proposed Union should be invited to attend; also six months' notice must be given to the Executive Committee and to the Unions before the admission of a new Union could be discussed.

(*b*) A proposal to form new Joint Commissions was dropped. Instead it was agreed that other Unions should be invited to nominate members of commissions set up by individual Unions; the representatives of the Unions concerned assured the Committee that such proposals would be acceptable to their Unions in the following cases:

(i) The Unions of Physics and Biology to nominate members to serve on commissions of the Union of Chemistry on 'macromolecules' and on 'pure substances'.

(ii) The Unions of Physics and Chemistry to nominate members to serve on a commission of the Union of Biology on 'Radiobiology'.

(*c*) It was agreed that for the purposes of controlling the work of existing Joint Commissions they should be assigned to parent Unions as follows:

| Subject | Union |
|---|---|
| Ionosphere | Radio-Science |
| Oceanography | Geodesy and Geophysics |
| Physico-Chemical Constants | Chemistry |
| Radio-Meteorology | Radio-Science |
| Solar and Terrestrial Relationships | Astronomy |
| Viscosity | Physics |

(*d*) It was agreed to ask the American Atomic Scientists to nominate a member to serve on the Committee on Science and Social Relations.

(*e*) It was agreed that I.C.S.U. should pay subsistence allowance for members of the Executive Committee and for members of Joint Commissions attending meetings at the rates allowed by U.N.E.S.C.O.

(*f*) It was agreed to reappoint Monsieur A. Establier as liaison officer with U.N.E.S.C.O. for 1948 at the same salary as before.

(*g*) It was agreed to circulate monthly from the secretariate to the Unions details received about forthcoming congresses and news items coming from the Unions or other sources.

(*h*) The President, and failing him the General Secretary, was nominated to represent the Council at the General Conference of U.N.E.S.C.O. to be held at Mexico City in November 1947.

(*i*) It was agreed that the next meeting of the Executive Committee be held in Brussels in June or September 1948, the final choice of date being left to the President.

# Rapports des Unions Internationales

## Report of the International Astronomical Union since July 1946

1. In the Executive Committee Professor Brunner, who wished to retire from his function as Vice-President, has been replaced by Professor G. Tiercy, Geneva.

2. India, Hungary and Chile have decided to join the I.A.U. Australia has renewed her membership.

3. A Commission on International Observatories has been constituted; this commission will study all problems concerning the eventual erection of international observatories, and will draw up detailed projects to be submitted to U.N.E.S.C.O., as soon as U.N.E.S.C.O. has definitively decided to support such projects. In the meantime the commission could be consulted by U.N.E.S.C.O.

4. For the work of the 'Bureau International de l'Heure', the 'International Latitude Service' and of the Commission on Exchange of Astronomers, which work is of an international character and of a sufficiently wide scope to justify financial support from U.N.E.S.C.O., applications for grants have been made to U.N.E.S.C.O. through the intermediary of the International Council of Scientific Unions. These grants, amounting to $8800, $980 and $1960, respectively, have been provisionally allotted by U.N.E.S.C.O.

5. Considerable trouble has been taken during the year to build up again a good central service for the work on Minor Planets and Variable Stars. Centres for computation and for circulation of observational data and other information regarding Minor Planets used to be in Berlin, as well as a centre for the naming and cataloguing of Variable Stars. As it was not feasible to re-establish these services in Germany, at least not for the moment, other solutions had to be sought. Russian astronomers are now largely taking care of the nomination of Variable Stars, while the calculation of Minor Planet orbits and ephemerides is being shared between observatories in the U.S.A., U.S.S.R., Germany and some other countries.

6. It is proposed to hold a General Assembly of the I.A.U. in August 1948 in Zürich.

# Report of the International Union of Geodesy and Geophysics for the year ending 30th June 1947

1. An Extraordinary Assembly of the Union attended by representatives of sixteen member countries was held in Cambridge in August 1946. Among the more important items of administrative business were:

(*a*) New Statutes and By-laws for the Union were approved and have since been adopted by all adhering countries (see p. 60). These new Statutes accept the principle of an 'agreed choice' of category of membership in place of the population basis of subscription. Penalties may be imposed on member countries for failure to pay subscriptions fully and regularly. The main administrative body of the Union will, in future, be the Council, made up of one delegate from each adhering country. A Finance Committee, which excludes officers of the Union and its constituent Associations, will scrutinise the expenditure incurred by the Union and its various components.

(*b*) A recommendation by the Executive Committee (Oxford, 1945) that a Committee on the Social Value of the Earth Sciences be formed was approved. Dr R. M. Field, U.S.A., was nominated as Chairman.

(*c*) The next General Assembly of the Union was fixed for the late summer of 1948 in Oslo. (It has now been decided to hold the Assembly during the period 19–28 August 1948, with preliminary administrative meetings on 17 and 18 August.)

2. A Report on the activities of the Union and its constituent Associations since the last General Assembly (1939) has been published and distributed. This Report contains the new Statutes, and details of the meeting of the Union Executive Committee (December 1945) and the 1946 Extraordinary Assembly.

3. Partly for enlightenment of member countries about what the International Union of Geodesy and Geophysics is and what it does, and partly for propaganda purposes in increasing membership, a brochure on the nature and the activities of the Union and its component Associations and Commissions has been prepared for publication and will soon be ready for distribution.

4. *International Associations and Commissions*

(*a*) The U.G.G.I. is a confederation of the following more or less autonomous international bodies:

International Association of Geodesy.
International Association of Seismology.
International Association of Meteorology.
International Association of Terrestrial Magnetism and Electricity.
International Association of Oceanography.
International Association of Vulcanology.
International Association of Hydrology.
International Commission on Continental and Oceanic Structure.
Committee on Social Value of the Earth Sciences.

All these organisations have their own Statutes and By-laws which conform in essential principles to those of the Union; they carry on their administrative and scientific activities continuously by meetings, correspondence and publications, and all meet together at the times of the General Assemblies of the Union.

(*b*) Either directly or through one or more of the interested Associations, the U.G.G.I. contributes to the support of the following international services of a continuing (permanent) nature:

(i) Isostatic Bureau, Helsinki.
(ii) Bureau de l'Heure, Paris.
(iii) International Seismological Summary (temporarily at) Kew Observatory, Richmond, Surrey.
(iv) International Latitude Service, Naples.

(*c*) The U.G.G.I. has representatives on the following Joint Commissions with other Unions:

Joint Commission on Solar and Terrestrial Relationships.
Joint Commission in Oceanography.
Joint Commission on the Ionosphere.
Joint Commission on Radio-Meteorology.

(*d*) Most of the constituent Associations have been busy setting their houses in order after the inactivity of the war years and are preparing plans for the future. Some of the more active of them have held, or are about to hold, meetings of their Executive Committees or Councils so that as little time as necessary need be spent on administrative business at next year's General Assembly.

The International Association of Geodesy has remodelled its organisation under five main sections and has started again the publication of the *Geodetic Bulletin* (3-monthly) and the *International Geodetic Bulletin* (3-yearly).

An important new enterprise is the setting up of a Commission for the Adjustment of the Triangulation Network in Europe. The Association held a Council meeting in Paris in August, 1946.

The International Association of Seismology has convened a representative meeting in Strasbourg in July 1947, to decide on matters of administration, organisation and future plans. The Association's Bureau has continued to publish its monthly *Seismological Bulletin* in enlarged form. The preparation of the International Seismological Summary was transferred from Oxford temporarily to Kew Observatory while a new home is being found for it in Cambridge; the contents and mode of presentation of the data in the Summary will shortly be altered. Efforts are being made to get seismological observations started again in the Far-Eastern countries.

The International Association of Oceanography has reconstituted some of its Committees and formed two new ones; one of these will consider programmes of oceanographical observations from the Atlantic weather ships and the other will prepare a handbook on Oceanography describing routine work at sea, method of analysis, corrections to instruments, etc.

The Association has decided to assume responsibility for the supply of Copenhagen Standard Sea Water; this will continue to be prepared by the Danish Hydrographic Laboratory under Professor Knudsen, who has conducted the work personally since 1914.

The International Association of Hydrology has held an Executive Committee meeting in June 1947, at which important matters of future administration and organisation were discussed and approved.

The International Association of Vulcanology has prepared for early distribution a map showing the distribution of the world's active volcanoes.

The International Commission of Oceanic and Continental Structure and the Committee on Social Value of the Earth Sciences (which was set up at the Extraordinary Assembly of the Union in 1946) have been much occupied, among other things, with procedure in aerial photography and with preparing a statement on the value of the earth sciences for human welfare.

5. *General*

(*a*) Brigadier Winterbotham, who served the Union as General Secretary from 1930 to 1946 and was elected Vice-President last year, died in December 1946. Professor S. Chapman has been elected Vice-President in his stead.

Dr Nörlund has been appointed acting-President of the Union pending restoration to health of Dr Helland-Hansen.

(*b*) Professor Vening-Meinesz represented the U.G.G.I. at a General Assembly of the Pan-American Institute of Geography and History and the Consulta in Geography held in Caracas, Venezuela in August 1946. His report is published in the 1946 Report of the U.G.G.I.

(*c*) U.N.E.S.C.O. has provisionally allocated $25,400 as grants-in-aid to various U.G.G.I. services wholly or partly sponsored by the Union.

(*d*) Since the last Report to this Committee, Spain has renewed payment of subscriptions, India has applied for readmittance on a provisional basis, and Australia has intimated her intention of renewing membership this year. This brings the total of nominally adhering countries to thirty-three. But of these only about one-half have fulfilled their obligations or have shown real interest in the Union's work since 1945. Changes in government organisation and in personnel in many countries, and difficulties in direct communication with the appropriate authorities in some countries are delaying renewal of post-war contacts longer than was expected.

*Pays affiliés à l'Union Géodésique et Géophysique International*

| | | |
|---|---|---|
| Afrique du Sud | Etats-Unis | Nouvelle-Zélande |
| Argentine | Finlande | Pays-Bas |
| Australie | France | Pérou |
| Belgique | Grande-Bretagne | Pologne |
| Canada | Grèce | Portugal |
| Chili | Inde | Roumanie |
| Colombie | Indo-Chine | Siam |
| Danemark | Italie | Suède |
| Egypte | Maroc | Suisse |
| Eire | Mexique | Tchécoslovaquie |
| Espagne | Norvège | Yougoslavie |

*Notes.* (1) India was readmitted as a member country on her request.

(2) Australia has intimated intention to renew membership.

(3) The status as member countries of a number of the countries in the above list is questionable owing to arrears of subscriptions.

La prochaine réunion aura lieu en Oslo, Norvège, 19–28 août 1948.

# OFFICERS OF THE UNION AND ITS COMPONENT ASSOCIATIONS

## Union

*President:* Professor B. Helland-Hansen, Det Geofysiske Institutt, Bergen, Norway.

*Vice-Presidents:* (1) Dr N. E. Nörlund, Director, Geodetic Institute, Copenhagen, K, Denmark. (2) Professor S. Chapman, The Queen's College, Oxford, England.

*General Secretary:* Dr J. M. Stagg, Kew Observatory, Richmond, Surrey, England.

## International Associations

### (1) *Geodesy*

*President:* Mr W. D. Lambert, U.S. Coast and Geodetic Survey, Washington, D.C., U.S.A.

*Secretary:* Professor P. Tardi, 19 Rue Auber, Paris 9e, France.

### (2) *Seismology*

*President:* Dr R. Stoneley, 15A Grange Road, Cambridge, England.

*Secretary:* M. le Professeur J. Rothé, 38 Boulevard d'Anvers, Strasbourg, France.

### (3) *Meteorology*

*President:* Professor S. Chapman, The Queen's College, Oxford, England.

*Secretary:* Dr J. Bjerknes, Department of Meteorology, University of California, Los Angeles 24, California.

### (4) *Terrestrial Magnetism and Electricity*

*President:* Dr J. A. Fleming, 1530 P. Street, N.W., Washington 5, D.C., U.S.A.

*Secretary (retiring):* Dr A. H. R. Goldie, Meteorological Office, Air Ministry, Kingsway, London, W.C. 2, England.

*Secretary (incoming):* Dr J. W. Joyce, Coast and Geodetic Survey, Washington, D.C., U.S.A.

### (5) *Oceanography*

*President:* Dr H. U. Sverdrup, Scripps Institution of Oceanography, University of California, La Jolla, California.

*Secretary:* Professor J. Proudman, The University, Liverpool 3, England.

(6) *Vulcanology*

*President:* Professor A. Michel-Lévy, 26 Rue Spontini, Paris.
*Secretary:* Professor F. Signore, Via Tasso N. 199, Naples, Italy.

(7) *Hydrology*

*President:* Dr O. Lütschg, Directeur de l'Institut d'Hydrologie de l'Ecole Polytechnique Fédérale, St Jakobstrasse 14, Basle, Switzerland.
*Secretary:* Professor F. Diénert, Institut National Agronomique, Rue de Seine 6, Paris 6e, France.

(8) *Commission on Continental and Oceanic Structure*

(9) *Committee on Social Value of the Earth Sciences*

*Chairman of* (8) *and* (9)*:* Dr R. M. Field, Princeton University, Princeton, New Jersey, U.S.A.

# Rapport de l'Union Internationale de Chimie, 1946–1947

Ainsi qu'il était annoncé dans le précédent rapport, une *Reprise de Contact* du Bureau, du Conseil et des Commissions a eu lieu à Londres dans l'hôtel de la Royal Society du 24 au 27 juillet 1946. Les organismes adhérents à l'Union des nations suivantes étaient représentées: Argentine, Belgique, Brésil, Canada, Danemark, Etats-Unis, France, Grande-Bretagne, Italie, Norvège, Pays-Bas, Pologne, Suède, Suisse, Tchécoslovaquie et U.R.S.S.; s'étaient excusés les groupements correspondants de la Bulgarie, de la Roumanie et de la Yougoslavie.

Sir Robert Robinson, Président de la Royal Society et Vice-Président de l'Union souhaita la bienvenue aux participants et le Professeur M. T. Bogert, Président de l'Union, le remercia; il rappela en outre les efforts de ceux qui s'employèrent à la reconstruction de l'Union et il indiqua les questions essentielles à examiner au cours des réunions.

Bon nombre de décisions d'ordre administratif furent prises: adoption du procès-verbal de la XIIIe Conférence (1938); ratification des actes d'administration du Bureau depuis cette Conférence; prolongation des mandats des membres du Bureau et du Conseil jusqu'à l'ouverture de la XIVe Conférence (juillet, 1947); accord des pleins pouvoirs jusqu'à ce moment à un Comité d'action formé du Bureau actuel et de cinq membres choisis de façon qu'un plus grand nombre de nations soient représentées au sein de cet organisme; approbation des comptes pour les exercices 1938 à 1945 inclus et appel des souscriptions impayées pour 1938–39 et 1946; nominations dans le Bureau et parmi les Commissions.

Certaines de ces Commissions purent se réunir et élaborer des projets dont les principaux sont rapportés ci-après.

La *Commission des Constantes radio-actives* se propose de rédiger une table des constantes des atomes radio-actifs artificiels, différée depuis 1938: les résultats n'étant pas assez nombreux et assez précis à l'époque.

La *Commission de thermochimie* a pris acte des propositions du Professeur Swietoslawski, concernant la détermination de l'équivalent énergétique de certains calorimètres par la méthode comparative et a réservé sa décision jusqu'à juillet 1947.

La *Commission de la pile Weston* a pris connaissance des travaux effectués

ou en cours de réalisation, soit au Bureau of Standards (Washington), soit au Laboratoire central des Industries électriques (Paris).

La *Commission des symboles physico-chimiques et de coordination des terminologies scientifiques* prend note d'un vœu du Comité national Chimique des Pays-Bas, à l'effet d'établir une liste internationale des symboles physico-chimiques à présent que les principales listes nationales sont connues; elle se propose également, selon le vœu de la Chemical Society, de la Faraday Society, et de la Physical Society, de dresser une liste internationale des symboles thermodynamiques et physico-chimiques, ainsi que les règles concernant leur emploi.

La *Commission des tables de Constantes* a été mise au courant des travaux effectués à Paris durant l'occupation allemande et elle a approuvé la nouvelle forme des Tables de Constantes sélectionnées élaborée par le Comité de Gestion.

La *Commission du Bureau international des Etalons physico-chimiques* a pris acte du rapport du Professeur TIMMERMANS sur les exercices 1938–45 et considère le nouveau programme suggéré par son Président: entreprendre l'étude de quelques étalons particulièrement bien choisis en s'efforçant d'atteindre la plus haute précision réalisable dans l'état actuel de la science par l'usage des méthodes comparatives dont il a si bien montré les avantages.

La *Commission des données physico-chimiques* a publié une note de MM. E. R. SMITH et R. G. BATES, 'Primary Standards for *p*H Measurements and the Definition of the Scale of *p*H Values', ainsi qu'un rapport du Professeur SWIETOSLAWSKI intitulé: 'Principes généraux de l'application des mesures physico-chimiques comparatives' (en anglais et en français); la discussion complète de ces travaux aura lieu lors de la Conférence de 1947.

La *Commission des réactions et réactifs analytiques nouveaux* a fait le bilan de ses importants travaux effectués depuis 1938 sous l'impulsion de son très actif Président, le Professeur VAN NIEUWENBURG et qui ont abouti à la publication d'un 2e Rapport sur une sélection des réactifs à employer en analyse minérale, rédigé par le Professeur WENGER et le Dr DUCKERT, et paru chez WEPF & Cie à Bâle au commencement de 1945. Il est bon de rappeler que le 1er Rapport comprenait le répertoire des réactifs utilisés jusqu'en 1936, cette énumération n'ayant fait l'objet d'aucune discrimination expérimentale. La Commission a décidé de présenter aussi rapidement que possible un 3e et un 4e Rapport: le 3e sera la suite du 1er, c'est à dire un répertoire des réactifs publiés depuis 1936, et le 4e sera le complément du 3e, soit donc une étude expérimentale approfondie d'où résultera une sélection parmi ces réactifs.

La *Commission de nomenclature de Chimie organique* se propose de continuer l'étude des problèmes suivants: (*a*) extension de la nomenclature en 'a' aux combinaisons à chaînes ouvertes; (*b*) nomenclature et numérotage des polycycles; (*c*) nomenclature des cyanines; (*d*) établissement d'une liste de noms de radicaux; (*e*) nomenclature des composés cycliques contenant des chaînes latérales et des fonctions, qui sont exprimées par des suffixes; (*f*) nomenclature des glucides.

La *Commission pour l'étude des matières grasses* a établi son accord sur quatre méthodes unifiées pour la détermination des chlorures, des acides gras totaux bruts, de l'alcali libre total dans les savons, de l'huile dans les graines oléagineuses. Elle maintient à son ordre du jour de la réunion de 1947: le dosage des acides volatils solubles et insolubles dans les corps gras, celui de la résine, ceux de l'alcali libre et carbonaté dans les savons, la séparation des cholestérols et des phytostérols.

Le Conseil de l'Union a approuvé toutes ces conclusions. En outre, il a décidé le maintien d'une *Commission de normalisation de la pureté des produits chimiques* qui n'avait pas été constituée depuis la XIIIè Conférence (1938) et il a envisagé de créer: une *Commission de Chimie macromoléculaire*, en raison du développement pris par l'étude des composés macromoléculaires tant au point de vue scientifique qu'au point de vue technique; une *Commission de Toxicologie* pour établir les meilleurs procédés de détermination de petites quantités de substances toxiques dans l'atmosphère de certaines industries; une *Commission de Normalisation du matériel de laboratoire* en liaison avec l'International Standardizing Association. Pour rechercher les personnalités les plus compétentes dans ces quatre domaines et établir un programme des travaux à entreprendre par ordre d'urgence, le Conseil a désigné respectivement les rapporteurs suivants: Professeur Lortie (Montréal), Professeur Champetier (Paris), M. N. Strafford (Manchester), Professeur Dubrisay (Paris).

Depuis la reprise de Contact de 1946, le Comité d'action s'est préoccupé du problème des *encyclopédies chimiques* et a chargé le Professeur Marvel (Urbana, U.S.A.) de constituer une Commission pour étudier cette question sur le plan international. De même le Dr G. M. Dyson (Grande-Bretagne) est chargé de réunir une Commission pour examiner son système de *Codification, Chiffrage et triage des combinaisons organiques*. Enfin, une *Commission des statuts et du Règlement* indiquera à la prochaine Conférence les modifications qui lui paraissent utiles pour améliorer le fonctionnement de l'Union.

Parmi les documents reçus ces derniers temps, signalons:

— le XIIIe rapport de la Commission des Poids atomiques qui amène à modifier les poids atomiques du Soufre et du Cuivre (table jointe pour 1947);

— diverses notes de MM. Swietoslawski, Keesom, E. R. Smith et Pérard relatives à la modification éventuelle de l'unité de chaleur;

— un travail de la Commission des constantes physiques de la Société Chimique néerlandaise, rédigé par J. P. Wibaut, à l'effet de standardiser les méthodes de détermination de certaines constantes des composés organiques, et dont la discussion aura lieu parmi la Commission internationale du Bureau des étalons et celle des Données physico-chimiques;

— un mémoire de MM. G. Dupont et R. Locquin sur la nomenclature des composés polycycliques et une brochure de G. M. Dyson: 'A new notation and enumeration system for organic compounds' qui seront examinés par notre Commission internationale de nomenclature de Chimie organique;

— trois rapports destinés à la Commission internationale de nomenclature de Chimie biologique: deux sont relatifs à la nomenclature des amino-acides (propositions britanniques et propositions américaines), le troisième se rapportant à la nomenclature des caroténoides (P. Karrer).

L'Union Internationale de Chimie a d'ailleurs publié: 'Comptes-rendus de la reprise de Contact du Bureau, du Conseil et des Commissions à l'issue de la seconde guerre mondiale. Londres 24–27 juillet 1946', une brochure de 64 pages, 21 × 27 cm., que les personnes intéressées peuvent demander au Secrétariat. Elle se propose aussi d'éditer avant la fin de 1947, les 'Comptes-rendus de la XIVe Conférence' qui se tiendra prochainement à Londres (18–23 juillet) en même temps que le XIe Congrès international de Chimie pure et appliquée (16–24 juillet). Ces manifestations suivront la Célébration du Centenaire de la fondation de la Chemical Society (14–16 juillet).

Le Congrès placé sous le patronage de S. M. le Roi et sous la présidence de The Rt. Hon. The Viscount Leverhulme comportera 14 sections: (1) Chimie minérale et géochimie; (2) Chimie-physique; (3) Chimie organique; (4) Chimie biologique; Chimie en relation avec (5) l'agriculture et la botanique appliquée; (6) la zoologie appliquée et les sciences vétérinaires; (7) les aliments et la nutrition; (8) la médecine et les agents thérapeutiques; (9) les combustibles et les transports; (10) les textiles naturels et artificiels; (11) les matières plastiques, le verre et la céramique; (12) les métaux; (13) l'art de l'ingénieur; (14) la parfumerie. Il est prévu six Conférences plénières ainsi qu'un programme récréatif attrayant en dépit des difficultés actuelles.

Ces assises de la Chimie mondiale réuniront de nombreuses et intéressantes communications, si l'on en juge par les inscriptions déjà parvenues de la plupart des nations adhérant à l'Union Internationale de Chimie.

At the meeting of the Union in London in July 1947, the following were elected as the Council:

*President:* Professor H. R. KRUYT* (Netherlands).

*Vice-Presidents:* Professor Sir IAN HEILBRON* (Great Britain), Professor P. JOLIBOIS (France), Professor P. KARRER (Switzerland), Professor NESMEYENOV (U.S.S.R.), Professor W. A. NOYES, Jr. (U.S.A.), Professor TISELIUS (Sweden).

*Elected Members:* Professor BERNER* (Norway), Professor DEULOFEU (Argentine), Professor GIORDANI (Italy), Professor Sir ROBERT ROBINSON (Great Britain), Professor TOMICEK (Czechoslovakia), Professor SVIG VEIBEL (Denmark).

*General Secretary:* Professor R. DELABY* (France).

*Treasurer:* Dr L. H. LAMPITT* (Great Britain).

The next meeting of the Union was fixed for September 1949 in Amsterdam.

The next meeting of the International Congress for September 1951 in Washington.

* Members of the Executive Committee.

# Rapport de l'Union Radio-Scientifique Internationale, Juillet 1947

Comme nous l'avions annoncé lors de la quatrième Assemblée Générale du Conseil International des Unions Scientifiques, l'U.R.S.I. a tenu à Paris, du 26 septembre au 5 octobre 1946, sa septième Assemblée Générale.

Le but que nous nous étions assigné de regrouper les radiophysiciens, dont les relations avaient été relachées pendant la guerre, a été largement dépassé et cela malgré les difficultés de déplacement et la hâte avec laquelle cette réunion avait été organisée.

Les délégués des différents pays qui prirent part à l'Assemblée Générale présentèrent une centaine de rapports, dont les principaux seront reproduits dans le Compte-Rendu de l'Assemblée Générale, actuellement en cours de publication.

Ces rapports permirent un aperçu des recherches effectuées dans les pays en guerre, les pays que celle-ci avait épargnés et même dans les pays occupés par une nation ennemie.

Nous n'avions pas prévu que cette première Assemblée d'après-guerre aurait rencontré un tel succès, aussi le temps prévu pour les débats scientifiques avait été quelque peu réduit, ce qui ne nous permit qu'une discussion rapide des principaux travaux présentés mais ne nous a pas empêchés d'établir un programme complet des recherches à poursuivre jusqu'à notre prochaine Assemblée Générale que nous espérons tenir en Suède en 1948.

Le temps et l'espace nous font défaut pour donner un aperçu détaillé de ce programme dont nous nous bornerons à esquisser les points qui présentent un intérêt non seulement pour les radiophysiciens mais aussi pour les autres hommes de science.

### 1. *Bruits d'origine extra-terrestre*

Il s'agit des bruits d'origines solaire et galactique. Ces deux types de bruits furent découverts par des chercheurs de la radio et ont suscité le plus grand intérêt chez les physiciens solaires et les astronomes.

Nous préparons une brochure, exposant dans tous ses détails, l'état actuel de nos connaissances sur ces deux phénomènes remarquables et

nous avons l'intention d'offrir des exemplaires de cet ouvrage aux Unions dont les recherches peuvent être influencées par ces manifestations récemment découvertes.

### 2. *Etude de l'ionosphere*

Pour les besoins militaires, les Alliés ont installé pendant la guerre, quarante stations chargées d'enregistrer les phénomènes ionosphériques.

A maintes reprises, des hommes de science effectuant des recherches dans d'autres domaines que le nôtre, nous ont fait part les difficultés qu'ils rencontraient pour obtenir les résultats des relevés effectués par ces stations.

Pour remédier à cette lacune, nous projetons d'établir dans les bureaux de notre Secrétaire Général un centre unique où tous les renseignements provenant de ces stations seraient réunis et compilés de façon à pouvoir les distribuer à ceux à qui ils pourraient être utiles.

### 3. *Collaboration des amateurs*

La plupart des recherches que nous poursuivons ne peuvent s'effectuer en laboratoire: pour asseoir de nouvelles théories, de nombreuses données, provenant de divers points du globe, nous sont nécessaires.

Ce fut toujours une règle bien définie de l'U.R.S.I. d'encourager les chercheurs amateurs de la radio dans les observations sérieuses des phénomènes géophysiques. Ce fut là le motif de la création, en 1922, de la Commission IV qui portait à cette époque le nom de Commission de Liaison avec les amateurs.

Voulant faire revivre cette collaboration et désirant lui donner un nouvel essor, l'Assemblée Générale de 1946 décida d'établir un vaste programme donnant des directives aux amateurs en choisissant des problèmes pour lesquels les observations sur une large échelle sont à la fois possibles et désirables.

Jusqu'à présent les sujets choisis dans ce domaine sont:

(*a*) Bruits d'origines solaire et galactique.
(*b*) Interaction des ondes radioélectriques.
(*c*) Atmosphériques provenant des éclairs et des aurores.
(*d*) Effet Doppler des météores sur les transmissions radioélectriques.
(*e*) Détermination du rayon de la zone de silence pour les ondes courtes.

Se basant sur l'expérience acquise et afin de donner aux résultats toute leur valeur, il fut décidé que l'organisation du travail relatif à ces sujets serait d'abord confiée aux Comités Nationaux; les résultats seront ensuite communiqués aux différentes Commissions pour examen et étude.

Le Secrétariat Général de l'Union est responsable de la coordination de l'échange des résultats et de la communication des conclusions que leur examen suggèrera.

L'annexe au présent rapport donne, à titre exemplatif, les directives générales qui ont été communiquées aux Comités Nationaux ainsi que celles relatives à la détermination du rayon de la zone de silence pour les ondes courtes.

Pour mener à bonne fin le programme établi à l'Assemblée Générale de 1946, diverses sous-commissions ont été créées au sein de nos Commissions. Le nombre de celles-ci a été réduit à trois par suite de la suppression de la Commission IV, dont la mission a été confiée au Secrétariat Général.

La *Commission I—Méthodes de Mesure et Etalonnages*—a chargé une Sous-Commission Permanente de maintenir et d'encourager une collaboration internationale dans le domaine des mesures et de l'étalonnage.

La *Commission II—Propagation des Ondes*—a créé:

(*a*) une Sous-Commission Permanente de l'Ionosphère, chargée d'organiser l'échange des résultats des recherches relatives à l'ionosphère;

(*b*) une Sous-Commission ayant pour but l'étude de l'interaction des ondes radio-électriques;

(*c*) une Sous-Commission chargée d'étudier les influences troposphériques sur la propagation des ondes ultra-courtes.

La *Commission III—Perturbations Atmosphériques*—a constitué, elle aussi, trois Sous-Commissions qui sont chargées d'étudier:

(*a*) l'origine des atmosphériques terrestres et leurs relations avec les phénomènes météorologiques concomitants;

(*b*) la propagation des atmosphériques terrestres et la distribution mondiale des atmosphériques;

(*c*) les bruits d'origine extra-terrestre.

De plus une Sous-Commission a été créée pour réorganiser le service des Ursigrammes; nous sommes heureux de pouvoir annoncer que depuis le 19 mai dernier, le Comité National Français de Radiotélégraphie Scientifique a repris l'émission des Ursigrammes.

Lors de l'Assemblée Générale de 1946, par suite des années de guerre, l'U.R.S.I. ne comptait plus que neuf Comités Nationaux, ceux-ci étaient établis en: Belgique, Etats-Unis d'Amérique, France, Grande-Bretagne, Maroc, Nouvelle-Zélande, Pays-Bas, Suède, Suisse.

Depuis lors nous avons pu enregistrer la réorganisation des Comités Nationaux: Danois, Portugais, Sud-Africain. Le Comité National Italien sera réorganisé pour Septembre prochain et nous essayons de reconstituer les Comités Australien et Norvégien.

D'autre part nous sommes en pourparlers pour la création de Comités Nationaux au Canada, en Chine et en U.R.S.S.

La prochaine réunion de l'Assemblée Générale aura lieu à Stockholm, juillet-août, 1948.

*Bureau de l'Union*

*Président:* Sir EDWARD V. APPLETON, Department of Scientific and Industrial Research, Londres.

*Vice-Présidents:* Docteur J. H. DELLINGER, U.S. Department of Commerce, National Bureau of Standards, Washington. Professeur R. JOUAUST, Directeur Honoraire du Laboratoire Central de Radioélectricité, Paris. Docteur H. STERKY, Directeur Général des Télégraphes de Suède, Stockholm. Professeur Dr B. VAN DER POL, Natuurkundig Laboratorium der N. V. Philips' Gloeilampenfabrieken, Eindhoven.

*Secrétaire Général:* Major A. DORSIMONT, Professeur à l'Ecole Royale Militaire de Belgique, Bruxelles.

*Secrétaire:* Ingénieur E. HERBAYS, A.I.A., Bruxelles.

*Secretariat General de l'Union:* 42 Rue des Minimes, Bruxelles.

*Presidents des Commissions et Sous-Commissions*

*Commission I—Méthodes de Mesure et Etalonnages:* M. le Dr J. H. DELLINGER, U.S. Department of Commerce, National Bureau of Standards, Washington.

*Sous-Commission Permanente:* M. le Dr R. L. SMITH-ROSE, National Physical Laboratory, Teddington.

*Commission II—Propagation des Ondes:* Sir EDWARD V. APPLETON, Department of Scientific and Industrial Research, Londres.

*Sous-Commission IIA—Permanente de l'Ionosphère:* Sir EDWARD V. APPLETON, Department of Scientific and Industrial Research, Londres.

*Sous-Commission IIB—Interaction des Ondes radio-électriques:* M. l'Ingénieur E. PICAULT, Inspecteur Général au Ministère des P.T.T., Paris.

*Sous-Commission IIC—Influences Troposphériques sur la propagation des ondes ultra-courtes:* M. le Dr G. BOOKER, Christ's College, Cambridge.

*Commission III—Perturbations Atmosphériques:* M. R. BUREAU, Directeur du Laboratoire National de Radioélectricité, Bagneux (France).

*Sous-Commission IIIA—Origines des Atmosphériques Terrestres:* Sir ROBERT A. WATSON WATT, Radio Board, Londres.

*Sous-Commission IIIB—Propagation des Atmosphériques Terrestres:* M. le Dr A. HAUBERT, Bureau Ionosphérique Français, Laboratoire National de Radioélectricité, Bagneux (France).

*Sous-Commission IIIC—Bruits d'origine extra-terrestre:* Sir EDWARD V. APPLETON, Department of Scientific and Industrial Research, Londres.

*Commission IV—Radiophysique:* M. le Professeur Dr B. VAN DER POL, Natuurkundig Laboratorium der N. V. Philips' Gloeilampenfabrieken, Eindhoven.

## Annexe

### COLLABORATION DES AMATEURS

*Suggestions d'Ordre Général*

Comme le fit notre ancienne Commission IV, le terme 'amateur' doit être pris dans le sens le plus large, de façon à assurer à l'U.R.S.I. l'aide d'organismes officiels, observatoires et laboratoires, possédant les appareils nécessaires à l'enregistrement et à la mesure exacte des phénomènes observés.

Dans les recherches confiées aux amateurs, il conviendra donc de distinguer deux catégories:

(*a*) Celles nécessitant des mesures précises et l'enregistrement des phénomènes observés; ces recherches seront, de préférence, confiées aux organismes disposant de l'équipement nécessaire.

(*b*) Celles consistant uniquement dans l'observation des phénomènes; ces observations pourront être confiées aux amateurs.

Le Président de l'U.R.S.I. estime qu'il est peu désirable que le dépouillement et l'interprétation des résultats soient confiés aux amateurs; il pense que ce travail doit être effectué par un expert afin d'en retirer le plus de fruit possible.

Il souhaite que les Comités Nationaux procèdent à un premier examen des résultats obtenus avant de les envoyer au Secrétariat Général qui les adressera aux Présidents des Commissions intéressées.

Les indications qui seront données ultérieurement ne doivent pas limiter les travaux des Comités Nationaux qui seraient désireux d'entreprendre, en collaboration avec des amateurs, des recherches ayant un objet déterminé.

Le phénomène du rayon de la zone de silence ('skip-distance') dans la transmission des ondes courtes est actuellement bien connu des chercheurs amateurs de la radio. On sait que la valeur de ce rayon varie avec (*a*) la fréquence utilisée, (*b*) l'heure de la journée, (*c*) la saison de l'année et (*d*) le cours du cycle des taches solaires. Il est connu actuellement que ces variations peuvent être attribuées aux changements des densités maximum en électrons dans les couches réfléchissantes de la haute atmosphère. Lorsque la densité en électrons d'une couche est élevée, le rayon de la zone de silence est court et vice-versa.

On peut calculer le rayon de la zone de silence pour une fréquence donnée si on connait les conditions ionosphériques, et, actuellement, un certain nombre d'organismes prédisent la fréquence maximum utilisable pour différentes distances et pour n'importe quel moment et quel endroit. La *fréquence maximum utilisable* (F.M.U.) pour toute distance est la fréquence pour laquelle cette distance est égale au rayon de la zone de silence.

Il est important de vérifier ces prévisions de la fréquence maximum utilisable par des observations pratiques du moment où une station entre ou sort de la zone de silence. De telles observations devraient inclure:

(*a*) La date et l'heure (T.M.G. et heure locale) ainsi que, si possible, l'heure locale au *point milieu* entre l'émetteur et le récepteur.
(*b*) Situation de la station d'émission (avec latitude et longitude).
(*c*) Situation de la station de réception (avec latitude et longitude).
(*d*) Distance de transmission.
(*e*) Fréquence utilisée.
(*f*) Niveau du bruit.

Une longue série d'observations faite sur une station est beaucoup plus utile que des observations isolées sur un certain nombre de stations. Il est donc particulièrement intéressant de concentrer les observations sur une seule station, en observant journellement l'heure et la nature de son apparition et de sa disparition. On attache un intérêt tout particulier aux observations sur l'évanouissement et le niveau du niveau du bruit pendant la période critique du moment où le signal apparait ou disparait. On préfère des observations sur des stations distantes de moins de 8000 km., la transmission se faisant dans ce cas, principalement, par simple bond (single-hop).

I. *Bruits d'origine solaire:*

On a découvert récemment que les surfaces des taches solaires qui apparaissent fréquemment sur le disque solaire sont de puissants émetteurs d'ondes courtes. De telles ondes provoquent un sifflement dans les récepteurs à ondes courtes.

Il serait désirable que les amateurs fussent encouragés à observer ce phénomène en donnant:

(*a*) Le jour, l'heure (T.M.G.) et l'heure locale, ainsi que les heures des lever et coucher locaux du soleil, si des observations sont relevées vers ces moments.
(*b*) Situation de la station de réception.
(*c*) Fréquence utilisée.
(*d*) Intensité du bruit (Echelle *R*).
(*e*) Caractéristiques directionelles du système aérien.
(*f*) Angle d'élévation du soleil (approximativement).

Il serait souhaitable que des observations fussent faites sur une gamme assez étendue car nous aimerions connaître la variation du bruit solaire avec la longueur d'onde. En particulier, la fréquence *la plus basse* sur laquelle le phénomène peut être entendu devrait être signalé.

II. *Aurores:*

On désire savoir si l'aurore elle-même émet des ondes.
Des observations certaines sur cette question seraient de grande valeur.

III. *Observations des météores:*

Il est actuellement bien établi que si l'on écoute une émission à haute fréquence non modulée, on peut percevoir des sifflements lorsque des météores atteignent la haute atmosphère. Chamanlal et Venkataraman ont attribué ce phénomène à un effect Doppler provoqué par l'interférence entre le signal direct et un signal indirect à travers la surface réfléchissante mobile engendrée par le météore.

Dans certains pays, les sifflements n'ont été entendus qu'en de rares occasions. Il s'avère utile de recueillir un nombre suffisant de renseignements qui permettront de retirer des résultats pratiques et scientifiques.

Pour que ces renseignements présentent une garantie suffisante, il est nécessaire de prendre certaines précautions, dont les principales sont les suivantes:

— ces émissions devraient être effectuées par des stations disposant d'émetteurs étalonnés et choisis par l'organisateur des observations;

— aucun récepteur utilisé ne peut produire des sifflements d'hétérodyne;
— une gamme limitée de types différents d'antennes devrait être utilisée.

Compte tenu de ces précautions et des précautions élémentaires à prendre pour de telles observations, les douze points suivants devraient être observés:

1. Nombre de sifflements de ton (*a*) ascendant, (*b*) descendant, entendus pendant chaque période de 10 minutes.
2. Emploi alternatif de deux fréquences très voisines l'une de l'autre.
3. Variation de la fréquence pour permettre d'en établir la distribution.
4. Variation de la puissance de l'émetteur pour permettre l'établissement d'une relation entre la puissance nominale et la puissance radiée.
5. Evaluation de la durée des sifflements.
6. Evaluation de la gamme des fréquences audibles entendues.
7. Utilisation d'antennes réceptrices dirigées pour permettre le calcul du rayonnement du météore.
8. Etude de la simultanéité d'observations d'un même météore.
9. Etude des variations diurnes et saisonnières et des variations avec la latitude.
10. Observations spéciales pendant les pluies de météores et le passage des comètes.
11. Comparaison éventuelle des résultats obtenus avec les organismes intéressés des observatoires officiels.
12. Comparaison des résultats obtenus des observations organisées par les différents Comités Nationaux.

# Rapport de l'Union Internationale de Physique Pure et Appliquée, 2 Juillet 1947

Depuis la dernière Assemblée Générale du Conseil, l'Union de Physique a repris une activité dont nous rendons compte ci-après:*

1. Une *Assemblée générale* a eu lieu à Paris, les 3 et 4 janvier 1947 sous la Présidence du Professeur M. Siegbahn, de Stockholm.

Un hommage ému fut rendu à la mémoire du Professeur H. Abraham, Secrétaire Général de l'Union depuis sa fondation (1923), déporté et assassiné dans un camp allemand au cours de la dernière guerre.

Le Professeur P. P. Ewald, de Belfast, qui avait accepté de lui succéder provisoirement, organisa de la façon la plus efficace le travail de l'Assemblée.

Les pays suivants étaient représentés: Australie, Belgique, Chine, Danemark, Finlande, France, Grande-Bretagne, Italie, Norvège, Pays-Bas, Pologne, Roumanie, Suède, Suisse. Les délégations de quelques autres pays faisant partie de l'Union: Afrique du Sud, Canada, Etats-Unis, Tchécoslovaquie...n'avaient pu être constituées en temps utile.

L'Assemblée constitua ou reconstitua ses commissions de travail, (voir §5); elle décida en outre que de 'grandes commissions' consacrées aux principaux domaines de la physique,—et en premier lieu à l'optique (voir §4), pourraient être créées au fur et à mesure des besoins, avec une assez large autonomie scientifique et administrative. Il parut possible d'éviter ainsi à la fois les inconvénients d'un manque d'organisation et ceux d'un plan général trop ambitieux ou prématuré.†

Le Secrétaire Général adressa un pressant appel aux représentants des divers pays pour que leurs Comités Nationaux, réorganisés si besoin, prennent à l'avenir une part plus active aux travaux de l'Union; la future ligne de conduite de celle-ci fit ensuite l'objet d'intéressants échanges de vues.

* Les documents suivants ont été communiqués au Secrétariat du Conseil des Unions: Procès-verbal provisoire de la dernière Assemblée Générale de l'Union de Physique; circulaires d'information S.G. 47–1 et 2, S.-O. 47–1 et 2.

† Dans un article récent de *Nature* (t. 159, p. 562, avril 1947), R. W. Ditchburn a exposé en détail les points de vue des diverses délégations, notamment ceux des Comités néerlandais et britannique.

Enfin, un nouveau Bureau a été élu: le Professeur H. A. Kramers, de Leyde, a été désigné comme Président et le Professeur P. Fleury, comme Secrétaire-Général.

2. *Comités nationaux de physique.* L'appel du Professeur Ewald a été entendu: plus de deux tiers des pays adhérents ont actuellement un Comité National constitué ou en voie d'organisation prochaine; en particulier, les relations avec les physiciens des Etats-Unis vont pouvoir être développées. On attend le résultat des démarches entreprises en vue de nouvelles adhésions (Inde, Portugal, U.R.S.S....).

3. *Aide reçue de l'U.N.E.S.C.O.* En application de l'accord conclu entre le Conseil des Unions et l'U.N.E.S.C.O., cet organisme a décidé d'accorder à notre Union une aide importante, pour laquelle nous lui exprimons notre très vive gratitude. Les crédits reçus ont permis d'organiser déjà certaines réunions de Commissions (voir ci-après). Des indemnités sont prévues pour des physiciens appelés à travailler dans des laboratoires étrangers: l'attribution de trois bourses de 500 dollars a déjà été décidée; l'avis des Comités nationaux, au sujet de l'utilisation des crédits restants, a été demandé.

4. Un Comité préparatoire pour l'organisation de la *Commission Internationale d'Optique* (affiliée à l'Union de Physique) s'est réuni du 2 au 7 juin dernier à Prague, où il a reçu des opticiens tchécoslovaques un accueil particulièrement chaleureux. Etaient en outre présents des délégués belges, français, britanniques, italiens, néerlandais, polonais, suédois (les adhésions d'autres pays sont attendues). Des statuts provisoires, basés sur la coopération de 'Comités nationaux d'optique', ont été adoptés; M. T. Smith (Teddington) a été élu Président de la Commission.

Les principes de délimitation du domaine d'action de celle-ci ont été posés; les contacts nécessaires seront établis avec d'autres organismes internationaux qualifiés, tels que l'Union astronomique internationale, la Commission Internationale de l'Eclairage, etc....Des *sujets d'étude*, à organiser sur un plan international, ont été choisis: l'examen préliminaire de chacun d'eux a été confié à un Comité de travail (généralement l'un des Comités nationaux),—qui a accepté d'établir, après enquête, un rapport pour la prochaine réunion de la Commission (juillet, 1948).

Voici les sujets envisagés: classification des questions d'optique; unification internationale de certains vocables, symboles, conventions de signe; propriétés de l'œil intervenant dans l'emploi des instruments; étude générale des aberrations; calcul des triplets; diffraction (théories de base); étude combinée des aberrations et de la diffraction; stimulation de la production de réseaux de diffraction; qualités des émulsions et des objectifs

photographiques; couches réfléchissantes et antiréfléchissantes; optique corpusculaire; optique microscopique,—spectroscopique,—astronomique; normalisation des dessins de pièces optiques; comparaison des méthodes de mesures, tolérances; qualité des verres d'optique....

La Commission a demandé que le Bureau de l'Union attire l'attention de l'U.N.E.S.C.O. sur l'intérêt qu'il y aurait, au point de vue du progrès de la science, et spécialement de l'optique, à faciliter les *échanges de jeunes chercheurs*.

En ce qui concerne la *documentation*, la Commission a exprimé le vœu que les Comités Nationaux fassent préparer des Revues systématiques des travaux d'optique publiées pendant la guerre, ainsi que des Répertoires d'opticiens (scientifiques et constructeurs). Elle a chargé son Secrétariat de diffuser régulièrement, grâce aux documents reçus des divers pays, des circulaires d'informations rapides sur l'Optique.

Les crédits promis par l'U.N.E.S.C.O. permettront à l'Union de contribuer aux dépenses de publication des 'Colloques internationaux sur la théorie des images optiques' tenus à Paris en octobre dernier.

5. *Autres commissions: constitution et prochaines réunions.* La dernière Assemblée générale a désigné les représentants de l'Union aux *Commissions mixtes* (Joint Committees) suivantes; données physicochimiques; viscosité; ionosphère; radiométéorologie. Le travail de ces Commissions fait l'objet de rapports spéciaux.

L'Union de physique a d'autre part reconstitué sa *Commission des Symboles, Unités, Vocabulaires* et organisé trois autres Commissions nouvelles: Celle de *Thermodynamique* (Secrétaire: M. E. Bauer, Paris) et celle du *Choix de l'Unité d'activité radioactive* (Secrétaire: Madame Joliot-Curie, Paris) tiendront, ainsi que la précédente, des réunions partielles à Londres, du 17 au 21 juillet prochain, au moment du Congrès de l'Union de Chimie, en commun avec les Commissions de cette Union qui leur sont apparentées.

Enfin, la *Commission des Rayons cosmiques*, que préside M. J. Clay (Amsterdam) et dont M. P. Auger (Paris) est Secrétaire, a reçu la mission suivante: 'This Committee should organize on an international scale the measurement and registration of the intensity of the cosmic radiation in their dependence on the magnetic field, on temperature, on pressure and on altitude. In this connection it will be necessary to compare the measuring apparatus used at different places and possibly to standardise the instruments.'

Elle doit, sur l'invitation cordiale du Gouvernement et des physiciens polonais, se réunir au début d'octobre prochain à Cracovie. Une

vingtaine de spécialistes prendront part à cette occasion à un 'Colloque' sur les Rayons cosmiques.

6. *Projets pour* 1948. La dernière Assemblée Générale ayant eu un caractère de 'Reprise de contact', il a été décidé que la suivante se réunirait dès l'an prochain: la date en a été fixée entre le 8 et le 18 juillet, et le lieu à Amsterdam, sur l'aimable invitation de nos collègues néerlandais. Ceux-ci ont l'intention d'organiser à la même époque un Colloque sur la *physique des métaux*. Les diverses commissions (non mixtes) de l'Union de Physique, et spécialement celle d'Optique, tiendront séance pendant l'Assemblée Générale. Leurs rapports, ainsi que ceux des colloques annoncés, seront publiés par l'Union.

P.S. Deux brochures plus complètes que le présent rapport, consacrées l'une à l'Union de Physique (situation actuelle, procès-verbal de la dernière Assemblée Générale),—l'autre à la Commission d'Optique (Décisions et recommandations de Prague) sont actuellement sous presse.

*Bureau de l'Union*

*Président:* H. A. KRAMERS (Leyde).
*Vice-Présidents:* Cz. BIALOBRZESKI (Varsovie), K. K. DARROW (New York), Sir CHARLES DARWIN (Londres), P. P. EWALD (Belfast), C. J. GORTER (Leyde), J. C. JACOBSEN (Copenhague), P. SCHERRER (Zürich).
*Secrétaire Général:* P. FLEURY (Institut d'Optique, 3 Bd. Pasteur, Paris 15e).
*Trésorier:* A. PÉRARD (Paris).
*Comité Financier:* E. BAUER (Paris) et C. J. GORTER.

# Rapport de l'Union Géographique Internationale pendant l'Année, 1946–1947

L'Union Géographique Internationale a suivi aussi activement que possible le mouvement qui se dessine de plus en plus pour la reprise des relations scientifiques internationales, en s'efforçant de surmonter les difficultés diverses qui sont rencontrées dans tous les pays.

Notre tâche la plus urgente nous a paru être d'organiser le plus tôt possible une assemblée de géographes de tous pays, en essayant de remettre en jeu les mécanismes indiqués par nos statuts et qui ont pu, dans les dernières années précédant la deuxième guerre mondiale, provoquer tant de travaux de valeur apportés de toutes les parties du monde.

L'intervalle entre nos Congrès étant de 4 ans, c'est en 1942 qu'aurait dû se réunir le Congrès International de Géographie dont le lieu avait été fixé à Lisbonne comme suite au Congrès d'Amsterdam 1938. Les hostilités prolongées jusqu'à 1945 et la période encore troublée qui a suivi, avec les difficultés de voyage et même d'échange de correspondance, ce n'est qu'en 1944 qu'il a été possible d'établir un contact entre les membres du Comité Exécutif, dont plusieurs d'ailleurs avaient disparu et d'étudier la décision à prendre au sujet du lieu et de la date du prochain Congrès.

Il a été facile de s'entendre sur la date de 1948, bien que plusieurs pays susceptibles d'organiser le Congrès se soient montrés désireux de reculer davantage. On a dû reconnaître en effet que la nécessité de ne pas attendre et de rétablir le plus tôt possible les contacts devait passer avant tout autre considération.

Le choix du lieu du Congrès a été plus difficile. La solution la plus simple recommandée par le Bureau de notre Union, était de confirmer le choix de Lisbonne fait à Amsterdam. Mais des objections et des suggestions nouvelles ont été formulées. Il a donc été décidé d'organiser une large consultation en communiquant à chaque Comité National de Géographie d'un pays adhérent à l'Union toute possibilité évoquée, l'échange de correspondance devant suppléer à une Assemblée Générale où les vues peuvent être librement confrontées.

Diverses solutions ont été écartées du simple fait que l'assentiment de pays envisagés comme désirables a fait défaut (Algérie, Suède, U.R.S.S.).

Le choix s'est trouvé limité entre Lisbonne, Le Caire et Rio de Janeiro. Tous les faits ayant été résumés dans une dernière circulaire, nous avons demandé à chaque Comité National de Géographie un vote écrit. Le dépouillement du scrutin a été fait en attribuant à chaque pays le nombre de voix auquel il a droit d'après nos statuts. Il a donné une majorité écrasante pour Lisbonne.

Ces détails pourraient peut-être intéresser les organisateurs de Congrès en préparation. Souhaitons qu'ils n'aient pas à être de nouveau considérés, à la suite d'années de trouble comme celles que nous avons vécues.

La préparation du Congrès de Lisbonne s'avère difficile. Elle est cependant activement poussée, par un échange de correspondance entre le Bureau de l'Union et le Comité d'organisation locale.

Les questions mises à l'ordre du jour sont fixées, ainsi que le programme des excursions. Les circulaires d'invitation sont lancées.

Le Bureau de l'Union est d'autre part en relation avec les Présidents des Commissions nommées, conformément à nos statuts, pour préparer dans l'intervalle entre les Congrès la discussion de grands problèmes géographiques. Le temps qui reste est malheureusement trop court pour que puissent être produits des Rapports ayant l'ampleur de ceux que nous sommes habitués à recevoir. Certaines Commissions ont perdu leur Président et même plusieurs Membres.

Nous espèrons cependant obtenir de la Commission des Terrasses, la plus anciennement formée, un dernier effort permettant de consacrer les résultats de son activité. Le Professeur D. Johnson, qui avait organisé un programme de recherches coordonnées sur les deux rives de l'Atlantique, étant décédé, a été remplacé par le Professeur Baulig, qui travaille avec l'aide de plusieurs collègues à la rédaction d'un guide pour l'étude des terrasses d'accumulation ou d'érosion.

Une nouvelle Commission de Géographie Agraire demandée à Amsterdam, et dont la formation a été arrêtée par les hostilités, est maintenant en voie d'organisation sous la présidence du Professeur Faucher.

Les Commissions du Peuplement, de Phototopographie Aérienne, des Variations climatiques et de Cartographie des Surfaces d'aplanissement sont également au travail; les observations de plusieurs membres de la dernière pourront être discutées sur le terrain au cours des excursions du Congrès.

Il nous faut enfin signaler l'effort considérable fait pour répondre à un vœu du Congrès International de Géographie d'Amsterdam demandant la continuation de la 'Bibliographie Géographique Internationale' et l'organisation d'une Bibliographie Cartographique la complétant.

Dès les derniers mois de 1944 nous sommes entrés en rapport avec les Sociétés ou les savants qui avaient collaboré aux bibliographies précédentes. Malgré les difficultés des communications et le trouble persistant encore dans bien des pays, malgré les obstacles s'opposant à une impression particulièrement délicate un fort volume de 556 pages signalant et analysant plus de 5000 publications parues de 1940 à 1944 a vu le jour et sera présenté au Congrès de Lisbonne. Ainsi se trouve comblée une lacune dans la documentation géographique correspondant aux quatre années de guerre, qui menaçait d'être une gêne sérieuse pour tous les travaux mis ultérieurement sur le chantier. L'importance de la production ainsi révélée tient surtout au fait que les recherches faites dans les dernières années d'avant guerre n'ont souvent vu le jour qu'en 1940 et 1941.

Nous envisageons maintenant, pour rétablir complètement la continuité, un volume de Bibliographie renseignant sur la production des années 1945 et 1946. Les difficultés de communication n'ont malheureusement pas entièrement disparu. Mais l'obstacle le plus grave est l'élévation du tarif des impressions, qui rendrait impossible la réalisation de ce projet, et arrêterait peut-être définitivement une œuvre internationale dont la nécessité est partout reconnue si la subvention de l'Union Géographique Internationale n'était pas considérablement relevée.

La même remarque s'applique à la publication d'une Bibliographie cartographique internationale dont nous avons entrepris la préparation pour répondre à un vœu du Congrès d'Amsterdam.

L'Union Géographique Internationale a fait, comme on le voit, les efforts les plus sérieux pour rendre aux activités géographiques l'importance qu'elles avaient avant la deuxième guerre mondiale.

# Rapport de l'Union Internationale des Sciences Biologiques, Juillet 1946–Juillet 1947

La période écoulée depuis notre dernier rapport, présenté à l'Assemblée Générale du Conseil à Londres le 22 juillet 1946, a été consacrée pour la plus grande partie à la reconstruction de l'Union. La première tâche a été d'inviter les pays jusqu'ici absents de l'Union à s'y affilier et ensuite de ressusciter les organismes adhérents inactifs et de les inviter à payer leur contribution annuelle, à recommencer leur collaboration effective. Ce sont la Chine, le Danemark, la Finlande et la Norvège, qui ont accepté notre invitation; nous leur souhaitons la bienvenue la plus cordiale. Les pourparlers avec un assez grand nombre d'autres pays, surtout dans l'Amérique du Sud, n'ont pas encore abouti à des résultats définitifs. Quelques-uns des pays dormants cependant ont renouvelé les liens avec l'Union un peu relâchés depuis des années.

D'autre part, la réorganisation interne de l'U.I.S.B. qui avant la guerre ne comprenait qu'une seule Section, celle de la Botanique, a donné naissance à six autres à côté de la susdite. La Cytologie expérimentale, jusqu'ici dirigée par un Comité permanent pour les Congrès Internationaux, va être constituée comme une Section de l'Union sous forme d'une Société Internationale de Cytologie expérimentale et d'Histologie. L'Institut International d'Embryologie, situé à Utrecht, a décidé à se reconstituer comme une Section d'Embryologie. Les Entomologistes, également représentés par un Comité permanent, vont former une Section d'Entomologie. L'organisation de la Génétique sera transférée d'un Comité permanent à une Section de Génétique. La Microbiologie, sous forme d'une Association Internationale de Microbiologie, s'est jointe à l'Union comme Section de Microbiologie et encore une Section de Zoologie est en préparation. Pour la plupart, les décisions prises par les Comités permanents seront proposées pour être ratifiées aux Congrès Internationaux, qui auront lieu en 1947 et 1948.

Grâce à l'appui financier, fourni par l'U.N.E.S.C.O., il nous a été possible de développer notre activité en plusieurs directions. Des subventions spéciales ont été accordées à la Station de Zoologie à Naples, sévèrement endommagée par la guerre et à celle de Roscoff (France). Tout un nombre de collections de types de microorganismes d'importance internationale recevra quelque secours financier par l'intermédiaire de notre Union;

d'autres subventions ont été données à la Commission Internationale de Nomenclature zoologique, au Comité International pour la Protection des Oiseaux, à la Société Internationale de Cytologie expérimentale et aux autres Sections déjà existantes ou récemment établies. La Collection Internationale de préparations cytologiques et quelques périodiques bibliographiques sont également mises sous les auspices de l'Union. Une Terminologie de la Génétique et de la Cytologie, ainsi qu'un Catalogue des Herbiers de plantes, sont en préparation.

Pour l'année 1947 deux Conférences spéciales sont envisagées: une sur la fonction des éléments rares dans la physiologie des plantes et une sur la biologie et les mesures de combat contre les épidémies d'insectes nuisibles, surtout les sauterelles. Deux Congrès Internationaux vont commencer sous peu leurs travaux; le 6e Congrès International de Cytologie expérimentale à Stockholm, 10–16 juillet 1947 et le 4e Congrès International de Microbiologie à Copenhague, 20–26 juillet prochain. Pour 1948 le programme des Congrès Internationaux contient: un Congrès sur la Physiologie et la Pathologie de la Reproduction animale (Milan, 23–30 juin 1948), le 7e Congrès International de Génétique à Stockholm (7–14 juillet), le 13e Congrès International de Zoologie à Paris (21–27 juillet), un Congrès International de Sériciculture à Alès (France, 29 juillet–5 août) et le 8e Congrès International d'Entomologie à Stockholm (9–14 août); ensuite encore un Congrès International d'Anthropologie en Belgique, probablement fin août. Le Comité Exécutif de l'U.I.S.B. s'est efforcé à arranger dates et lieux de ces Congrès de sorte qu'ils se succèdent chronologiquement, spécialement en vue de nos amis d'outre-mers intéressant à plusieurs de ces Congrès. Trois Conférences spéciales auront lieu: une sur l'interaction des œufs et du sperme à Milan les 21 et 22 juin, une sur la terminologie de la génétique et de la cytologie à Stockholm les 5 et 6 juillet et une sur les problèmes et les aspects de la systématique et de la nomenclature botanique à Utrecht. Les Comptes Rendus de ces Congrès et Conférences seront publiés avec l'appui et sous les auspices de l'U.I.S.B.

L'U.I.S.B., de nouveau aidée par l'U.N.E.S.C.O., a été en état d'établir quelques bourses pour de jeunes biologistes, en premier lieu non-européens: deux à la Station zoologique de Naples, une à celle de Roscoff et une au Bureau Central pour la Cultivation de Champignons à Baarn.

On est en train de soumettre les problèmes de l'Organisation Internationale de la Protection de la Nature à une étude profonde. Le caractère de ces problèmes est assez compliqué parce qu'ils ne sont pas seulement de nature biologique, mais ils contienent beaucoup d'éléments sociaux,

économiques, gouvernementaux et même diplomatiques. C'est pour cette raison que la création d'une organisation internationale et indépendante, consacrée à ces problèmes, nous paraît être très désirable. Une Conférence à Brunnen, en Suisse, ces jours-ci, le 28 juin jusqu'au 3 juillet, est destinée à l'étude de cette organisation; nous espérons sincèrement qu'on y réussira à trouver un compromis entre quelques points de vue assez divergents. L'Union y est représentée par MM. les Professeurs Pictet et Vayssière.

L'Union a désigné comme ses représentants dans les Commissions mixtes, instituées par le Conseil des Unions:

(*a*) pour l'Océanographie MM. les Professeurs C. VON BONDE (Afrique du Sud), H. BOSCHMA (Pays-Bas), L. FAGE (France) et C. J. FISH (Etats-Unis);

(*b*) pour la Viscosité MM. les Professeurs P. EGGLETON (Grande-Bretagne), H. EYRING (Etats-Unis), A. FREY WYSSLING (Suisse) et G. VAN ITERSON (Pays-Bas).

Le fait que trois membres du Comité Exécutif d'avant guerre ont pris leur démission a nécessité la formation d'un Comité provisoire; MM. les Professeurs Chodat, Fox et Vayssière ont accepté l'invitation d'y prendre part. L'Assemblée générale de l'U.I.S.B. à Copenhague le 28 juillet prochain aura à choisir un Comité Exécutif pour la période suivante. C'est à ce Comité Exécutif que sera confié le développement futur de l'Union Internationale des Sciences Biologiques.

*Executive Committee elected at the General Assembly* 1947

*President:* Professor M. J. SIRKS (Haren).
*Vice-President:* Professor H. MUNRO FOX (London).
*General Secretary:* Professor VAYSSIÈRE (Musée d'Histoire Naturelle Entomologie Coloniale, 57 Rue de Buffon, Paris 5e).
*Assistant Secretary:* Professor STUART MUDD (Philadelphia).
*Treasurer:* Professor CHODAT (Geneva).

The next General Assembly of the Union will be held in 1950, probably at Stockholm.

# Report of the International Union of Crystallography

The proposal to establish an International Union of Crystallography arose from an international meeting of crystallographers held in London in July 1946 under the Chairmanship of Sir Lawrence Bragg and with the co-operation of the X-ray Analysis Group of the Institute of Physics. The Provisional International Crystallographic Committee was formed from members of about 14 nations and this in turn asked a sub-committee to take the necessary steps for the establishment of a Union. The possibility of adhering to the International Union of Pure and Applied Physics as a Commission within that Union was discussed at length but for many reasons was considered less satisfactory than the formation of a separate Union of Crystallography. Statutes for the Union were drawn up and submitted to the Executive Committee of the Council of Unions. The approval of the Statutes and formal recognition of the Union by the International Council of Scientific Unions was granted on 7 April 1947. Up to the time of the first full General Assembly of the Union, probably in the summer of 1949, the sub-committee, under the chairmanship of Professor Ewald, originally entrusted with preparations for the establishment of the Union, has been given power by the Provisional Committee to act as the Executive Committee of the Union. The acting General Secretary is Dr R. C. Evans, Crystallographic Laboratory, Cavendish Laboratory, Cambridge, England.

One of the main tasks of the new Union is the establishment of an international journal of crystallography *Acta Crystallographica*. Preparations for this are far advanced and the first number is expected to appear in January 1948. Thanks to generous financial support of U.N.E.S.C.O. and from British and American sources it is hoped that the annual subscription will not exceed $10 and that the journal will thus enjoy a wide circulation from the beginning. The editor will be Professor P. P. Ewald (Belfast) supported by Dr R. C. Evans (Cambridge), Professor I. Fankuchen (Brooklyn), Professor A. V. Shubnikov (Moscow) and Professor J. Wyart (Paris) as regional co-editors.

Other activities of the Union include plans for the publication of a revised edition of the *International Tables for the Determination of Crystal Structures* and for the continued publication of Structure Reports along the lines of the former *Strukturbericht*. Committees established at the international meeting in London to forward these activities will in due course become Commissions of the Union.

# Report of the International Union of Theoretical and Applied Mechanics, July 1947

The Union was created by a decision of the International Committee for the Congresses of Applied Mechanics, at its meeting in Paris, during the Sixth Congress, in September 1946. It formally came into existence on 1 April 1947, when the statutes had received the required majority of votes from the members of the Council of the new Union.

The main work of the Union will be to continue the series of international congresses for applied mechanics. It has been decided to hold the Seventh Congress in September 1948, at the Imperial College, South Kensington, London. The Union will engage moreover in other activities, e.g. editorial or publishing work, research, etc., in the intervals between successive congresses, and it hopes to enter into co-operation with the Unions for other branches of science, as well as with outside bodies occupying themselves with scientific work in the domain of theoretical and applied mechanics. It is intended to discuss plans for such work at the Seventh Congress, which will be the first one to be convened under the new organisation.

## Appendix

The Council of the International Union at present consists of the following members:

Belgium: L. Baes (Brussels), F. H. van den Dungen (Brussels);
Bulgaria: K. Popoff (Sofia);
China: P. Y. Chou (Peiping), Y. H. Ku (Shanghai);
Denmark: J. Nielsen (Copenhagen);
France: A. Caquot (Paris), J. Pérès (Paris), H. Villat (Paris).
Great Britain: S. Goldstein (Manchester), R. V. Southwell (London), G. I. Taylor (Cambridge);
Netherlands: C. B. Biezeno (Delft), J. M. Burgers (Delft), C. Koning (Amsterdam);
Norway: J. Solberg (Oslo);

Poland: M. T. Huber (Gdańsk-Wrzescz);
Sweden: W. Weibull (Bofors);
Switzerland: J. Ackeret (Zurich), H. Favre (Zurich);
Turkey: Kerim Erim (Istanbul);
United States: H. L. Dryden (Washington, D.C.), J. C. Hunsaker (Cambridge, Mass.), Th. von Karman (Pasadena, Cal.), S. P. Timoshenko (Palo Alto, Cal.);
U.S.S.R.: S. A. Christianovitch (Moscow), A. N. Kolmogoroff (Moscow), E. L. Nicolai (Leningrad).
Extra members are: R. von Mises (Cambridge, Mass., U.S.A.); H. U. Sverdrup (La Jolla, Cal., U.S.A.).

Until September 1948 the bureau of the Council consists of R. V. Southwell, Rector, Imperial College, South Kensington, London, S.W. 7 (*President*); J. M. Burgers, van Houtenstraat 1, Delft, Holland (*Secretary*).

# Rapport de l'Union Internationale d'Histoire des Sciences, Juillet 1947

Nous sommes en plein travail de préparation et d'organisation:

I. Nous avons obtenu le vôte par correspondance de nos nouveaux statuts. En même temps nous faisons des sondages en vue de la constitution, en septembre prochain, du premier Conseil de notre Union.

II. Nous avons envoyé 150 circulaires en vue de la constitution de nos Commissions scientifiques. Pour le moment, on envisage la constitution de quinze Commissions, dont: Extrême-Orient, Indes, Arabes, Grecs et Latins, Moyen-âge, Renaissance, etc.

III. Nous avons décidé la publication de la nouvelle série de la Revue *Archeion*, sous le titre d'*Archives internationales d'histoire et de philosophie des sciences*. Le premier nº est sous presse et doit paraître au courant du mois d'octobre prochain.

IV. Du 30 septembre au 6 octobre, aura lieu à Lausanne le Ve Congrès international d'histoire des sciences. Il est organisé par l'Union et par un Comité ayant à sa tête notre Président, A. Reymond. C'est à l'occasion de ce Congrès qu'auront lieu les élections des Conseils de l'Union et de l'Académie internationales d'histoire des sciences.

V. Les groupes nationaux d'histoire et philosophie des sciences sont en voie de réorganisation, pour se mettre en accord avec nos nouveaux statuts. Nous avons déjà reçu confirmation de la réorganisation des groupes: Grande-Bretagne, France, Palestine, Roumanie, Tchécoslovaquie, Belgique, Brésil, Portugal et Suisse.

*Conseil provisoire de l'Union*

*Président:* Professeur A. Reymond, ancien recteur de l'Université de Lausanne.

*Vice-Président:* Professeur P. Sergescu, recteur de l'Ecole Polytechnique de Bucarest.

*Secrétaire Général:* Professeur Aldo Mieli, Buenos Aires.

*Secrétaire-adjoint:* Professeur P. Brunet, 12 rue Colbert, Paris.

*Administrateur:* Professeur J. A. Vollgraff, Leyde.

*Membres:* Dr C. Singer, Londres, Professeur Gino Loria, Genève, Professeur Quido Vetter, Prague.

# Les Rapports des Commissions Mixtes

## COMMISSION SUR L'IONOSPHÈRE

Pas de rapport. Cette Commission ne s'est pas encore réunie.

## COMMISSION SUR L'OCÉANOGRAPHIE

The International Committee on Oceanography met at the rooms of the Royal Society, London, on 22 and 23 May 1947.

*Members present*

Dr H. Boschma, Leiden, (*convener*).
Professor Hans Pettersson, Göteborg.
Professor Proudman, Liverpool.
Dr R. B. Seymour Sewell, Cambridge, England.

The meeting was also attended by Professor F. J. M. Stratton, General Secretary of the Conseil International des Unions Scientifiques.

Dr H. Boschma was elected Chairman of the Committee and Dr R. B. Seymour Sewell was appointed Secretary.

It was decided to co-opt the following additional members:

Professor Ph. H. Kuenen, Holland.
Dr Bullard, Cambridge, England.
Dr Louis Fage, Paris.
Professor Dakin, Sydney.

All four have accepted membership of the Committee.

Proposals for future Oceanographic Research were submitted by Professor Hans Pettersson; by Professor Ph. H. Kuenen through Dr Boschma; by Dr C. von Bonde; by Dr R. B. Seymour Sewell; and by Dr M. Brongersma-Sanders through Dr H. Boschma.

These proposals fall into the following main categories:

I. *Geological and Geophysical*

(*a*) The obtaining of long bottom cores from all the main oceans and from certain particular areas, and their examination by all possible measurements.

(*b*) The Geophysical investigation of the continental slope and the sea-floor; and the radio-active age determination of long cores.

(*c*) Measurement of the thickness of the submarine sediments by echo and seismographic methods.

(*d*) Measurement of the Geothermal gradient in the basins and deeps, especially where the rate of sedimentation may be expected to be low.

II. *Biological*

(*a*) The study of the bottom-fauna at great depths and the quantitative study of animal associations on the continental slopes.

(*b*) The study of the metabolism in animals living at temperatures below 0° C. and the nutrition of deep-sea organisms.

(*c*) The study of pelagic micro-organisms and of the microfauna of the detritus layer, and of the ecology of the Foraminifera.

(*d*) The influence of organisms on the deposition of fine particles.

III. *Apparatus, etc.*

(*a*) The acceleration of manufacture and production of oceanographic apparatus and instruments and of the means of distribution of such apparatus.

(*b*) The design of experimental apparatus (e.g. grabs, for the investigation of the bottom-fauna).

(*c*) The standardisation of methods of chemical analysis of sea-water and the publication of a full account of these methods in various languages (English, French and German).

(*d*) The chemical examination of sea-water, and especially of the problem of the solution and precipitation of calcium carbonate; and the chemical analysis of sediments.

The Committee considered the proposal for the establishment of an Oceanographic Institute for the Indian Ocean, and the possibility of re-establishing the Oceanographic Institute at Monaco as an operating oceanographical laboratory.

Professor Hans Pettersson pointed out the importance of the study of the deep ocean bed from the point of view of the bottom deposits and of the deep ocean fauna. He informed the Committee that a circum-global expedition was being organised and financed by Sweden and would sail in the late summer and that it was hoped that further work of this nature would be organised by the combined Scandinavian countries, Sweden, Norway and Denmark; but he emphasised that such work was beyond the powers of any one country and suggested that an International Committee should be set up to take control of such investigations. International co-operation was of the greatest importance in deep oceanic work. It was decided that U.N.E.S.C.O. should be approached and be asked to appoint

a Secretary, whose duty would be to keep in touch with liaison representatives in all countries that were interested in oceanographic work and so keep the International Committee informed regarding any oceanographical investigations that were being carried on or were contemplated in both the physico-chemical and biological branches. The names of the following scientists were suggested as suitable liaison representatives:

| | |
|---|---|
| Austria | Dr A. Defant |
| Italy | Dr Reinhard Dohrn |
| Norway | Professor Ruud |
| Portugal | Dr Ramalho |
| Sweden | Professor V. W. Ekman |

Professor Ruud and Professor Ekman have already expressed their willingness to act in such a capacity.

The following Resolutions were passed:

*Resolution I.* The International Committee on Oceanography have heard with very great interest Dr Hans Pettersson's account of the Swedish plan to study the deep ocean bed and its fauna, and of the possibility of a further extension and continuation of this work through co-operation between the Scandinavian Countries, Sweden, Norway and Denmark. The Committee considers that such investigations are of the greatest value from the scientific point of view, and that they would benefit from International co-operation and should be organised on an International scale.

*Resolution II.* The International Committee on Oceanography noted with great interest the proposal (contained in Para. 10, *h*, of the Digest of Directives, Sub-Commission on Natural Sciences, U.N.E.S.C.O. General Conference, 1946) to explore the possibility of founding an Oceanographical and Fisheries Laboratory for the Indian Ocean. The Committee consider that the creation of an Institute of Oceanography for the Indian Ocean would be of the greatest value for the advancement of our scientific knowledge of this region. They also consider that such an Institute would probably lead to considerable economic advantages for all countries bordering on this ocean, and earnestly trust that means will be found for the establishment of such an Institution.

The Committee also hope that, if and when the constitution of such an Institution is being considered, full advantage will be taken of the experience gained by the International Council for the Exploration of the Sea.

It was decided that the next Meeting of the Committee should be held in September 1948, either at Oslo in connection with the Meeting of the International Union of Geodesy and Geo-Physics, or in Paris in connection with the Meeting of the International Congress of Zoology.

## COMMISSION SUR LES CONSTANTES PHYSICO-CHIMIQUES

*Membres:* (Chimie) P. Jolibois, F. Sugden, W. Swietolawski, J. Timmermans.

(Physique) A. Pérard, E. Bauer, E. U. Condon, Sir Charles Darwin.

La Commission a été fusionnée avec l'ancienne commission des Données Physico-Chimiques de l'Union de Chimie. Elle réunira tous les membres des deux anciennes Commissions, physiciens compris, sous la présidence de M. Swietolawski et avec Sir Charles Darwin comme vice-président.

## COMMISSION SUR LES RELATIONS ENTRE LES PHÉNOMÈNES SOLAIRES ET TERRESTRES

Après la décision prise en 1946 par l'Assemblée générale du Conseil international des Unions scientifiques, notre Commission, devenue Commission mixte des Unions internationales d'Astronomie, de Géodésie et de Géophysique, et Radio scientifique, n'a été définitivement reconstituée que vers la fin de l'année, les Unions intéressées ayant dû, au préalable, désigner les membres qui devaient les représenter.

Voici la liste de ces membres:

*Désignés par l'U.A.I.:* H. Deslandres (membre honoraire), C. G. Abbot, G. Abetti, L. d'Azambuja (Président provisoire), H. W. Newton, S. B. Nicholson, M. Waldmeier.

*Désignés par l'U.G.G.I.:* S. Chapman, J. A. Fleming, F. W. P. Götz, R. Jouaust, M. Nicolet, O. R. Wulf.

*Désignés par l'U.R.S.I.:* Sir Edward Appleton, R. Bureau, J. H. Dellinger, D. H. Menzel.

Deux tâches urgentes s'offraient à la Commission:

1. Reprendre la publication des rapports triennaux après le long intervalle dû aux circonstances de guerre.

2. En liaison avec les Commissions 10 et 11 de l'U.A.I., examiner la possibilité de mettre rapidement à jour et de développer la publication et

la diffusion des informations sur les phénomènes de l'activité solaire susceptibles d'intéresser les Géophysiciens.

6me *Rapport*. Le 5me Rapport avait été distribué en 1939. Les éléments du sixième ont été réunis à partir du début de cette année. Il n'a pu toutefois être donné à l'impression que très récemment, par suite, notamment, de la lenteur des communications postales avec certains pays, et ne sera prêt pour la publication que dans quelques semaines. Il comprendra, outre une introduction, 42 memoranda rédigés par les membres de la Commission ou par des chercheurs s'occupant des questions qui relèvent du domaine de celle-ci. Les memoranda ont été groupés sous les rubriques suivantes:

1. Étude des manifestations de l'activité du Soleil et analyse des divers rayonnements émis par celui-ci.
2. Généralités sur les relations entre le Soleil et la Terre.
3. Action du rayonnement électromagnétique sur la propagation des ondes radio-électriques.
4. Rayonnement corpusculaire et orages magnétiques.
5. Etude optique de la haute atmosphère terrestre. Aurores polaires.
6. Rayons cosmiques.
7. Centralisation et publication des documents sur le Soleil pouvant intéresser les Géophysiciens.

Dans le §1, plusieurs notes se rapportent au rayonnement solaire de fréquence radio-électrique (solar noises) récemment découvert. Ce même section contient aussi divers memoranda relatifs à l'influence de la couronne sur certains phénomènes terrestres, études rendues possibles par le développement de l'observation systématique, en dehors des éclipses, de cette partie de l'atmosphère de l'astre, à l'aide du procédé inauguré par B. Lyot. Enfin, dans les §§2 et 3, plusieurs memoranda sont consacrés aux méthodes d'exploration de l'ionosphère et à la connaissance de sa structure, auxquelles les nécessités de la guerre ont fait faire d'importants progrès.

Les frais de la publication du Rapport seront approximativement couverts par une subvention de $1040 accordée par l'U.N.E.S.C.O.

*Mise à jour et diffusion des informations sur l'activité solaire*. L'Assemblée restreinte de l'U.A.L., tenue à Copenhague en mars 1946, avait décidé de supprimer, dans le *Quarterly Bulletin on solar activity*, la publication des nombres caractéristiques de l'activité solaire, sauf ceux se rapportant aux taches (nombres de Wolf).* Par contre, elle avait recommandé, appuyée dans la suite par une motion du Congrès de l'U.R.S.I. (Paris, septembre 1946), que soient développées les informations sur des données nouvelles,

* Voir le texte complet des recommandations de Copenhague dans *The Fourth General Assembly of the I.C.S.U.* 22–24 July 1946, p. 58.

en introduisant notamment dans le Bulletin, à côté des listes d'éruptions chromosphériques, des renseignements sur l'intensité de la couronne, sur le rayonnement solaire de fréquence radio-électrique, etc.

La publication du *Quarterly Bulletin* avait été interrompue en 1942, par suite de la suspension des communications postales avec la plupart des pays auxquels appartenaient les observatoires participants, les dernières observations publiées étant celles de 1941. Après la guerre, un seul numéro a réuni les observations des trois années 1942, 1943 et 1944; il a été distribué vers le milieu de 1946. Les présidents des Commissions 10 et 11 de l'U.A.I. et le Directeur de l'Observatoire de Zurich, qui édite le Bulletin, se sont alors entendus pour que les nombres caractéristiques en soient supprimés à partir de 1944, année où s'est produit justement le minimum d'activité solaire. Un numéro de transition, contenant seulement les nombres de Wolf et les listes d'éruptions, réunirait les observations de 1945 et 1946. A partir de 1947, le Bulletin reprendrait sa périodicité trimestrielle et donnerait, sous une forme provisoire qui ferait ensuite l'objet d'une discussion au prochain Congrès de l'U.A.I., les intensités de la couronne, d'après les résultats obtenus à Arosa, à Climax, au Pic du Midi et au Wendelstein, et les caractères remarquables du rayonnement solaire de fréquence radio-électrique, à l'aide des observations du Laboratoire Cavendish, de l'Université de l'Australie occidentale et de l'Observatoire de Canberra. Il est clair que cette liste d'établissements n'est pas limitative et qu'un plus grand nombre de collaborations serait hautement désirable.

Le fascicule relatif aux années 1945 et 1946 va être distribué. Le premier fascicule de 1947 est en préparation et suivra le précédent à deux mois environ.

Notons qu'il existe déjà, par ailleurs, divers Bulletins nationaux d'information sur l'ionosphère, qui ont commencé à donner des renseignements sur l'activité solaire. Il y a lieu de citer, notamment, les *Ionospheric Data*, publiées par le National Bureau of Standards de Washington, le *Bulletin d'information du Laboratoire national de Radio-électricité* (*Bureau ionosphérique français*) et les *Observations ionosphériques et solaires*, publiées par les services de la Marine française.

L'Assemblée de Copenhague avait demandé également à la Commission 11 de l'U.A.I. 'd'étudier la question de la prédiction des phénomènes terrestres d'origine solaire et la détermination des zones d'activité sur le disque solaire'. En ce qui concerne les phénomènes terrestres mis en cause, il s'agissait d'abord des perturbations ionosphériques à début brusque, étroitement associées, comme l'on sait, aux éruptions chromo-

sphériques. On sait aussi que les éruptions se produisent à peu près toujours dans les régions du disque solaire où se trouvent des centres d'activité (taches, facules et plages faculaires) et pendant la phase de croissance de ces centres. Prédire l'apparition probable d'éruptions chromosphériques revenait donc à annoncer la formation de centres d'activité nouveaux. Pour être efficace, une telle annonce devait être transmise immédiatement ou, au plus tard, le lendemain de l'apparition des centres. Dans l'état actuel des transmissions d'observatoire à observatoire, elle ne pouvait donc dépendre de la coopération entre plusieurs établissements.

Le président de la Commission 11 a alors proposé au Directeur du Bureau ionosphérique français qui, depuis le 19 mai dernier, fait radiodiffuser chaque jour un message du type 'Ursigramme' relatif aux perturbations ionosphériques à début brusque, de joindre à ce message un Bulletin de renseignements sur l'activité solaire établi d'après les seules observations faites au spectrohéliographe et au spectrohélioscope de l'Observatoire de Meudon et comportant essentiellement, en code, des indications sur la position, l'âge et l'importance des centres d'activité présents sur le disque de l'astre. Le Bulletin serait complété, le cas échéant, par l'annonce de la disparition brusque de protuberances, que certains auteurs ont parfois associée à des perturbations du champ magnétique terrestre, par celle des éruptions chromosphériques relevées à Meudon et par des données sur l'intensité de la couronne, d'après les observations du Pic du Midi. La proposition ayant été acceptée, le nouveau service a commencé à fonctionner le 1$^{er}$ juin.

D'autre part, l'Observatoire d'Utrecht avait émis le vœu, en 1946, que les éruptions chromosphériques d'importance exceptionnelle, comme on en observe peut-être quatre ou cinq par an, en période d'activité, et qui paraissent particulièrement susceptibles de provoquer, avec un retard d'une trentaine d'heures, des orages magnétiques et autres phénomènes concomitants, soient signalées télégraphiquement par l'établissement qui les aurait observées au centre de Meudon, à charge pour celui-ci de faire retransmettre aussitôt l'information par radio-diffusion. Après arrangement avec le Bureau ionosphérique français, il a été convenu que le Bulletin sur l'activité solaire pourrait comporter aussi éventuellement, l'annonce d'une éruption exceptionnelle, signalée par télégramme à Meudon. L'ursigramme étant transmis à partir de 20 h. 06 m. (T.U.), la nouvelle pourrait ainsi être reçue dès la première nuit qui suivrait le phénomène.

Soulignons en terminant combien il serait désirable, pour obvier aux lacunes inévitables dans les renseignements fournis par la partie du

Bulletin qui s'appuie sur les résultats d'un seul Observatoire, que d'autres établissements, outillés pour l'observation des mêmes phénomènes solaires et convenablement répartis autour du Globe, établissent des messages similaires et les fassent transmettre par des organismes nationaux appropriés. A condition que l'unification des ursigrammes soit bien réalisée, un même géophysicien, recevant l'ensemble des messages, serait, dans beaucoup de cas, plus rapidement informé que si un établissement centralisateur avait au préalable collecté les renseignements qui lui auraient été envoyés pour les fondre en un ursigramme unique.

L'unification elle-même pourrait être utilement discutée dans les prochaines Assemblées des Unions intéressées, auxquelles il conviendrait que le plus grand nombre possible des membres de notre Commission pût se joindre.

## COMMISSION SUR LA RHÉOLOGIE

*Origin: present composition.* In 1932, at the meeting of the Executive Committee of the I.C.S.U. in London, Dr G. E. Hale, then president of the I.C.S.U., brought forward a proposal for the foundation of a Committee for 'Instruments and Methods of Research', with the purpose of accumulating data on the use of instruments and methods developed in special branches of science, in order to make them known elsewhere. Dr Hale at the same time stimulated the formation of national committees which might adhere to the international committee. Acting upon this suggestion, Professor H. R. Kruyt, of the Netherlands Academy of Sciences, considered that in particular the subject of *viscous and plastic deformation* would provide a theme that could bring together scientists from various domains of physics, chemistry and biology; and so in the end of 1932 a committee was formed in Holland by the Academy with the object: *to gather information concerning the phenomena of viscous and plastic deformation in physics, chemistry, technology and biology, and to investigate their relations: to make proposals for a nomenclature which should obviate existing uncertainties in denominations: to study methods of measurement, to interpret the meaning of the results given by various technical instruments and, where possible, to develop apparatus which should allow an unambiguous measurement of scientifically well defined quantities.* This committee originally consisted of eight members, gradually increased up to fourteen. Its meetings were devoted to the discussion of many aspects of viscous and plastic deformation, and it attempted to clarify views and conceptions by giving close attention to the underlying mechanical relations; summaries were given of existing theories for the explanation of the relevant properties of matter; a survey was made of the

data concerning the viscous behaviour of liquids and certain other classes of materials; methods of measurement were considered; attention was given to various biological problems in which viscous and plastic deformations play a part; questions of nomenclature were treated. A number of the papers read at the meetings have been collected in two *Reports on Viscosity and Plasticity*, published in English by the Amsterdam Academy, the first one in 1935 (reprinted 1939), and the second one in 1938. A symposium on plastic deformations of the interior and the crust of the earth was arranged in 1938. Further, a preliminary report on nomenclature has been prepared and was published in the Dutch language in 1941.

In view of the success of this undertaking, Professor Kruyt, who was president of the I.C.S.U. in 1945–6, at the meeting of the Executive Committee in December 1945, where projects were discussed for the restoration of international scientific co-operation, proposed the foundation of an *International Viscosity Committee*, which should be a joint committee, formed of representatives of various International Unions. Members were nominated during the course of 1946, and after the General Assembly of the Union of Physics in January 1947 the constitution of the joint committee was as follows:

*Representatives of I.G.G.U.:* Th. von Karman, Pasadena, provisionally acting as chairman; G. I. Taylor, Cambridge, England.

*Representatives of Intern. Union of Physics:* J. M. Burgers, Delft, G. W. Scott Blair, Reading.

*Representatives of Intern. Union of Chemistry:* Mme A. Dobry-Duclaux, Paris; R. Signer, Berne.

*Representatives of Intern. Union of Biological Sciences:* G. van Iterson, Jr., Delft; A. Frey Wyssling, Zürich; H. Eyring, Princeton; P. Eggleton, Edinburgh.

*Programme for work.* The general objects of the work of the Committee will be the same as those of the Netherlands committee mentioned above. The new International Committee will have its first meeting in London, during 8–10 September 1947, where a more definite programme will be established. It will be necessary, moreover, to consider in what way the International Committee can enter into connection with existing (national) organisations of rheologists. A correspondence between the British Rheologists' Club and the Netherlands Committee for Viscosity has led to a project for an international congress on viscosity and plasticity, to be organised in Holland in September 1948. Further, the Netherlands Committee will bring before the International Committee its preliminary

report on problems of nomenclature, as a basis for discussion; it may be useful to nominate a sub-committee for this subject, which can report at the proposed International Congress.

It will be desirable to extend the joint committee by the nomination of representatives from the International Union of Theoretical and Applied Mechanics.

## COMMISSION SUR LA RADIO-MÉTÉOROLOGIE

*Membres:* (U.G.G.I.) N. R. Hagen, A. Thomson, A. H. R. Goldie, A. Peslat; (U.R.S.L.) R. P. Lejay, J. Lugeon, H. G. Booker, C. R. Burrows (Président provisoire); (U.I.P.) A. Bowen.

Pas de rapport: la Commission ne s'est pas encore réunie.

## REPORT OF THE COMMITTEE ON SCIENCE AND ITS SOCIAL RELATIONS, JULY 1947

In response to the suggestion made at the General Assembly in 1946 the following members have been added to the Committee: Professor Bart J. Bok (U.S.A., nominated by the I.A.U.), Professor Rehberg (Denmark) and Professors Chu Ko-Chen and Wong Wan-hao (China). In view of the importance of the problems connected with nuclear energy a close connexion with the large group of atomic scientists is very desirable. It would be very helpful if an atomic physicist were added to the Committee, preferably an American so as to strengthen the representation of the U.S.A. on the Committee.

A close connection with U.N.E.S.C.O. is also of prime importance, as some of the data required by the Committee can only be obtained from official sources. M. Establier's membership of the Committee is valuable in this connection and we hope with his help to secure information from U.N.E.S.C.O. and in return to help U.N.E.S.C.O. with the data that we gather through scientific channels.

It is desirable to strengthen C.S.S.R. by developing a system of national correspondents (appointed by the national adhering bodies) and of specialist correspondents (appointed by the Unions) to cover countries and subjects not represented on the Committee and to help the Committee in securing the information it needs to carry out its functions. At this stage, when the influence of science on the life of society is becoming so

generally recognized and governments are increasingly calling on their men of science for help in solving their economic and social problems, it is of great importance to have a body which can report on the bearing of scientific developments on the life of the community and on the relations between science and the state in various countries.

In the latter connection C.S.S.R. is concerned both with the place of science and scientists in the government of a country and with the support that scientific research receives from government and other sources in each country. As to the former, C.S.S.R. might consider such questions as the new applications of science for relieving the shortage of food and materials or for fighting disease, but it must as a matter of greater urgency turn its attention first to the vital question of the international control of nuclear energy. Popularisation of the knowledge of the benefits that may accrue to mankind from nuclear energy as from other branches of scientific activity is important and useful, but it is still more important to rouse the peoples of the world to the dangers to humanity and civilisation lying behind the uncontrolled use of scientific developments, in the realm of nuclear energy and in certain other quarters.

The failure to secure agreement on international control has led to secrecy restrictions on certain scientific work and its publication being imposed by special legislation both in the U.S.A. and in Great Britain. The C.S.S.R. is preparing a factual report on this legislation and on the position in other countries, so far as information is available. The lack of progress towards the goals defined in the three resolutions passed by the General Assembly last year is very disappointing, and the whole weight of international science must be thrown into the scale on the side of co-operation and mutual understanding.

Another side of the secrecy problem in science arises from the restrictions imposed on their staffs by industrial firms. The general opinion seems to be that the progress of pure science is not much hampered by these restrictions. The legal and social consequences are best left for study to such bodies as the World Federation of Scientific Workers, the (British) Association of Scientific Workers and the American Federation of Scientists, all of which have been prominently active in the study of such problems.

Numerous other questions call for scientific study, but C.S.S.R. will probably do more useful work if it limits its activities to a few subjects of immediate interest at any one time, leaving U.N.E.S.C.O. to carry out the larger schemes such as the popularisation of science, which needs greater resources than are available to C.S.S.R.

The Committee will meet in London, 11–13 September 1947.

# Accord entre l'Organisation des Nations Unies pour l'Education, la Science et la Culture et le Conseil International des Unions Scientifiques

## Article I

*Reconnaissance mutuelle*

(*a*) L'Organisation des Nations Unies pour l'Education, la Science et la Culture reconnaît que les Unions scientifiques internationales constituent une forme naturelle et appropriée pour l'Organisation internationale de la Science, et que le Conseil international des Unions scientifiques est l'organisme compétent pour les représenter et coordonner leurs activités.

(*b*) Le Conseil international des Unions scientifiques reconnaît l'Organisation des Nations Unies pour l'Education, la Science et la Culture comme l'organisation principale des Nations Unies dans le domaine des relations scientifiques internationales et déclare accepter les principes inspirant la convention créant l'Organisation des Nations Unies pour l'Education, la Science et la Culture.

## Article II

*Liberté de l'information scientifique*

Le Conseil international des Unions scientifiques et l'Organisation des Nations Unies pour l'Education, la Science et la Culture favoriseront par tous les moyens possibles la plus grande liberté dans l'échange de renseignements scientifiques d'un pays à l'autre, conformément aux accords internationaux et à la législation intérieure de chaque Etat Membre, en vigueur dans ce domaine.

## Article III

*Consultation mutuelle*

L'Organisation des Nations Unies pour l'Education, la Science et la Culture et le Conseil international des Unions scientifiques se consulteront de façon régulière sur toutes questions relevant de leurs intérêts communs.

A cet effet, une ou plusieurs personnes pourront être nommées par le Conseil international des Unions scientifiques, pour assurer la liaison avec l'Organisation des Nations Unies pour l'Education, la Science et la Culture et représenter le Conseil et les Unions au siège de l'Organisation.

De même, un représentant de l'Organisation des Nations Unies pour l'Education, la Science et la Culture pourra assurer la liaison au siège du Conseil international des Unions scientifiques.

### Article IV

*Représentation réciproque*

(*a*) Un représentant de l'Organisation des Nations Unies pour l'Education, la Science et la Culture sera invité à assister en tant qu'observateur, à toutes les sessions plénières du Conseil international des Unions scientifiques et aux séances de son Comité exécutif.

(*b*) L'Organisation des Nations Unies pour l'Education, la Science et la Culture invitera le Conseil international des Unions scientifiques à être représentée par un observateur à sa Conférence générale.

(*c*) L'Organisation des Nations Unies pour l'Education, la Science et la Culture peut, en outre, inviter le Conseil international des Unions scientifiques ou les Unions qui le constituent à être représentés, de façon adéquate, dans les Comités consultatifs établis par sa Conférence générale et s'occupant de questions relevant de la compétence du Conseil et des Unions.

### Article V

*Échange d'information*

Sous réserve des mesures qui peuvent s'avérer nécessaires à la sauvegarde des documents confidentiels, l'Organisation des Nations Unies pour l'Education, la Science et la Culture et le Conseil international des Unions scientifiques échangeront tous les renseignements ou tous les documents portant sur les questions qui les intéressent l'un et l'autre.

### Article VI

*Facilités de déplacements*

L'Organisation des Nations Unies pour l'Education, la Science et la Culture s'efforcera, soit directement, soit par l'intermédiaire des Etats Membres, de faciliter le passage des frontières au personnel scientifique se rendant aux conférences ou aux réunions organisées sous les auspices des Unions ou de commissions mixtes nommées par les Unions.

## Article VII

*Invitation à entreprendre des tâches déterminées*

Lorsque cela apparaîtra désirable, l'Organisation des Nations Unies pour l'Education, la Science et la Culture pourra inviter le Conseil international des Unions scientifiques ou telle des Unions qui le composent, à entreprendre en son nom des tâches déterminées. S'il est nécessaire, une aide financière pourra être fournie.

## Article VIII

*Aide financière*

En accord avec ses principes généraux et dans les limites du budget approuvé par sa Conférence Générale, le Conseil exécutif de l'Organisation des Nations Unies pour l'Education, la Science et la Culture examinera, à la demande du Conseil international des Unions scientifiques, la possibilité d'accorder l'aide financière nécessaire pour permettre à celui-ci de mener à bien son programme.

Pareille aide financière peut être envisagée dans les principaux cas suivants:

(*a*) Contribution au financement de projets internationaux envisagés ou en cours d'exécution, à condition que la portée et le caractère international de ces projets justifient une telle aide. En pareil cas la responsabilité scientifique et technique de ces projets resterait aux mains des Unions, mais l'Organisation des Nations Unies pour l'Education, la Science et la Culture serait représentée au sein du Comité ou de la Commission mixte responsable.

(*b*) Aide au Conseil international des Unions scientifiques et aux Unions qui le composent en matière de bureaux, secrétariat, organisation de réunions, documentation, etc.

## Article IX

*Durée du présent accord*

(*a*) Sous réserve des stipulations du paragraphe (*c*) ci-dessous, le présent Accord est conclu pour une période illimitée, mais chaque signataire se réserve le droit de le dénoncer, en donnant un préavis de douze mois, à dater du premier janvier de chaque année. Dans le cas d'une telle dénonciation, les deux organisations se mettront d'accord sur les conditions fixant la façon dont devra se terminer ou se poursuivre tout projet commun.

(*b*) Le présent Accord entrera en vigueur, une fois qu'il aura été approuvé par l'organe compétent de chaque organisation, dès qu'il aura été signé

par le Secrétaire Général du Conseil international des Unions scientifiques et par le Directeur Général de l'Organisation des Nations Unies pour l'Education, la Science et la Culture.

(*c*) A la fin de chaque année et, pour la première fois en décembre 1947, cet Accord sera réexaminé à la lumière de l'expérience acquise. Les modifications qui auront été décidées d'un commun accord entreront immédiatement en vigueur, sous réserve de leur approbation ultérieure par l'organe compétent de chaque Organisation.

# Agreement between the United Nations Educational, Scientific and Cultural Organisation and the International Council of Scientific Unions

## Article I

*Mutual Recognition*

(*a*) The United Nations Educational, Scientific and Cultural Organisation recognises the International Scientific Unions as providing a natural and appropriate form for the international organisation of science, and the International Council of Scientific Unions as their co-ordinating and representative body.

(*b*) The International Council of Scientific Unions recognises the United Nations Educational, Scientific and Cultural Organisation as the principal agency of the United Nations in the field of international scientific relations, and declares its acceptance of the principles underlying the constitution of the United Nations Educational, Scientific and Cultural Organisation.

## Article II

*Freedom of Scientific Information*

The International Council of Scientific Unions and the United Nations Educational, Scientific and Cultural Organisation will further by all possible means the greatest possible freedom in the exchange of scientific information across frontiers, in accordance with any international agreements and domestic law governing such exchange.

## Article III

*Mutual Consideration*

The United Nations Educational, Scientific and Cultural Organisation and the International Council of Scientific Unions will arrange for permanent consultation on all matters coming within the realm of their common interests.

To this effect, one or more liaison officers may be appointed by the International Council of Scientific Unions to represent that body and the Unions at the headquarters of the United Nations Educational, Scientific and Cultural Organisation. Similarly, a liaison officer may be appointed by the United Nations Educational, Scientific and Cultural Organisation to the International Council of Scientific Unions' headquarters.

## Article IV

*Reciprocal Representation*

(*a*) A representative of the United Nations Educational, Scientific and Cultural Organisation will be invited to attend, as an observer, all plenary sessions of the International Council of Scientific Unions and meetings of its Executive Committee.

(*b*) The United Nations Educational, Scientific and Cultural Organisation will invite the International Council of Scientific Unions to be represented by an observer at its General Conference.

(*c*) The United Nations Educational, Scientific and Cultural Organisation may further invite the International Council of Scientific Unions or its component Unions to be represented in an adequate way on advisory committees set up by its General Conference to deal with matters falling within their field of competence.

## Article V

*Exchange of Information*

Subject to measures that may be necessary to safeguard confidential documents, the United Nations Educational, Scientific and Cultural Organisation and the International Council of Scientific Unions will exchange all information or documents bearing on matters in which they are both concerned.

## Article VI

*Travel Facilities*

The United Nations, Educational, Scientific and Cultural Organisation will endeavour to facilitate, either directly or through its States Members, the movement across frontiers of scientific persons attending conferences of symposia held under the auspices of the Unions or Joint Commissions appointed by the Unions.

## Article VII

*Invitation to undertake specific tasks*

The United Nations Educational, Scientific and Cultural Organisation may, whenever desirable, invite the International Council of Scientific Unions, or one of its component Unions, to undertake specific tasks on its behalf. Where necessary, financial support may be made available.

## Article VIII

*Financial Support*

In line with its general policies and within the framework of the budget approved by its General Conference, the Executive Board of the United Nations Educational, Scientific and Cultural Organisation will, at the request of the International Council of Scientific Unions, consider granting such financial support as may be required to enable the International Council of Scientific Unions to develop its programme adequately. Such financial support may be considered for the following main purposes:

(*a*) Contributions towards the financing of international projects already established or to be undertaken by the Unions, provided their scope and international significance justify such support; in these cases, the scientific and technical control of the projects would remain with the Unions, but the United Nations Educational, Scientific and Cultural Organisation would be represented on whatever commission or joint commission controls the project.

(*b*) Assistance to the International Council of Scientific Unions and its component Unions in the form of provision of office space, secretarial services, arrangements for meetings, documentation, etc.

## Article IX

*Duration of this Agreement*

(*a*) Subject to the provisions of paragraph (*c*) below, the present agreement is concluded for an unlimited period, but each party reserves the right to terminate it, at twelve months' notice, as from the first of January in any year. In the event of such termination, the two bodies shall agree on the conditions under which any joint projects shall be terminated or carried on.

(*b*) The present agreement shall come into force, after approval by the competent bodies of both parties, as soon as it has been signed by the General Secretary of the International Council of Scientific Unions and

the Director General of the United Nations Educational, Scientific and Cultural Organisation.

(*c*) At the end of each calendar year, and for the first time in December 1947, this agreement will be re-examined, in the light of the experience gained. Alterations decided upon by mutual agreement will come into force immediately pending subsequent approval by the competent bodies of both parties.

# STATUTS ET RÈGLEMENTS DE L'UNION INTERNATIONALE DE GÉODÉSIE ET GÉOPHYSIQUE

## I. Objets et composition de l'Union

1. Les buts de l'Union sont:

(*a*) Favoriser l'étude des problèmes concernant la figure de la terre et la physique du globe.

(*b*) Provoquer, aider, et coordonner les recherches et études de Géodésie et de Géophysique qui nécessitent une coopération internationale.

(*c*) En assurer la discussion, la comparaison et la publication.

2. L'Union groupe un certain nombre d'Associations internationales, chacune d'elles concernant une discipline particulière de la Géodésie et de la Géophysique.

3. L'Union adhère au Conseil International des Unions Scientifiques et désigne deux membres qui font partie du Comité Exécutif de ce Conseil.

4. Tout pays (en comprenant sous ce vocable tout territoire dans lequel une activité géodésique ou géophysique indépendante s'est developpée) peut adhérer a l'Union à condition de prendre une part convenable à son entretien. L'organisme adhérent peut être le Gouvernement ou l'Académie des Sciences de ce pays, ou tout autre organisme ou service représentant les sciences considérées.

## II. Administration

5. L'autorité finale à l'intérieur de l'Union émane des pays adhérents. Elle est exercée collectivement par les délégués de ces pays réunis en Assemblée Générale.

6. *L'Assemblée Générale* élit le Président, les Vice-Présidents et le Secrétaire général de l'Union.

7. *Le Bureau* de l'Union est constitué par le Président et le Secrétaire général. Sa mission est de diriger les affaires de l'Union en accord avec les décisions prises au cours des précédentes Assemblées Générales.

8. *Le Comité exécutif de l'Union* est constitué par le Bureau, les Vice-Présidents, le Président sortant de l'Union et les Présidents des Associations internationales. Il doit remplir les missions qui lui sont assignées par l'Assemblée Générale.

9. *Le Conseil de l'Union* est constitué par le Bureau de l'Union et par des Délégués désignés à raison de un par pays adhérent et chargés de voter pour ce pays. Les fonctions de Président et de Secrétaire du Conseil sont remplies respectivement par le Président et le Secrétaire général de l'Union. Le rôle du Conseil est d'étudier les questions administratives et financières et de présenter à leur sujet un rapport à l'Assemblée Générale.

10. Dans le cadre des présents Statuts les Associations internationales peuvent établir leur propre Règlement et assurer leur propre administration et la gestion de leurs finances.

## III. Finances

11. *La Commission des Finances* est élue par le Conseil de l'Union et lui rend compte de ses travaux. Elle comprend 5 Membres qui ne peuvent être choisis parmi les Présidents, les Vice-Présidents ou Secrétaires de l'Union ou des Associations. Son rôle est d'examiner en détail les dépenses de toute nature engagées par l'Union et les Associations.

12. Les pays adhérents à l'Union sont répartis en 8 catégories numérotées de 1 à 8. Chaque pays adhérent paye annuellement un nombre d'unités de souscription égal au numéro de sa catégorie. Un pays désireux d'adhérer à l'Union doit spécifier dans quelle catégorie il propose d'être classé. Sa demande d'adhésion peut être refusée par le Conseil de l'Union si la catégorie choisie est jugée manifestement inadéquate.

13. L'unité de souscription ne dépassera pas 150 Livres sterling.

14. L'année financière est l'année civile. Si, en fin d'année, un pays n'a pas payé sa cotisation, le service gratuit des publications de l'Union pourra lui être suspendu. Quand un pays n'a pas payé ses cotisations pendant trois années consécutives, il cesse de faire partie de l'Union. Tout pays qui se retire de l'Union ou cesse d'en faire partie perd ses droits à l'actif de l'Union.

## IV. Droit de Vote

15. Pour toute question scientifique chaque Délégué présent a une voix.

16. Pour les questions d'ordre administratif, ou à la fois administratif et scientifique, mais sans incidence financière, le vote se fait par pays, chaque pays ayant une voix, sous la condition que ce pays ait payé ses cotisations jusqu'à la fin de l'année qui précède le vote.

17. Pour toutes les questions financières le vote se fait également par pays, sous la même condition que pour les questions d'ordre administratif. Le nombre de voix attribué à chaque pays est égal au numéro de sa catégorie augmenté d'une unité.

18. S'il y a doute sur la catégorie dans laquelle doit être rangée une question ou s'il y a égalité de votes sur une question, la décision appartient au Président de la séance.

19. Un même Délégué ne peut représenter plus de deux pays à la fois. Un pays adhérent, non représenté à l'Assemblée Générale par son propre Délégué peut voter par correspondance sur toute question bien précisée par l'Ordre du Jour.

### V. Généralités

20. Il est recommandé que chaque organisme adhérent fasse assurer le paiement régulier de ses cotisations par les voies qui lui paraîtront les mieux appropriées.

21. Les présents Statuts sont valables pour 12 années et pour des périodes successives de 12 ans.

22. Les articles des présents Statuts ne peuvent être modifiés qu'à la majorité des deux tiers des votes exprimés à l'Assemblée Générale par les Délégués ou transmis par correspondance, sous réserve que le nombre total des votes émis en faveur de la modification proposée ne soit pas inférieur à la moitié du nombre des pays adhérents.

23. Les propositions formulées par un pays adhérent en vue de la modification d'un article des présents Statuts doivent parvenir au Secrétaire général au moins six mois avant la date de l'Assemblée Générale au cours de laquelle elles seront examinées. Le Secrétaire général devra faire connaître à tous les pays adhérents au moins quatre mois avant l'Assemblée Générale, toutes les propositions qu'il aura reçues à cet effet.

24. Dans le cadre des présents Statuts les Assemblées Générales peuvent adopter un *Règlement intérieur* qui peut être modifié à la simple majorité des voix exprimées à une Assemblée Générale, par vote direct ou par correspondance.

25. Le texte français servira exclusivement pour l'interprétation à donner aux Statuts.

## RÈGLEMENT INTÉRIEUR

### I. Généralités

1. (*a*) Les personnes ayant dans l'Union ou les Associations une charge particulière du fait des présentes dispositions, ou qui sont designées pour

des Commissions spéciales, ont la possibilité de choisir des suppléants pour les représenter, à condition d'en aviser par écrit le Bureau intéressé. Chaque suppléant désigné ne pourra représenter qu'une seule personne.

(*b*) Toute Commission nommée par l'Union peut former elle-même les Sous-Commissions qui lui paraissent nécessaires.

(*c*) Le terme 'Période' désigne l'intervalle de temps entre les clôtures de deux Assemblées Générales ordinaires successives.

## II. Composition de l'Union, Adhésions

2. L'Union est constituée par les Associations suivantes:

Association internationale de Géodésie
Séismologie
Météorologie
Magnetisme et Electricité terrestres
Océanographie physique
Volcanologie
Hydrologie scientifique.

3. Le Président et le Secrétaire général représentent l'Union dans le Comité Exécutif du Conseil International des Unions Scientifiques.

4. Chaque pays adhérent est invité à former un Comité national de Géodésie et Géophysique auquel pourra être adressée la correspondance concernant les questions d'ordre scientifique.

## III. Administration

5. (*a*) Les décisions ou les mesures prises par le Bureau, le Conseil ou les Commissions de l'Union ou par un de leurs membres individuellement au cours des Assemblées générales ou dans leurs intervalles restent en principe soumises à ratification par l'Assemblée Générale.

(*b*) Le Secrétaire général transmettra notification aux pays adhérents au moins 6 mois à l'avance de la date de la prochaine Assemblée Générale. Toutes propositions concernant les questions à inscrire à l'ordre du jour devront parvenir au Secrétaire général au moins trois mois à l'avance. Une question non inscrite à l'ordre du jour, ne pourra être soumise à la discussion qu'après un vote de l'Assemblée pris à la majorité des deux tiers des pays representés.

(*c*) Le Président de l'Union peut, de sa propre initiative, ou à la demande du Président d'une Association ou d'un Comité national, inviter à assister aux séances de l'Assemblée Générale certaines personnes, soit à titre personnel soit à titre de représentant d'une organisation scientifique. Les personnes invitées ne participent pas aux votes.

(*d*) Les Assemblées Générales se réunissent normalement tous les trois ans. Toutefois, une Assemblée Générale extraordinaire peut être convoquée à un moment quelconque à la demande du Comité exécutif. Une Assemblée Générale extraordinaire a les mêmes pouvoirs et reste soumise aux mêmes règles qu'une Assemblée Générale ordinaire.

6. Le Président de l'Union est élu pour une période, il est rééligible une seule fois pour le période suivante.

Les Vice-Présidents sont normalement au nombre de deux. Ils sont également élus pour une période et rééligibles une seule fois pour la période suivante.

Le Secrétaire général est élu initialement pour deux périodes et rééligible par périodes successives.

7. *Le Bureau* est chargé de préparer les programmes des Assemblées Générales. Le Président et le Secrétaire général ont l'un et l'autre les pouvoirs nécessaires pour signer en matière financière ou autre au nom de l'Union.

Le Secrétaire général expédie les affaires courantes et la correspondance, assure la conservation des archives, prend les dispositions préliminaires en vue des Assemblées Générales en collaboration avec les Comités locaux, recueille les souscriptions et gère les fonds de l'Union. A la fin de l'année civile précédant une Assemblée Générale, il rassemble, imprime et distribue aux pays adhérents, les comptes de l'Union et des Associations.

8. Le *Comité exécutif:*

(*a*) Examine les demandes d'adhésion ou de réadhésion et établit à leur sujet un rapport au Conseil de l'Union.

(*b*) Informe le Bureau s'il lui paraît nécessaire de réunir une Assemblée Générale extraordinaire.

(*c*) Comble toute vacance qui pourrait survenir dans l'Union dans l'intervalle des Assemblées Générales parmi les personnes qui tiennent dans l'Union une charge quelle qu'elle soit. De telles désignations restent soumises en principe à la ratification ultérieure de l'Assemblée Générale qui suit immédiatement. En ce cas la période d'exercise ne sera présumée commencer que lorsque cette approbation aura été donnée.

(*d*) Étudie et dresse le budget pour la période suivante et rend compte de ses conclusions au Conseil.

(*e*) Présente des propositions pour la répartition des fonds.

(*f*) Présente des propositions sur les questions de politique générale de l'Union soit au Conseil soit à l'Assemblée Générale, selon leur nature.

Le Président d'une Association peut inviter le Secrétaire de cette Association à assister à une réunion du Comité exécutif de l'Union, à titre consultatif.

9. Le *Conseil:*

(*a*) Se réunit normalement au début, et, si c'est nécessaire, au cours de chaque Assemblée Générale. Il peut être convoqué entre deux Assemblées Générales.

(*b*) Étudie les questions d'ordre administratif et financier et en rend compte à l'Assemblée Générale.

(*c*) Désigne la Commission des Finances et lui fixe des missions déterminées.

(*d*) Examine les propositions d'allocations et de subventions.

(*e*) Étudie le montant de l'unité de souscription pour la période suivante.

(*f*) Examine en vue d'en référer à l'Assemblée générale en temps voulu la limite supérieure à adopter pour l'unité de souscription, ainsi que les conditions d'adhésion à l'Union.

(*g*) Désigne les Commissions qui, le cas échéant, peuvent être jugées nécessaires pour l'étude de certains points d'administration dans les affaires de l'Union, des Associations et de leurs diverses activités.

(*h*) Étudie les propositions de modification des Statuts ou du Règlement intérieur et établit un Rapport général à ce sujet pour l'Assemblée Générale.

10. Les Associations tiennent obligatoirement leurs Assemblées Générales en même temps que l'Union. Elles peuvent, avec l'accord préalable du Comité exécutif de l'Union, organiser des réunions particulières à d'autres moments.

## IV. Finances

11. La Commission des Finances élit son propre Président et son Secrétaire et peut inviter des Membres du Bureau à assister à ses réunions. Elle examine, pour en rendre compte au Conseil, les dépenses de l'Union, des Associations et autres entreprises de l'Union, telles qu'elles ressortent des comptes, en se basant sur la ligne de conduite prescrite par l'Assemblée Générale. La Commission doit avoir pour cela à sa disposition les comptes pour la période précédente de l'Union, des Associations, et de tous les organismes subventionnés. Elle peut demander des explications complémentaires aux personnes intéressées. Tout compte doit être certifié par un comptable qualifié.

12. Certaines dépenses de voyage peuvent être remboursées par le Secrétaire général, lorsque sont satisfaites simultanément les trois conditions suivantes: (*a*) réunions concernant spécifiquement l'Union; (*b*) personnes intéressées représentant l'Union et non un pays adherent; (*c*) remboursement ne pouvant être obtenu dans le pays d'origine de l'intéressé.

Ces remboursements sont destinées à couvrir les frais de voyage et une partie raisonnable des frais de séjour pendant les réunions.

# UNION INTERNATIONALE DES SCIENCES BIOLOGIQUES

## STATUTS

### I. Objet de l'Union et conditions d'admission

*Article* 1. L'Union internationale des Sciences biologiques a pour objet de faire progresser l'étude des différentes branches de la Biologie, pure et appliquée, notamment:

(*a*) en provoquant et organisant des recherches que la coopération de plusieurs Pays peut faciliter;

(*b*) en aidant a la discussion scientifique et à la publication des résultats de ces recherches;

(*c*) en facilitant l'établissement et le perfectionnement d'instituts de recherches accessibles aux travailleurs de toutes nationalités;

(*d*) en favorisant l'organisation de Congrès internationaux et d'excursions scientifiques internationales;

(*e*) en facilitant la préparation et la publication des comptes-rendus de ces Congrès et de recueils de documentation.

*Article* 2. Un Pays qui le désire peut adhérer à l'Union par un Comité national. L'adhésion à une Section ou une sous-Section de l'Union est prévue dans le réglement de chaque Section.

*Article* 3. L'Union est affiliée au Conseil International des Unions Scientifiques; elle s'efforcera de coopérer avec les autres Unions scientifiques, qui font partie de ce Conseil.

### II. Comités nationaux

*Article* 4. Sont considérés comme Comités Nationaux mentionnés à l'article 2 les Comités nationaux de Biologie, les Conseils nationaux de Recherches, toutes autres Institutions ou Groupements d'institutions nationales similaires ou, à leur défaut, et pour un terme maximum de 6 ans, les délégués d'un Gouvernement.

*Article* 5. Les Comités nationaux, soit seuls, soit de concert avec un ou plusieurs de ces Comités, ont le droit de soumettre à l'Union des questions à discuter rentrant dans la compétence de celle-ci. Les Comités nationaux désignent les délégués chargés de les représenter aux Assemblées de l'Union. Le nombre des délégués par Pays n'excédera pas trois.

## III. Administration de l'Union

*Article* 6. Les travaux de l'Union sont dirigés par l'Assemblée générale sous le contrôle d'un Bureau et d'un Comité exécutif.

*Article* 7. Le Bureau de l'Union se compose d'un Président, d'un Vice-Président, d'un Secrétaire général, d'un Secrétaire et d'un Trésorier élus par l'Assemblée générale ordinaire. Un membre au moins du Bureau doit être domicilié hors d'Europe.

Le mandat des membres du Bureau expire à la fin de chaque Assemblée générale ordinaire.

Le Président et le Vice-Président sont rééligibles pour une fois, le Secrétaire-Général et le Trésorier sont rééligibles à plusieurs reprises.

Le Bureau se réunit en principe une fois par an, de préférence à Paris au mois d'octobre.

*Article* 8. Le Comité exécutif se compose des membres du Bureau, auxquels sont adjoints deux délégués pour chacune des sections et désignés par celles-ci.

Le Comité exécutif se réunit, en principe, avant et après chaque Assemblée générale.

## IV. Sections

*Article* 9. L'Union se compose d'un nombre indéterminé de Sections spécialisées.

La création de nouvelles Sections devra être ratifiée par le Comité Exécutif.

*Article* 10. Chaque Section élit son Président, son Vice-Président et son Secrétaire-Trésorier et les autres Membres de son Bureau selon son règlement d'ordre intérieur.

*Article* 11. Les Sections sont tenues de fournir un rapport annuel au Comité Exécutif, chaque année avant le 1er mars et à l'Assemblée générale un Compte-Rendu de leur activité scientifique au cours de la période écoulée depuis la précédente Assemblée générale. Ces Comptes-Rendus devront être remis au Secrétaire général deux mois, au moins, avant la nouvelle Assemblée.

## V. Assemblées

*Article* 12. L'Union se réunit, en principe, tous les trois ans en Assemblée générale ordinaire. Si l'époque et le lieu n'ont pas été arrêtés par l'Assemblée générale précédente, ils sont fixés par le Bureau et communiqués six mois au moins à l'avance, aux organismes adhérents, comme aussi aux Sections.

Chaque Section tient une séance ordinaire au cours de l'Assemblée générale et peut également le faire en toute autre circonstance.

*Article* 13. Dans des cas spéciaux, le Président peut, avec le consentement du Bureau, convoquer une Assemblée générale extraordinaire. Il est tenu de le faire à la demande d'un tiers des Pays adhérents.

*Article* 14. Tous les Membres des Comités nationaux et tous les membres des Sections peuvent assister aux réunions de l'Assemblée générale et prendre part aux discussions, mais seulement avec voix consultatives.

*Article* 15. L'ordre du jour d'une session est fixé par le Bureau et communiqué au moins six mois avant l'ouverture de cette session. Toute question ne figurant pas à l'ordre du jour n'est prise en considération qu'avec l'assentiment préalable des deux tiers au moins des voix des Pays représentés à l'Assemblée générale.

## VI. Budget et droit de vote

*Article* 16. Le Bureau prépare un budget de prévision pour la période comprise entre les deux sessions. L'Assemblée générale nomme des vérificateurs des comptes et procède a l'étude du budget.

A la suite de cet examen financier, l'Union fixe le taux de la part contributive unitaire à payer les Comités nationaux, selon les propositions faites par le Bureau six mois au moins à l'avance.

La cotisation due par un Pays est réglée comme suit:

| Population du Pays | Nombre de parts contributives |
|---|---|
| Moins de 5 millions | 1 |
| Entre 5 et 10 millions | 2 |
| Entre 10 et 15 millions | 3 |
| Entre 15 et 20 millions | 5 |
| Plus de 20 millions | 8 |

Les Comités nationaux qui n'auraient pas payé leur cotisation pendant trois années consécutives seront considérés, sur notification préalable du Trésorier, comme démissionnaires, les trois annuités arriérées étant exigibles.

*Article* 17. Les ressources provenant de dons sont utilisées par l'Union, ou par ses Sections, en tenant compte des désirs exprimés par les Donateurs. A leur défaut, elles iront a la caisse générale de l'Union ou de la Section interessée.

*Article* 18. En Assemblée générale ou en séance de Section, les résolutions concernant les questions d'ordre scientifique sont prises à la majorité des voix présentes. Pour les questions d'ordre administratif et pour les questions mixtes, le vote a lieu par Etat, chaque Etat ayant une voix.

S'il y a doute sur la catégorie dans laquelle doit être rangée une question à discuter, le Président décide. En toutes circonstances, s'il y a égalité de voix, celle du Président est prépondérante.

*Article* 19. Pour les questions d'ordre administratif figurant a l'ordre du jour, un Pays qui n'est pas représenté peut envoyer par écrit son vote au Président.

## VII. Règlements intérieurs

*Article* 20. L'Assemblée générale peut édicter des règlements intérieurs concernant, soit la conduite des travaux, soit les devoirs généraux qui incombent aux membres du Bureau de l'Union, soit, en général, tous objets non prévus par les Statuts.

De même, chaque Section peut élaborer des règlements pour la conduite de ses propres travaux et de son administration intérieure. Aucun d'eux ne peut contenir de dispositions contraires aux termes des présents Statuts.

## VIII. Durée des Statuts et modifications

*Article* 21. Les présents Statuts sont valables jusqu'au 31 décembre 1959. Après cette date ils seront remis en vigueur pour une période de douze ans, avec l'assentiment des Pays adhérents.

*Article* 22. Aucun changement ne sera apporté aux termes des présents Statuts sans l'approbation des deux tiers des voix des Pays adhérents.

*Article* 23. Le présent texte français servira exclusivement pour l'interprétation à donner aux articles des Statuts.

# International Union of Crystallography

## STATUTES

### I. Objects of the Union

1. The objects of the Union are:

(*a*) To promote international co-operation in crystallography.

(*b*) To promote international publication of crystallographic research and of crystallographic works.

(*c*) To facilitate standardisation of methods and of units in crystallography.

(*d*) To form a focus for the relations of crystallography to other sciences.

2. The Union is a member of the International Council of Scientific Unions.

### II. Membership

3. A country adheres to the Union through a National Committee duly recognized by the General Assembly. Each National Committee represents Crystallography in its own country.

4. The term 'country' shall be understood to include Dominions, Colonies, Protectorates and any dependencies which budget independently for scientific purposes.

5. Each country may adhere to the Union in any one of eight Groups I–VIII with corresponding voting powers and contributions as set out in paragraphs 8 and 10.

6. A country may select different Groups for general purposes and for individual special projects. The National Committee of each country shall inform the General Secretary at the beginning of each General Assembly of the Group, or Groups, adopted for the period to the next General Assembly.

### III. Administration

7. The work of the Union shall be directed by the General Assembly of delegates appointed by the National Committees.

8. Voting at General Assemblies shall be by countries, which shall have votes in accordance with the Group in which they adhere, as follows:

| Group | I–III | IV–VI | VII, VIII |
|---|---|---|---|
| Number of votes | 1 | 3 | 5 |

The National Committee of each country shall make known to the President the names of the delegates appointed to vote on behalf of that country.

Any adhering country not represented may forward its votes to the President by post, and such votes shall be valid if received before the votes are counted.

9. The General Assembly may formulate By-Laws on any matters not covered by these Statutes.

## IV. Finance

10. Each adhering country shall pay an annual subscription in accordance with the Group in which it adheres, as follows:

| Group | I | II | III | IV | V | VI | VII | VIII |
|---|---|---|---|---|---|---|---|---|
| Number of unit contributions | 1 | 2 | 3 | 5 | 7 | 9 | 12 | 15 |

11. The unit contribution shall be quoted in gold weight.

12. The financing of special projects of the Union may be kept distinct from General Expenditure, and a country adhering to the Union shall be pledged only for the General Contribution.

13. The National Committee shall be responsible for the payment of annual subscriptions according to the Groups adopted. These subscriptions shall be paid during the calendar year to which they apply.

14. Any country which is in arrears with its contribution for two years shall be warned and shall be deprived of its voting power. Any country which is in arrears for four years shall cease to be a member of the Union.

15. In the event of dissolution of the Union its funds shall be made over to scientific organisations nearest in their aims to those of the Union.

## V. Statutes

16. Changes in the Statutes may be proposed by the Executive Committee of the Union or by any of the National Committees. Notice of such proposed changes shall reach the General Secretary at least three months before a General Assembly. No change shall be made in the Statutes except at a General Assembly and with the approval of two-thirds of the votes of the adhering organizations.

## VI. Duration of the Union

17. The duration of the Union is not limited.

18. The Union shall not be dissolved except at a General Assembly and with the approval of two-thirds of the votes of the adhering organisations.

## VII. Authoritative Text

19. The present English text of the Statutes shall be considered the authoritative one.

# BY-LAWS

## I. Administration

1. The General Assembly shall normally meet every three years. If the date and place of the meeting have not been previously decided they shall be determined by the Executive Committee and notice shall be despatched to adhering organisations at least six months in advance.

2. Commissions and National Committees of the Union may propose business to be transacted at General Assemblies. Such proposals shall reach the General Secretary at least fourteen weeks before the meeting.

3. The agenda of business to be transacted at General Assemblies shall be determined by the Executive Committee and shall be despatched to adhering organisations at least ten weeks before the meeting. No question which has not been placed on the agenda shall be discussed or put to the vote unless a proposal to that effect be approved by a majority of the votes of adhering organisations represented at the meeting.

4. The President may invite any scientist to an ordinary meeting of the General Assembly. Such invited guests may take part in the discussions but shall have no power of voting.

5. The General Assembly shall
   (*a*) give recognition to the National Committees;
   (*b*) elect the Officers of the Union;
   (*c*) elect two members of the Finance Committee;
   (*d*) elect Commissions of the Union and determine their terms of reference;
   (*e*) determine the projects which shall be financed independently of general expenditure;
   (*f*) receive reports on the activities of the Union and of its Commissions;
   (*g*) receive the budget and determine the unit contribution for general expenditure and for special projects;
   (*h*) determine the general policy and the time-table for the period to the next General Assembly.

6. The Officers elected by the General Assembly are:
   (*a*) the President;
   (*b*) two Vice-Presidents;
   (*c*) the General Secretary;

(*d*) two representatives of the Union on the International Council of Scientific Unions;
(*e*) the Chairmen of Commissions of the Union;
(*f*) a representative of the Union from each Joint Commission with other Unions.

These Officers are referred to as the Officers of the Union and constitute its Executive Committee. They hold office until the close of the ordinary General Assembly following that of their election. The President and Vice-Presidents are not eligible for re-election to the same office. Other Officers are immediately eligible for re-election.

7. The Executive Committee may fill by co-optation any vacancy occurring in its body. Any persons appointed shall hold office until the close of the next ordinary General Assembly.

8. Any officer unable to attend meetings of the Executive Committee may delegate his powers, including his vote, to a deputy duly nominated by him in writing.

9. The Executive Committee shall present an annual report to each National Committee and shall also report on its activities to the General Assembly. The report to the General Assembly shall be despatched by the General Secretary to National Committees at least ten weeks before the meeting.

10. The President, on the advice of his fellow Officers, may call Extraordinary General Assemblies; he shall call such Assemblies at the request of not less than half of the adhering organizations.

11. The agenda of business to be transacted at Extraordinary General Assemblies shall be determined by the Executive Committee and shall be despatched to adhering organizations at least four months before the meeting. No question which has not been placed on the agenda shall be discussed or put to the vote unless a proposal to that effect be approved by a majority of the votes of adhering organisations represented at the meeting.

## II. President

12. The President is Chairman of the General Assembly and of the Executive Committee. He is the legal representative of the Union and its supreme representative in dealing with other bodies. He is an ex-officio member of all Commissions of the Union.

13. The President, with the approval of the Executive Committee, may delegate specified parts of his powers and duties to other members of the Executive Committee.

## III. General Secretary

14. The General Secretary is responsible for conducting the ordinary business of the Union and for keeping its records. He is an ex-officio member of the Finance Committee and of all Commissions of the Union.

## IV. Commissions of the Union

15. The Commissions of the Union established by the General Assembly may co-opt further members and shall generally have full freedom in arranging their internal structure and work. They may formulate their own Statutes and By-Laws within the framework of the Statutes and By-Laws of the Union. If special funds are provided for their use they may make their own financial arrangements, subject to the approval of the Finance Committee.

16. The Chairman, or in the case of Joint Commissions one representative, shall forward records of all meetings of the Commissions to the General Secretary and shall report on the activities of the Commissions to the General Assembly. The report to the General Assembly shall reach the General Secretary at least three months before the meeting and shall be despatched by him to adhering organisations at least ten weeks before the meeting.

## V. Finance

17. The Executive Committee shall prepare an estimate of the budget for each of the years between the next General Assembly and that following it. The Finance Committee shall examine this estimate and also the accounts for the years preceding the last General Assembly, and shall submit separate reports on these two questions to the General Assembly. These reports shall reach the General Secretary at least three months before the meeting and shall be despatched by him to adhering organisations at least ten weeks before the meeting.

## VI. Authoritative Text

18. The present English text of the By-Laws shall be considered the authoritative one.

# Union Internationale de Mécanique Théorique et Appliquée

## STATUTS

ADOPTÉS PAR LE CONSEIL DE L'UNION LE 1 AVRIL 1947

### I

Afin de contribuer plus efficacement au développement de la science de la mécanique, le Comité International des Congrès de Mécanique Appliquée décide de fonder une organisation permanente qui portera le nom d' 'Union Internationale de Mécanique Théorique et Appliquée'.

### II

L'Union Internationale de Mécanique Théorique et Appliquée a pour buts:

(*a*) de poursuivre la série des congrès internationaux de mécanique appliquée;

(*b*) de prendre toutes initiatives légales propres à contribuer au développement scientifique de la mécanique.

A cet effet elle pourra:

instituer des commissions ou des groupements pour des buts spéciaux;

organiser des réunions ou des conférences;

entrer en relation avec des autres organisations scientifiques; entreprendre des travaux de rédaction ou d'édition et, en général, elle développera toute activité qui sera jugée utile aux buts indiqués.

### III

L'organe actif de l'Union Internationale de Mécanique Théorique et Appliquée est son Conseil composé d'un nombre non déterminé de membres, choisis parmi les personnes qui s'occupent de recherches scientifiques (théoriques ou expérimentales) dans le domaine de la mécanique ou des sciences connexes. Le nombre des membres du Conseil représentant une même nationalité ne pourra pas, en général, dépasser quatre. Toutefois lorsque, par suite d'un changement de résidence, un membre du Conseil ne peut plus représenter le pays pour lequel il avait été désigné, il pourra, si le Conseil en décide ainsi être maintenu en

surnombre, jusqu'au moment où il pourra de nouveau être représentant d'une nationalité.

Le Conseil veillera à ce que les divers pays où sont effectuées des recherches importantes dans la mécanique soient représentés de façon appropriée, et votera sur chaque proposition d'après les indications du para. VI.

Chaque candidature doit faire l'objet d'un vote séparé.

IV

Sont membres du Conseil:

1. les membres du Comité International actuel;
2. les hommes de science élus par le Conseil.

V

Dans chaque pays une organisation nationale s'occupant des études scientifiques dans le domaine de la mécanique appliquée (ou bien une union nationale de telles organisations, s'il y en a plusieurs dans le même pays) peut être admise par le Conseil comme organisation adhérente de l'Union Internationale. Les statuts de l'organisation (ou union) nationale devront être approuvés par le Conseil de l'Union Internationale.

L'organisation (ou union) nationale peut demander l'admission d'un représentant dans le Conseil. La décision à cet égard appartient au Conseil, qui tiendra compte de la limitation du nombre des membres de même nationalité imposée par l'article III.

VI

Le Conseil a pouvoir de décision pour toutes les questions concernant l'Union, y compris la modification des présents statuts. Il peut déléguer ce pouvoir, pour des sujets spécifiés, à des commissions spéciales.

Dans le cas où il est nécessaire d'effectuer un vote, chaque membre du Conseil dispose d'une voix. Le vote peut avoir lieu par correspondance. Les décisions sont prises à la majorité des voix et sont valables si le nombre des votants est d'au moins les deux tiers du Conseil. La même majorité est nécessaire pour chaque modification de ces statuts.

VII

Les réunions du Conseil auront lieu:

(*a*) pendant les congrès internationaux;

(*b*) à d'autres époques sur décision du Conseil.

VIII

Afin de pouvoir maintenir son activité pendant l'intervalle entre les congrès internationaux, le Conseil nomme un secrétaire dont la fonction sera d'être un centre permanent de correspondance pour tout sujet intéressant l'Union, et d'assurer les relations avec des organisations adhérentes ou extérieures à l'Union.

Le siège légal de l'Union est la résidence du secrétaire.

IX

Afin de pourvoir aux frais dans l'intervalle des congrès le secrétaire, un an avant le congrès suivant, préparera un budget de prévision pour la période courante. Ce budget sera soumis au Conseil, qui prendra des mesures pour couvrir les dépenses faites ou prévues.

Il sera demandé aux organisations adhérentes de payer une cotisation annuelle à l'Union.

Le Conseil peut accepter des dons, soit pour défrayer ses dépenses générales, soit pour des buts particuliers.

X

Afin de faciliter la coopération avec les Unions Internationales pour d'autres branches de la science, l'Union Internationale de Mécanique Théorique et Appliquée demandera son admission dans le Conseil International des Unions Scientifiques.

XI

Dans toutes ses décisions le Conseil sera guidé par la tradition de coopération scientifique libre et internationale qui s'est développée dans les Congrès Internationaux de Mécanique Appliquée.

XII

Le présent texte français fera autorité pour l'interprétation à donner aux statuts.

# Projet de Statuts de l'Union Internationale d'Histoire des Sciences

*Article* 1. L'Union Internationale d'Histoire des Sciences a comme but de contribuer directement à l'activité de l'U.N.E.S.C.O. et de l'I.C.S.U. dans le domaine de l'Histoire des Sciences.

*Article* 2. L'Union reconnaît l'Académie Internationale d'Histoire des Sciences comme organe d'orientation de son activité scientifique.

*Article* 3. Pour réaliser son but, elle s'efforcera de: (*a*) établir des rapprochements entre les histoires des Sciences, et entre les institutions, les Sociétés, les rédactions des revues, etc....consacrés à cette discipline; (*b*) rassembler tous les documents qu'on croira nécessaires au développement de l'Histoire des Sciences; (*c*) prendre toutes les mesures qu'on croira nécessaires ou utiles pour le développement et pour l'organisation des études de l'Histoire des Sciences, notamment les Congrès internationaux d'Histoire des Sciences (qui ont lieu à l'occasion des sessions triennales de l'Académie d'Histoire des Sciences); (*d*) organiser du point de vue matériel des réunions périodiques internationales, congrès d'Histoire des Sciences; (*e*) attribuer les fonds nécessaires au bon fonctionnement de l'Académie Internationale d'Histoire des Sciences, laquelle fixe les traitements du Secrétaire Perpétuel, de l'Administrateur-Trésorier et du Secrétaire-adjoint (qui remplit aussi les fonctions d'Archiviste-bibliothécaire).

*Article* 4. L'Union Internationale d'Histoire des Sciences comprend deux catégories de membres: (*a*) les membres à titre personnel, c'est-à-dire tous les membres, tant effectifs que correspondants de l'Académie Internationale d'Histoire des Sciences; (*b*) les membres représentants élus par les Groupes nationaux d'Histoire des Sciences à raison de deux par pays, pour une période de trois ans, et qui sont rééligibles. Un membre à titre personnel peut être élu membre représentant.

*Article* 5. L'Union Internationale d'Histoire des Sciences est dirigée par un Conseil composé d'un Président, deux assesseurs, un Secrétaire exécutif (chargé des rapports avec les grands organismes internationaux), élus par l'Assemblée générale de l'Union pour trois ans, et éventuellement rééligibles; de plus le Secrétaire perpétuel et l'Administrateur-Trésorier de l'Académie Internationale d'Histoire des Sciences font partie de droit de

ce Conseil avec les attributions de Secrétaire général et d'Administrateur-Trésorier.

L'Union Internationale d'Histoire des Sciences se réunit en Assemblée générale tous les trois ans au moins.

Ont droit à un vote: (*a*) chaque membre effectif de l'Académie; (*b*) chaque groupe national; (*c*) chaque section spéciale d'une discipline quelconque.

*Article* 6. L'Assemblée générale de l'Union Internationale d'Histoire des Sciences a les attributions suivantes: (*a*) elle élit les membres du Conseil de l'Union, ainsi que deux délégués pour la représenter au Comité Exécutif du Conseil International des Unions scientifiques; (*b*) elle édicte et amende ses statuts et règlements concernant la conduite des affaires qui lui sont propres; (*c*) elle approuve le budget de l'Union; (*d*) elle fixe les lieux de réunion de la prochaine session.

*Article* 7. L'Union peut accepter ou créer des Sections internationales d'une discipline quelconque. Ces sections s'organisent d'une manière autonome du point de vue de leur discipline. Chacune de ces Sections a droit à un membre dans le Conseil de l'Union.

*Article* 8. On encouragera l'organisation dans chaque pays de groupes nationaux d'Histoire des Sciences, afin de faire entrer les savants de ce pays en rapport avec l'Union Internationale d'Histoire des Sciences. Les buts des groupes sont, dans chaque pays, ceux indiqués à l'article 3 pour l'Union (points *a*, *b*, *c*, *d*). L'organisation de ces groups sera semblable dans ses lignes générales, dans tous les pays, et sera déterminée par le règlement spécial.

*Article* 9. Chaque groupe national doit verser à l'Union Internationale d'Histoire des Sciences une cotisation annuelle. Tant que la situation financière internationale n'est pas rétablie, l'Assemblée Générale fixera la cotisation de chaque groupe d'après les disponibilités de son pays.

See p. 10

# INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

## MONTHLY BULLETIN of INFORMATION

I.C.S.U.
D.1004.

July 1948 No.11.

INTERNATIONAL UNION OF HISTORY OF SCIENCE

Commission for the History of the
Social Relations of Science.

A meeting of the Commission on the History of the Social Relations of Science was held in PARIS on 17 and 18 June 1948.

Present were:

Prof. J.M. BURGERS, van Houtenstraat 1, DELFT, Netherlands.
Prof. A. CASTIGLIONI, 20 via Ariberto, MILANO, Italy.
Prof. V.G. CHILDE, Institute of Archeology, LONDON.
Dr. M. CHOYNOWSKI, WARSAW.
Mr. J.G. CROWTHER, 2 Myrtre Court, John Mews, LONDON. W.C.1.
Dr. S. LILLEY, 42 Lyndewodde Road, CAMBRIDGE, England.
Dr. J. PELSENEER, UNESCO, PARIS.
Prof. L. ROSENFELD, MANCHESTER, England.
Prof. P. SERGESCU, 7 rue Daubenton, PARIS, representing the Council of the I.U.H.S.
M. R. TATON, 64 rue Gay Lussac, PARIS 5e.

Rules for the Commission were approved and the following officers were elected :

Chairman ..... Prof. L. ROSENFELD
Secretary ..... Dr. S. LILEY
Treasurer ..... M. R. TATON

Executive Committee .... Prof. J.M. BURGERS
Prof. A. CASTIGLIONI
Prof. C. CHAGAS (Filho) University, RIO DE JANEIRO.
Mr. J.G. CROWTHER
Prof. R.J. FORBES, Haringvlietstraat 1, AMSTERDAM Z.
Prof. R.K. MERTON, Bur.of Off. Soc.Research, 15, Amsterdam Avenue, NEW YORK 23.
Dr. J. PERLSENEER.

I.C.S.U.
D. 1004

Relations with the I.C.S.U. Committee on SCIENCE AND ITS SOCIAL RELATIONS were discussed, and it was agreed that the C.H.S.R.S. would send any relevant information to the C.S.S.R.

Plan for short-term publication -

In response to a request from Unesco an essay of about 20,000 words is to be written by Dr. LILLEY on the importance of the social relations of science and the ways in which historical studies can help. The ways in which science and society mutually affect one another are to be discussed, but the attitude is to be that of proposing problems rather than of attempting to state their solutions. The general outline of the essay was agreed. Other members of the Commission are to supply ideas and material to Dr. LILLEY. The essay is to be published in the ARCHIVES INTERNATIONALES D'HISTOIRE DES SCIENCES, and reprints are to be obtained for separate publication. The essay is to be available (at least in duplicated form) for the Beirut Conference of Unesco.

Plan for long-term work -

It was agreed to publish during 1950 a collective volume of essays under the provisional title "SCIENCE AND SOCIETY THROUGH THE AGES - A Collection of Essays". The subjects of the essays and possible authors for them were planned in a fair degree of detail. Dr. LILLEY was appointed editor, with permission to obtain a collaborator to look after the business side if necessary.

Proposed Bibliography -

The proposal that the Commission should publish a bibliography of works on the history of the social relations of science was discussed. Prof. ROSENFELD suggested that the Commission should accumulate materials for a bibliography, but should not at present envisage its publication. It should be a critical bibliography.

Dr. CHOYNOWSKI described the bibliographical work, including the history of the social relations, of science, which is being carried out by the Polish Circle for the Science of Science. It will probably be possible soon to publish this material in western languages. If that should be the case, it was agreed that material should be sent to him.

Financial Aid for Research -

Various applications were considered, and decisions taken.

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UNION INTERNATIONALE DES SCIENCES BIOLOGIQUES

Premier Congrès international de Physio-Pathologie
de la Reproduction et de la Fécondation artificielle

Du 23 au 30 juin 1948, s'est tenu à MILAN, sous les auspices de l'Université et de l'Institut "Lazaro Spallanzani" le premier Congrès international de Physio-Pathologie de la Reproduction et de la Fécondation artificielle. Il a groupé environ 600 congressistes, dont la moitié étrangers appartenant à 35 pays du monde entier.

Il avait été précédé, les 21 et 23 juin, d'un symposium, organisé par l'Union internationale des Sciences biologiques et par l'Unesco et consacré au problème des "Substances inter-actives entre oeufs et spermatozoïdes et la Parthénogénèse". Y ont pris part, sous la direction des Professeurs RANZI (Italie) et A. TYLER (Etats-Unis), les Professeurs J. BRACHET (Belgique), M. HARTMANN (Allemagne), CHNEH CHUNG (Etats-Unis), H.G. CRUM (Australie), A. MOUROY (Italie), J. T. ROWLANDS (Grande-Bretagne), J. RUNNSTROM (Suède), J. SEILER (Suisse) et M.J. SIRKS (Hollande).

Au cours du Congrès, 14 rapports et plus de 250 relations relatives aux différents problèmes biologiques, zootechniques, pathologiques, techniques et juridiques de l'insémination artificielle ont été exposés, tous suivis de discussions parfois importantes.

Pendant le Congrès, ont eu lieu également d'autres réunions à caractère scientifique et technique, de même que des expositions commerciales ou zootechniques: à celles-ci, ont été présentés les sujets les plus représentatifs des races italiennes et aussi du Canada, de France, d'Angleterre, de Hollande, d'Espagne, de Suisse et même des Etats-Unis, arrivés peu avant en transport aérien. Diverses excursions techniques ont complété le programme d'études.

Le Congrès a, en conclusion, adopté plusieurs résolutions: Il a reconnu et souhaite l'étroite collaboration entre les chercheurs des différentes disciplines biologiques pour l'étude de l'insémination artificielle et a recommandé l'établissement de programmes d'études tant sur le plan national qu'international. Il a reconnu la nécessité de confronter les observations des différents chercheurs en des Congrès réunis périodiquement et a nommé un Comité exécutif - dont le Professeur LAGERLOF (Suède) a été nommé président et les Professeurs HAMMOND (Angleterre) et SØRENSEN (Danemark) vice-présidents et BONADONA (Italie) Secrétaire général - chargé d'organiser dans trois ans un second Congrès de Physio-Pathologie de la Reproduction.

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I.C.S.U.
D. 1904

INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS

VIth General Assembly

The Sixth General Assembly of the International Union of Physics took place at the University of AMSTERDAM on 8 - 10 July 1948.

The Chairman was Professor H.A. KRAMERS, President of the Union.

Present were :

Mr. C. E. EDDY (Australia)
M. P. DAUMAUX (Belgium)
M. I. PRIGOGINE (Belgium)
M. J. JACOBSEN (Denmark)
Sr. E. TERRADAS (Spain)
Sr. J. M. OTERO NAVASCUES (Spain)
Mr. R.M. BOZORTH (U.S.A.)
Mr. F.G. BRICKWEDDE (U.S.A.)
Mr. L.F. CURTISS (U.S.A.)
Mr. K.K. DARROW (U.S.A.)
Mr. J.C. SLATER (U.S.A.)
Mr. M.A. TUVE (U.S.A.)
M. E. LAURILA (Finland)
M. E. BAUER (France)
M. G.A. BOUTRY (France)
M. P. FLEURY (France)
Mme. JOLIOT-CURIE (France)
M. A. PERARD (France)
Mr. C. DARWIN (Great Britain)
Mr. R.W. DITCHBURN " "
Mr. P.P. EWALD " "
Mr. G.I. FINCH " "
Mr. E. GRIFFITHS " "
M. A. LO SURDO (Italy)
M. E. PERUCCA "
M. ROSTAGNI "
M. A. CAPELLI "
M. E. MEDI (Norway)
Mr. C.J. BAKKER (Holland)
Mr. J. DE BOER "
Mr. C.J. GORTER "
Mr. H.A. KRAMERS "
Mr. C.J. SIZOO "
Mr. C. BIALOBRZESKI (Poland)
Mr. PIENKOWSKI "
Mr. C. BORELIUS (Sweden)
Mr. E. HULTHEN "
Mr. E. INGELSTAM "
Mr. E. RUDBERG "
M. H. KONIG (Switzerland)
M. A. PERRIER "

Observers :

Mr. A. ESTABLIER (I.C.S.U.)
Mr. WIBAUT (I.U.C.)
Mr. MINNAERT (I.U.A.)
Mr. F.A. VENING-MEINESZ (I.U.G.G.)
Mr. MARTON (U.S.A.)
Mr. MONTGOMERY (U.S.A.)
Mr. YONSSEN (Sweden)
Miss M.O. LOGHLINCROWE (U.S.A.)
Mr. G. van ITTERSON (I.U.B.S)

The following recommendations and decisions were unanimously adopted:

I - APPOINTMENT OF EXECUTIVE COMMITTEE

The following were elected or re-elected:

President of the Union: M. H.A. KRAMERS.
Vice-Presidents: Messrs. M. AMALDI (Rome),
G. BIALOBRZESKI (Warsaw).
K.K. DARROW (New York)
Sir Ch. DARWIN (Teddington)
P.P. EWALD (Belfast)
C.J. GORTER (Leyden)
J.C. JACOBSEN (Copenhagen)
P. SCHERRER (Zurich)
J.C. SLATER (Cambridge, Mass.U.S.A.)
Secretary-General: Professor P. FLEURY (Paris,France).

Messrs. M. Bauer (Paris), and C.J. Gorter (Leyden) were re-elected members of the Financial Committee.

The President and the Secretary-General were entrusted with the representation of the Union at the meetings of the Executive Committee of the International Council of Scientific Unions (with the option of sending substitutes in their place).

II - AMENDMENTS TO THE STATUTES - RATE OF CONTRIBUTIONS

(a) Articles 6 and 8 of the Statutes were amended to read as follows:

Article 6 - The General Assembly and, subject to approval by the next General Assembly, the Executive Committee may decide to create Commissions proper to the Union of Physics and also to participate in Joint Commissions of the Union of Physics and other Unions.

Among the Commissions proper to the Union some, devoted to the more expensive fields of Physics, are called Affiliated Commissions;

others, with more limited terms of reference, are called Special Commissions.

All Commissions, through their Secretaries, will report on their work to the General Assemblies.

Article 7 - The formation, constitution, programme and finances of the Affiliated Commissions will be submitted to the approval of the Executive Committee of the Union which will, in particular, lay down as accurately as possible the terms of reference of these Commissions.

The Executive Committee will designate one or more of its members to represent the Union within each Affiliated Commission.

The Affiliated Commissions are entitled to receive special fees and grants from other sources apart from those from the Union.

Article 8 - The members of the Special Commissions and the representatives of the Union on the Joint Commissions will be elected by the General Assembly on the proposal of the Executive Committee of the Union. They will remain in office till the end of the next General Assembly and may be re-elected.

The Special Commissions may co-opt new members subject to approval by the Executive Committee.

Members of the Affiliated Commissions, other than those appointed by the Executive Committee of the Union of Physics under Article 7, will be nominated according to the Statutes of these Commissions.

The rules under which Joint Commissions will work are those formulated by the International Council of Scientific Unions.

(b) The following two passages were deleted from Article 14:

".....if this should exceed the statutory minimum"

"The unit-subscription payable during the first period of the arrangements shall be 200 Frs. per annum".

The remainder of the text stood.

(c) The rate of the unit-contribution was fixed at 40 dollars.

III - RULES GOVERNING GRANTS

The provisional regulations published in circular S.G.47-4 were confirmed. Requests for the year 1949, accompanied by the necessary documents, should reach the Secretariat before 1 January 1949.

IV. - RECOMMENDATIONS REGARDING SYMBOLS, UNITS AND NOMENCLATURES

1. (a) The unit of heat is the joule, equal to 107 ergs.

(b) The results of thermal measurements should be expressed in joules. If the results are calculated from a change in temperature of water, and if the term "calorie" cannot be avoided, the conversion factor and the limiting temperatures should be stated.

2. (a) The definition of the absolute thermodynamic scale of temperature should be based on a single fixed point. The numerical value of this point should be chosen, once and for all, by the International Bureau of Weights and Measures so as to make the new scale agree as closely as possible with the present Kelvin scale.

(b) It is recommended that this fixed point should be the triple point of water.

3. (a) The International Union of Pure and Applied Physics decides to ask the International Bureau of Weights and Measures to accept, for international use, an "International practical system of units".

It is not proposed that the C.G.S. system should be abandoned by physicists.

(b) The International Union of Pure and Applied Physics recommends, as an international practical system of units, the system metre, kilogram (mass), second, and an electrical unit of the absolute practical system (to be chosen in the near future).

(c) The unit of force in this system (i.e. the force which, acting on a mass of one kg. produces an acceleration of 1 m/sec$^2$) should be called the "newton".

4. The Report "General rules - Symbols for physical quantities - Symbols for units", as amended by the S.U.N. Commission in session in July 1948, is approved and is to be published.

V - COMMISSION ON THERMODYNAMICS

1. It is decided that the scope of the Commission's activities be extended, the Commission to be called henceforward "Thermodynamics and Statistical Mechanics".

2. The study of the determination of thermodynamic quantities and symbols should be carried on in agreement with the Commission on S.U.N.

3. It is proposed to convene a symposium on the present problems of statistical mechanics, if possible in 1949, at a place to be decided.

VI - COMMISSION ON COSMIC RAYS

1. An index of Cosmicians will be prepared in the following way:

The Secretariat of the Commission will send a questionnaire to all persons indicated to it as "Cosmicians", enquiring after the purpose of their research work, their publications, laboratories, means of research, possibilities of receiving other scientists etc.

With their agreement, the information gathered will be grouped in a publication regularly kept up-to-date.

2. Professor Clay and Professor Auger will study the question of establishing a permanent equipment for research on cosmic rays at the Jungfraujoch according to an international plan, and will take the necessary steps.

3. The Secretary is instructed to support the request for a grant-in-aid from Unesco for the re-equipment of the war-devastated laboratories for work on cosmic rays at Budapest.

4. The next symposium on cosmic rays will take place between July and September 1949, at a place to be decided later on.

5. (a) The Union of Physics recommends the use of the terms positon and negaton as a means of distinguishing between the positive electron and the negative electron, the present sense of the term electron remaining unchanged.

(b) The Union recommends the use of the term nucleon to denote both neutrons and protons.

(c) The Union notes that the terms meson, mesoton and mesotron are used concurrently to denote charged particles of mass intermediate between the mass of an electron and the mass of a proton.

It is recommended that trial should be made (until the meeting of the next General Assembly) of the use of the term meson.

VII - COMMISSION ON UNITS OF RADIOACTIVITY

1. The Union of Physics proposes that a Joint Commission be formed consisting of delegates of the I.U.P. and delegates of the U.I.C., which will have as its subject the study of units, constants, standards, and nomenclature of radioactivity.

The I.U.P. feels that it has strong claims to be regarded as the mother union of the Joint Commission.

It is understood that the new Joint Commission will take over the duties of the International Radium Standard Commission, the surviving members of which have expressed their approval of this proposition.(1)

2. It is recommended that the term "international curie" shall henceforth be taken to mean the quantity of radioactive substance which gives $3.60\ 10^{10}$ disintegrations per second(2).

3. The question whether the Commission should recommend the adoption of a term denoting another given number of disintegrations per second was referred to the future Joint Commission on Units, Constants, Standards and Nomenclature of Radioactivity.

VIII - The affiliation of the International Commission on Optics was approved (see special documents regarding this Commission's work).

IX - DOCUMENTATION

1. (a) Every original article on Physics should be preceded by an abstract, independent of the text and figures of the article, and written either in English or in French, whatever may be the language of the article itself. Where circumstances permit, this abstract should be accompanied by an equivalent abstract in a second language.

(b) The scientific directors of a journal should accept responsibility for the abstract as an adequate summary of the article. Automatic publication of a summary prepared by the author is undesirable.

2. The International Union of Physics hopes that, in due course, it may be possible to arrange that two abstract journals (one in English and one in French) will contain between them abstracts of all original articles on physics.

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(1) As reported by Madame Joliot-Curie.
(2) This recommendation shall be adopted if it is approved by the Joint Commission.

I.C.S.U.
D.1904.

3. The International Union of Physics does not, at present, propose to publish general reviews or reports. It recommends consultation between the editors of the Review of Modern Physics, Progress Reports (Physical Society, London), Conférences Rapports, and similar publications, in order to ensure that articles on a given subject do not appear simultaneously and also that important subjects are not overlooked.

4. The International Union of Physics wishes to suggest to ICSU and to the Union of the History of Science that the development of physics since the death of Newton is worthy of special attention. Most histories of physics are mainly concerned with earlier work.

X - MEMBERSHIP OF COMMISSIONS

1. The following were elected or re-elected members of the Commission of the Union or appointed to represent the Union at meetings of various bodies:

S.U.N. Commission : Messrs. A. PERARD (Paris) Chairman
J. DE BOER (Amsterdam) Secretary
F.C. BRICKWEDDE (Washington)
E. GRIFFITHS (Teddington)
H. KONIG (Berne)
E. PERUCCA (Turin)

Commission on Thermodynamics and Statistical Mechanics :

Messrs. E. GUGGENHEIM (Reading) Chairman
J. PRIGOGINE (Brussels) Secretary
Ed. BAUER (Paris)
J.A. BEATTIE (Cambridge, Mass.)
J. DE BOER (Amsterdam)
J. MAYER (Chicago)

Commission on Cosmic Rays :

Messrs. J. CLAY (Amsterdam) Chairman
P. AUGER (Paris) Secretary
C.A. ANDERSON (Pasadena)
H.J. BHABHA (Bombay)
P.M.J. BLACKETT (Manchester)
G. BERNARDINI (Rome)
SANDOVAL VALLARTA (Mexico)

2. Joint Commissions :

Rheology: Messrs. J.M. BURGERS (Delft)
G.W. SCOTT BLAIR (Reading)

Ionosphere: Messrs. H.W. MASSEY (London)
L. VEGARD (Oslo)

Radiometeorology: M. BOWEN (Sydney)

Physico-chemical Data: C.A. BOUTRY (Paris)
G. BORELIUS (Stockholm)
E.V. CONDON (Washington)
Sir Ch. DARWIN (London)

(The Union of Physics requests that the joint nature of this Commission may be maintained).

(Proposed) Joint Commission on Radioactivity (Units, Constants, Standards and Nomenclature):

Members suggested by the Union of Physics:

Sir John CROCKCROFT (Harwell)
Messrs. L.F. CURTISS (Washington)
R.D. EVANS (Cambridge, Mass.)
J.C. JACOBSEN (Copenhagen)
Mme. JOLIOT-CURIE (Paris)
M. G.J. SIZOO (Amsterdam)

International Bureau of Physico-chemical Standards:
(attached to the Union of Chemistry)

Messrs. E.U. CONDON (Washington)
Sir Charles DARWIN (London)

Commission on Macromolecular Chemistry: (of the Union of Chemistry).

Messrs. J.D. BERNAL (London)
E. HULTHEN (Stockholm)

Commission on Radiobiology:

Messrs G. FAILLA (New York)
P. MAYNEORD (London)

N.B. The Directors of important national laboratories are chosen in their capacity as such, with the option of sending substitutes in their place.

I.C.S.U.
D.1904

3. The Executive Committee designated Professor P.P. EWALD and Professor P. FLEURY to represent the Union at meetings of the (Affiliated) Commission on Optics.

4. Additional Special Commissions (Physics of Metals, Low Temperatures, and possibly Spectroscopy, Documentation .... ) may be set up later.

The Union of Physics has associated itself with the recommendation put forward by the Union of Biology that a Joint Commission on Biophysics should be formed, to include four representatives of the physicists.

National Committees are requested to send to the Secretariat of the Union, for submission to the Executive Committee, any suggestions they may wish to make concerning the new Commissions (programme and proposals regarding membership or delegates).

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## INTERNATIONAL UNION OF CRYSTALLOGRAPHY

The Belgian Royal Academy of Sciences has formed a National Committee for Crystallography. President: M.H. BUTTGENBACH.

Delegate to the General Assembly of the Union of Crystallography at HARVARD (U.S.A.): M. René BAILLY.

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## CALENDAR

| | | | |
|---|---|---|---|
| 28/7 - 3/8 1948 | IUCr. | CAMBRIDGE (Mass.U.S.A.) | First General Assembly and International Congress of the INTERNATIONAL UNION OF CRYSTALLOGRAPHY. |
| August 5-7 1948 | IUBS | STOCKHOLM | Symposium on BIOLOGICAL CONTROL |
| " 9-14 " | | " | VIII International ENTOMOLOGICAL CONGRESS. |
| " 10 " | ICSU | ZURICH (Switzerland) | COMMITTEE ON SOLAR AND TERRESTRIAL PHENOMENA |
| " 11-18 " | IAU | ZURICH (Switzerland) | General Assembly, INTERNATIONAL ASTRONOMICAL UNION |
| " 15-23 " | | BRUSSELS (Belgium) | International Congress on ANTHROPOLOGICAL AND ETHNOLOGICAL SCIENCES. |
| " 18-25 " | | ZURICH | Xth Annual Congress on LIMNOLOGY. |
| " 19-25 " | | CAMBRIDGE (England) | International Congress of BIOCHEMISTRY. |
| " 19-28 " | UGGI | OSLO (Norway) | VIII General Assembly, UNION GEODESIQUE ET GEOPHYSIQUE INTERNATIONALE. |
| " " | ICSU | OSLO (Norway) | Committee on OCEANOGRAPHY |
| " 20-27 " | | COPENHAGEN | VIII World POULTRY Congress |
| " 23-28 " | | CHELTENHAM (England) | International Congress on Population and World Resources in Relation to the Family. |
| " 25-31 " | | LONDON (England) | 18th International GEOLOGICAL CONGRESS. |
| Aug.31 - Sept.3 1948 | UNESCO | INTERLAKEN (Switzerland) | International Conference on HIGH ALTITUDE RESEARCH STATIONS. |
| Sept. 1-10 1948 | | THE HAGUE (Scheveningen) | VIth Congress, International PHOTOGRAMMETRY CONGRESS. |

I.C.S.U.
D.1904

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| Sept. 5 - 10 | 1948 | BRUSSELS (Belgium) | Conseil de Physique SOLVAY |
| Sept. 5 - 11 | 1948 IUTAM | LONDON (England) | VII International Congress of APPLIED MECHANICS. |
| Sept. | 1948 IUTAM | LONDON (England) | Executive Committee, INTERNATIONAL UNION OF THEORETICAL AND APPLIED MECHANICS. |
| Sept. 13 | 1948 IUC | BRUSSELS (Belgium) | Executive Committee, INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY. |
| Sept. 13 - 16 | 1948 | LIEGE (Belgium) | International Association for BRIDGE AND STRUCTURE ENGINEERING. |
| Sept. 14 - 15 | 1948 ICSU | BRUSSELS (Belgium) | Executive Committee of the INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS. |
| Sept. 14 - 17 | 1948 | LONDON (England) | International Conference of TANK SUPERVISERS. |
| Sept. 20 - 23 | 1948 ICSU | SCHEVENINGEN (Netherlands) | Joint Commission on RHEOLOGY |
| Sept. 20 - 25 | 1948 | SCHEVENINGEN (Netherlands) | International RHEOLOGICAL CONGRESS |
| Sept. 30 - Oct. 7 | 1948 UNESCO | FONTAINEBLEAU | International Conference on PROTECTION OF NATURE. |
| Oct. 1 - 6 | 1948 | PARIS | International Colloquium : REACTIONS DANS L'ETAT SOLIDE |
| Oct. 4 - 5 | 1948 | PARIS | Executive Committee, INTERNATIONAL UNION OF BIOLOGICAL SCIENCES. |
| Oct. 4 - 11 | 1948 | LONDON | Conference of the INTERNATIONAL SCIENTIFIC FILM ASSOCIATION. |
| Oct. 10 - 15 | 1948 | PARIS | International Colloquium : ELECTRO-PHYSIOLOGY |
| Oct. 12 | 1948 | PARIS | General Conference on WEIGHTS AND MEASURES. |

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|---|---|---|---|---|
| May | 1949 | | | Pan-American Research Conference |
| May 16-June 3 | 1949 | ECOSOC | U.S.A | U.N. Conference on CONSERVATION AND UTILIZATION OF NATURAL RESOURCES. |
| June 14-16 | " | ICSU | PARIS | COMMITTEE ON SCIENCE AND ITS SOCIAL RELATIONS |
| June 20-25 | " | UNESCO | " | International Conference on SCIENCE ABSTRACTING |
| Aug 15-19 | " | | STOCKHOLM (Sweden) | XIIth International DAIRY CONGRESS |
| Sep 6-10 | " | IUC | AMSTERDAM (Holland) | XVth General Conference, INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY. |
| Sep 14-16 | " | ICSU | COPENHAGEN (Denmark) | General Assembly, INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS |
| Oct. | " | | PARIS | Vth International Congress on ANIMAL HUSBANDRY |
| Octr. | " | | | VIIth Pacific Science Congress |
| July 7 - Aug 1 | 1950 | | AMSTERDAM (Holland) | IVth International Congress of SOIL SCIENCE |
| | 1950 | IUBS | STOCKHOLM (Sweden) | General Assembly, INTERNATIONAL UNION OF BIOLOGICAL SCIENCES |
| | 1950 | | STOCKHOLM (Sweden) | VIITH International BOTANICAL CONGRESS |
| | 1950 | IUHS | BUCAREST | International Congress of HISTORY OF SCIENCE |
| | 1950 | IUBS | RIO DE JANEIRO | Vth International Congress of MICROBIOLOGY |
| Probable July | 1950 | | LONDON (England) | IVth WORLD POWER CONFERENCE |
| Aug 30 - Sep 6 | 1950 | | CAMBRIDGE (U.S....) | Congrès International de MATHEMATIQUES |

I.C.S.U.
D. 1904

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| Sept. 8 - 17 | 1951 | IUC | WASHINGTON and NEW YORK (U.S.A.) | XIIth Congress and XVIth Conference, INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY. |

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# INTERNATIONAL COUNCIL
# OF
# SCIENTIFIC UNIONS

MONTHLY BULLETIN

of

INFORMATION

ICSU
D.1022

August 1948 No.12

International Council of Scientific Unions

Mixed Commission on the Ionosphere

The First Meeting of the above Commission was held at Brussels on 28-30 July, 1948. The following were present:

Sir Edward Appleton (Chairman)
Professor S. Chapman
Professor L. Vegard
Dr. R.v.d. R. Woolley
Dr. C.R. Burrows (Representing Dr. J.H. Dellinger)
Dr. M.A. Tuve (Representing Dr. L.V. Berkner)
Professor F.J.M. Stratton (Secretary, I.C.S.U.)
Colonel E. Herbays (Secretary, U.R.S.I.)
Dr. W.J.G. Beynon (Secretary, Mixed Commission).
Professor Manneback (Louvain University)
Colonel Dorsimond (Vice-President, U.R.S.I.)
Dr. M. Nicolet (Institut Royal Meteorologie de Belgique)
M. Bourgeois (Directeur de l'Observatoire Royal de Belgique).

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Six sessions of the Commission were held. The sub-division of the field of work and the introductory speakers are given below.

1. Knowledge of the ionosphere by radio sounding methods. (Sir Edward Appleton).

2. Knowledge of the ionosphere from studies of aurorae. (Professor L. Vegard).

3. Atomic processes in the ionosphere. (Dr. M. Nicolet).

4. (a) Solar knowledge relevant to the ionosphere.
(b) Correlation of ionospheric with astrophysical phenomena.
(Dr. R.v.d. R. Woolley)
(Professor F.J.M. Stratton)

5. Knowledge of the ionosphere from studies of geomagnetism. (Professor S. Chapman)

6. General discussion on the work of the Commission.

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ICSU
D.1022

Arising from the discussions at these meetings the Commission formulated the following resolutions for consideration by the appropriate Scientific Unions. (U.R.S.I., U.G.G.I., or I.A.U.)

U.R.S.I. 1. That special attention should be paid in ionospheric eclipse measurements to a search for a possible correlation between region $F_2$ and solar coronal emission.

U.R.S.I. 2. That, in order to facilitate comparison with meteor and other data, efforts should be made to compare sporadic E ionisation in the northern and southern hemispheres. on the same basis of assessment.

U.R.S.I. 3. That, in order to complete a close network of ionospheric stations along a line of longitude and embracing both the geographical and the geomagnetic equators, the Australian authorities should be encouraged to establish further normal incidence ionosphere sounding stations, for example, at Port Morsby and at Rabaoul.

U.R.S.I. 4. That all ionospheric stations should be encouraged to examine their data for solar and lunar tides (magnitudes and phases) for the various ionospheric layers.

I.A.U. 5. That astronomers be encouraged to measure the light-intensity/time relationship during solar flares with a view to correlating this with ionospheric and magnetic effects.

I.A.U. 6. That calcium flocculi figures be again published in the Quarterly Bulletin of Solar Data or at least made available to bona-fide ionospheric users.

U.R.S.I. 7. The Commission endorses the decision reached at the 1948 Stockholm meeting of U.R.S.I., to make a special study of individual ionospheric storms of all types.

U.G.G.I. 8. That, in view of the importance of atmospheric oscillations in the ionosphere, all types of geophysical data (e.g. meteorological, magnetic and cosmic ray) should be examined for solar and lunar daily tidal periodicities.

U.R.S.I. and U.G.G.I. 9. That a reasonably speedy publication of hourly values of the measurements made at magnetic and ionospheric observatories is considered an essential part of the activities of such observatories and continues to be of great importance for the progress of ionospheric research.

U.G.G.I. 10. That the continued publication of international daily and 3-hourly magnetic character figures is of great value to

ionospheric research (both C and K figures).

U.R.S.I. 11. That U.R.S.I., should be asked to consider the development of a scheme for assigning world ionospheric indices (daily or for shorter periods or both) for the various ionospheric layers.

I.A.U. 12. That, in view of the possible influence of extra-terrestrial material as a source of abnormal ionospheric ionisation the International Astronomical Union should be asked to promote the more accurate measurement of the seasonal and other intensity variations of zodiacal light.

U.G.G.I. 13. That, to promote a proper understanding of the atomic processes in the ionosphere, it is necessary to obtain auroral and night-sky spectra with better definition and greater dispersion than hitherto.

I.G.G.U. and U.R.S.I. 14. That, in view of the remarkable geomagnetic control of $F_2$ layer density and the known abnormal variation of the daily magnetic force in regions where the geomagnetic and geographical equators are widely separated, efforts should be made to achieve operation, for one or two years, of a chain of ionospheric and magnetic stations across these equators near the longitude of Huancayo or in East Africa and, if possible, another chain near a place at which these equators coincide.

U.R.S.I. and I.A.U. 15. That, in view of the possibility that solar corpuscular streams are a source of ionospheric and other geophysical phenomena, attention is drawn to the need for the detection of such streams by the absorption of light or of radio waves.

U.R.S.I. 16. That special attention should be paid to the study of the D-Layer of the ionosphere by continuous vertical incidence high power measurements of the reflection of long waves or by studies of the absorption of shorter waves.

## INTERNATIONAL UNION OF CRYSTALLOGRAPHY

First General Assembly held at Harvard University, Cambridge, Mass., U.S.A. from 28 July to 3 August 1948

The following Commissions of the Union were established:

Acta Crystallographica
Structure Reports
International Tables
Crystallographica data
Crystallographic apparatus
Crystallographic nomenclature.

The unit contribution was fixed as the gold equivalent of 60 U.S.A. dollars.

It was agreed to hold the second General Assembly and International Congress in Europe during the summer of 1951.

## COMMITTEES AND COMMISSIONS OF THE UNION

### Executive Committee

| | |
|---|---|
| Honorary President: | M. von Laue (Germany) |
| President: | Sir Lawrence Bragg (U.K.) |
| Vice-Presidents: | A. Westgren (Sweden)<br>R.W.G. Wyckoff (U.S.A.) |
| General Secretary: | R.C. Evans, Crystallographic Laboratory, Cavendish Laboratory, Cambridge, England. |
| Editor: | P.P. Ewald (U.K.) |
| Ordinary members: | M. J. Buerger (U.S.A.)<br>A.L. Patterson (U.S.A.)<br>J. Wyart (France) |

### Commission on ACTA CRYSTALLOGRAPHICA

| | |
|---|---|
| Chairman: | P.P. Ewald, The Queen's University, Belfast, Northern Ireland. |

Other members:
R.C. Evans (U.K.)
I. Fankuchen (U.S.A.)
A.V. Shubnikov (U.S.S.R.)
J. Wyart (France)

Commission on STRUCTURE REPORTS

Chairman:
A.J.C. Wilson, Physics Department,
University College,
Cardiff, Wales.

Other members:
C.S. Barrett (U.S.A.)
J.D. Bernal (U.K.)
P.P. Ewald (U.K.)
J.M. Robertson (U.K.)
J. Wyart (France)
R.W.G. Wyckoff (U.S.A.)

Commission on INTERNATIONAL TABLES

Chairman:
K. Lonsdale, Chemistry Department,
University College,
London W.C.1., England.

Other members:
M.J. Buerger (U.S.A.)
N.F.M. Henry (U.K.)
C.H. MacGillavry (Holland)
A.L. Patterson (U.S.A.)

Commission on Crystallographic Data

Chairman:
F.W. Matthews, Canadian Industries Ltd.,
McMasterville, Quebec,
Canada.

Other members:
D. Hodgkin (U.K.)
H.W. Rinn (U.S.A.)
A.J.C. Wilson (U.K.)

Commission on Crystallographic Apparatus

Chairman:
I. Fankuchen, Polytechnic Institute of
Brooklyn, 99 Livingston St.,
Brooklyn 2, N.Y., U.S.A.

Other members: W.H. Barnes (Canada)
M.J. Buerger (U.S.A.)
E.G. Cox (U.K.)
H.P. Rooksby (U.K.)

Commission on Nomenclature

(Members to be nominated by Adhering Bodies.)

COLLOQUE sur "La nécessité d'une organisation internationale de la lutte biologique"

Introduction

Une réunion a eu lieu du 5 au 7 août dernier dans les locaux de l'Ecole supérieure forestière de Suède, sous la présidence du Professeur Silvestri.

Etaient présents : MM. André (France), Balachowsky (France), Ferrière (Suisse), Ghesquière (Belgique), Miller (Nouvelle-Zélande), Nicholson (Australie), Novicky (Tchécoslovaquie), Parker (Etats-Unis), Silvestri (Italie), Tragardh (Suède), Vayssière (France).

M. Carayon (France) présenta les rapports du Professeur Costa de Lima (Brésil) et de M. Steffan (France).

En conclusion des rapports qui furent exposés et des discussions qu'ils ont provoquées, l'UISB a été chargée de transmettre à l'Unesco le voeu et les suggestions suivants :

## COLLOQUE sur la LUTTE BIOLOGIQUE

### A.- CONSIDERATIONS GENERALES

Ayant entendu les rapports et les discussions relatifs à "la nécessité d'une organisation internationale de la lutte biologique" au cours du Symposium qui s'est tenu à Stockholm du 5 au 7 août 1948, à l'occasion du VIIIe Congrès international d'Entomologie, tous les membres présents, représentant 10 Nations, émettent les observations ou voeux suivants :

1) - Les insectes causent des dégâts considérables aux matières alimentaires d'origine végétale destinées à l'Homme, de même des pertes très importantes résultent du développement, dans différentes régions du monde, de plantes adventices devenues des "mauvaises herbes" qui réduisent les rendements ou rendent de vastes espaces impropres à la culture. L'ensemble de ces pertes diminue, chaque année, d'une part importante, les réserves alimentaires mondiales. Il importe donc d'amoindrir ces dégâts par tous les moyens scientifiques de lutte actuellement à notre disposition.

2) - Les divers procédés utilisant des composés chimiques insecticides constituent une méthode de lutte antiparasitaire certainement efficace, mais ces procédés présentent quelques inconvénients sérieux, notamment :

a) leur prix de revient élevé, tant par le coût des insecticides de base et des appareils distributeurs, que par celui de la main-d'oeuvre, de plus en plus spécialisée, nécessaire à leur emploi ;

b) l'utilisation fréquente de composés toxiques, dangereux pour l'homme ou les animaux domestiques ;

c) l'accumulation progressive, dans le sol, d'éléments toxiques qui, par voie cumulative, finissent par nuire à la végétation ou stérilisent le sol arable ;

d) la destruction, à la fois, des insectes nuisibles et de leurs parasites naturels, réduisant ainsi à néant les effets salutaires de la lutte biologique ;

e) l'expérience a largement démontré que beaucoup d'insectes nuisibles finissent par résister aux substances toxiques par voie de sélection naturelle et par la création progressive de races ou lignées résistantes.

Toutes ces raisons font que les procédés de lutte chimique ne peuvent suffire, à eux seuls, pour se défendre efficacement contre les insectes nuisibles.

3) - Les procédés de lutte biologique, utilisant les insectes entomophages pour détruire les insectes nuisibles ou les insectes phytophages pour détruire les mauvaises herbes, constituent indiscutablement une méthode plus économique et plus efficace. Ils peuvent, en outre, être appliqués dans de nombreux cas où les produits chimiques se révèlent insuffisants en raison de la résistance des insectes ou des mauvaises herbes ou lorsque leur prix de revient trop élevé rend leur application économiquement irréalisable.

4) - Il ressort de toutes les remarques précédentes qu'il est nécessaire d'intensifier les procédés de lutte biologique à travers le monde par la recherche et la mise au point de nouvelles applications sans que ces procédés puissent se substituer, dans tous les cas, aux autres méthodes de lutte actuellement utilisées (chimiques, physiques, culturales).

Malheureusement les recherches relatives à la lutte biologique et à ses applications sont considérablement ralenties par le manque de liaison, entre les différentes régions du monde, dans l'étude des insectes entomophages et des auxiliaires phytophages.

Cette liaison scientifique internationale constitue la condition indispensable à la réalisation de ces applications ; les problèmes de lutte biologique ne pouvant plus être exclusivement conçus sur les plans locaux ou nationaux.

5) - Une organisation internationale est donc indispensable pour établir dans le monde les bases essentielles de l'application de la lutte biologique par l'utilisation des insectes entomophages ou des auxiliaires phytophages.

Une coopération internationale étroite est nécessaire parce que la plupart de ces auxiliaires doivent être étudiés dans les pays d'origine des insectes ou des plantes à détruire, d'où ils seront exportés, pour utilisation, dans des régions souvent fort éloignées.

Les services officiels nationaux, tels qu'ils existent dans les différents pays, ne peuvent suffire pour l'établissement d'une telle organisation qui, pour réussir, doit être fondée sur une collaboration internationale effective.

B.- ORGANISATION DU SERVICE PROPOSE

Faisant suite aux considérations d'ordre général développées dans les cinq paragraphes ci-dessus l'instauration d'une organisation internationale de lutte biologique devrait comprendre les services suivants :

1) - Un Service de Documentation ayant pour but de rassembler toutes les informations, renseignements, bibliographies, etc. originaires de toutes les parties du monde se rapportant à la lutte biologique. Cette documentation serait mise à la disposition de tout service, organisation ou spécialiste qui en ferait la demande et dont les recherches seraient orientées vers les problèmes de lutte biologique.

2) - Un Service d'Identification comprenant un certain nombre de spécialistes qui aurait pour rôle d'identifier les insectes entomophages ou les auxiliaires phytophages qui leur seraient adressés des différents pays, en vue de leur utilisation dans la lutte biologique.

3) - Un Service de Prospection destiné à rechercher et à étudier les ennemis naturels des ravageurs des cultures ou les insectes phytophages vivant sur les mauvaises herbes, dans les différentes régions du monde présentant un intérêt particulier au point de vue des applications de la lutte biologique.

4) - Un Service d'Exécution ayant un rôle pratique, notamment en ce qui concerne la récolte, l'élevage et la multiplication des insectes entomophages ou des auxiliaires phytophages dans les Centres de prospection, et leur envoi, dans les meilleures conditions, vers les Centres de diffusion et d'acclimatation. Ce Service serait particulièrement important dans tous les pays où il est impossible de trouver sur place le personnel présentant les garanties nécessaires pour le conditionnement et l'envoi des insectes auxiliaires.

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Le personnel du Service d'Identification devrait être réparti auprès des Centres de recherches les plus importants existant dans le monde et groupé autour des spécialistes les plus avertis.

Le Service de Documentation devrait être placé à côté du Centre d'Identification considéré comme étant le plus important.

Le Service de Prospection devrait envoyer les chercheurs dans les Centres mondiaux où les organisations nationales existantes sont susceptibles de les accueillir et de faciliter leurs recherches au maximum.

Quant au Service d'Exécution son établissement est à prévoir en dernier lieu, lorsque le fonctionnement des autres Services précités aura été réalisé.

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Le fondement de l'organisation internationale envisagée, telle qu'elle ressort de toutes les considérations développées ci-dessus, repose, avant tout, sur les Services d'Identification, lesquels doivent être considérés comme les plus importants et les plus urgents à établir.

L'absence presque complète de systématiciens, dans les ordres d'insectes de première importance, au point de vue de la lutte biologique, constitue une lacune qu'il convient de combler avant toute autre considération. Il importe d'attirer vers ces études systématiques des éléments jeunes, en leur offrant un salaire raisonnable et une situation stable.

Le rôle d'une organisation internationale serait de prendre à sa charge le recrutement et le paiement de ces spécialistes internationaux.

L'organisation que nous proposons aujourd'hui n'est, en fait, qu'une extension au cadre mondial, de l'organisation déjà existante dans le Commonwealth britannique et les Etats-Unis d'Amérique.

Une telle organisation ne pourra porter ses fruits que si elle coopère étroitement avec les services, organisations ou spécialistes individuels qui existent déjà dans le monde entier et sont orientés vers les recherches ou les applications de la lutte biologique.

## Draft of Statement Recommending the Establishment of an International Biological Control Organization

The entomologists, representing 10 nations, gathered at Stockholm for the purpose of a symposium on the scientific basis of an international organization for biological control, knowing that the promotion of world peace, international understanding, and the welfare of peoples is the aim of UNESCO and AFO, bring to the attention of these powerful international organizations the opportunity and urgent need to achieve this aim in part by providing facilities for the development of basic research on biological control which will lead to the greatly extended use of natural enemies to control insect pests and noxious weeds, so helping to conserve world food resources.

To strengthen this resolution, the members of the symposium draw attention on to the following important considerations:

1. A great loss of human food is caused by the depredations of insect pests and the competition of weeds. To ease the world shortage of food every effort must be made to reduce this loss to the lowest possible level.

2. The use of insecticides has proved a powerful means of reducing loss. However, this method involves the continual expenditure of money and labour, and it has proved too expensive for use against the pests of many crops. Moreover it is sometimes dangerous to man and domestic animals; and it may also directly damage the crops it is use to protect, or do so indirectly either by causing the accumulation of toxic substances in the soil, or by destroying the natural enemies of the pests. A further disadvantage is that the intensive use of chemical methods of control frequently leads to the selection of a strain of the pest that is resistant to such control.

3. The utilisation of natural enemies for the control of insect pests and of weeds is the most economical method once the natural enemies are established, for no further expenditure of money or labour is then required. Furthermore it is the only practicable method when the cost of control by chemical methods is prohibitive, and when available labour is insufficiently skilled or reliable to apply insecticides.

4. It is clear that natural enemies could be used much more widely than they are at present, even though it is admitted that biological control cannot take the place of insecticides or herbicides for the control of every insect pest and weed. However, in their efforts to extend the field of biological control, entomologists are handicaped by their meagre knowledge of the important natural enemies that exist in various parts of the world.

5. To secure the necessary additional information some form of international organization is essential, for the biological control of insect pests and weeds in any one region is effected by introducing natural enemies from other regions. Consequently the information required by any one country can be obtained only by research in other countries; and therefore such research must necessarily be handicapped if organised on a national basis.

To deal with the situation outlined above, international action can and should begin at once, by setting up an organization providing the following services:

1) - A documentation service for the collection of pertinent information from all possible sources, and its dissemination to all interested organizations and individuals.

2) - A taxonomic service to deal with the identification of natural enemies.

3) - A survey service to study the natural enemies existing in the major regions of interest.

4) - An application service, devoted to collecting, breeding, transporting and acclimatizing natural enemies, and establishing these in regions where the nations concerned are unable to undertake this work themselves.

It is considered that the personnel of the taxonomic service should be stationed at existing major centres of taxonomic investigation, and that the documentation service should be associated with one of these groups of taxonomists, for the survey service groups of investigators should be stationed at appropriate centres, where special laboratory facilities will need to be provided. The formation of the application service should not be undertaken until the rest of the organisation has been well established.

Notes

1) - The keystone of the proposed organization is the taxonomic service. Because of the dearth of competent taxonomists it will not be possible to staff it adequately until more young men are persuaded to undertake such work. To attract them, permanent posts carrying adequate remuneration must be created, and in addition the organization must be prepared to undertake the cost of the specialized training (and probably the training itself) of the young men selected.

2) - The proposed international organization is viewed as an extension to other countries of the kind of work already being carried out by the United States of America and the British Commonwealth, the organization working in co-operation with all institutes and individuals actively carrying out biological control work.

ICSU
D.1022

U.R.S.I.
VIIIe ASSEMBLEE GENERALE
STOCKHOLM

12-23 juillet 1948

Nouvelle rédaction des Statuts établie par le Secrétariat Général. Ces statuts diffèrent des anciens par les points principaux suivants:

(a) Le Bureau de l'U.R.S.I. sera constitué par un Président, des Vice-Présidents, un Trésorier et un Secrétaire qui sera l'agent exécutif de l'Union.

(b) l'U.R.S.I. aura, à partir du 1er Janvier 1949, deux langues officielles: l'anglais et le français.

Recommendations aux Comités Nationaux:

Le Comité Exécutif invité les Comités Nationaux:

(a) à établir en anglais et en français les documents à publier par le Secrétariat de l'Union.

(b) à établir pour la prochaine Assemblée Générale un rapport sur leurs activités.

(c) à veiller au paiement régulier et complet de la cotisation statutaire.

Nouvelles Commissions:

Considérant l'extension prise par la science de la radio, le Comité Exécutif a proposé de substituer aux Commissions actuelles les suivantes:

I. Mesures et Etalonnages
II. Troposphère et Propagation des Ondes
III. Ionosphère et Propagation des Ondes
IV. Atmosphériques terrestres
V. Radio-bruits d'origine extra-terrestre
VI. Ondes et Oscillations
VII. Electronique.

Taux de la cotisation annuelle:

Le taux de la cotisation est maintenu à 450 francs-or par unité statutaire.

ICSU
D.1022

Compte-Rendu de l'Assemblée Générale:

Le Compte - Rendu de la VIIIe Assemblée Générale sera publié suivant les modalités suivies pour la publication du Compte - Rendu de la VIIe Assemblée Gpemperale.

Le Compte - Rendu de la prochaine Assemblée Générale sera publié séparément en anglais et en français.

IXe Assemblée Générale:

Sur invitation du Comité National Suisse, la IXe Assemblée Générale aura lieu en Suisse en 1950.

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N O M I N A T I O N S

faites par l'Assemblée Générale sur proposition

du COMITE EXECUTIF

---

A.- Président d'Honneur: M. R. Bureau (France)

B.- Membres du Bureau:

Président: Sir Edward V. Appleton (Grande Bretagne)

Vice-Présidents:
(Dr. J.H. Dellinger (Etats-Unis)
(Lt.Col. A. Dorsimont (Belgique)
(R.P. Lejay (France)
(Prof. Dr. J. Lugeon (Suisse)
(Dr. H. Sterky (Suède)
(Prof. Dr. B. van der Pol (Pays-Bas)

Trésorier: Prof. Ch. Manneback (Belgique)

Secrétaire: Lt.Col. E. Herbays (Belgique)

C.- Présidents de Commissions:

| | |
|---|---|
| Commission I | - Dr. J.H. Dellinger (Etats-Unis) |
| Commission II | - Dr. Ch.R. Burrows (Etats-Unis) |
| Commission III | - Sir Edward V. Appleton (Gde Bretagne) |
| Commission IV | - Prof. H. Norinder (Suède) |
| Commission V | - Dr. D.F. Martyn (Australie) |
| Commission VI | - Prof. Dr. B. van der Pol (Pays-Bas) |
| Commission VII | - Dr. G. Lehmann (France) |

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D.1022

D.- Délégués auprès des organisations scientifiques internationaux:

1. Conseil International des Unions Scientifiques:
   Sir Edward V. Appleton,
   Lt.Col. E. Herbays

2. Commission Mixte de l'Ionosphère:
   Sir Edward V. Appleton (Grande Bretagne)
   R.P. Lejay (France)
   Dr. D.F. Martyn (Australie)
   Dr. Newbern Smith (Etats-Unis)

3. Commission Mixte de Radio-Météorologie:
   Dr. Chas. R. Burrows (Etats-Unis)
   Dr. H.G. Booker (Grande Bretagne)
   Dr. H. Bremmer (Pays-Bas)
   Prof. Dr. J. Lugeon (Suisse)

4. Commission pour l'Etude des Relations entre les Phénomènes Solaires et Terrestres:
   Dr. C.W. Allen (Australie)
   M. R. Bureau (France)
   J.S. Hey (Grande Bretagne)
   Dr. D.H. Menzel (Etats-Unis)

# RESOLUTIONS

## Commission I - Standards and Measurements

1.- Measurement of field-strength

(a) It was recommended that "power flux" be adopted in addition to "field strength" in the specifications laid down at the VIIth. General Assembly (Paris). The term "power flux" is of greatest use for the higher frequencies, but a considerable overlap of the two methods of specification is desirable (e.g. from 30 to 200 Mc/s).

It was also recommended that the unit of power flux should be one watt per square metre: the use of a decibel scale relative to this flux may be convenient.

(b) It was recommended that the proposals of the VIIth General Assembly for the interchange of standard field strength measuring equipment between the various National laboratories should be rewarded to encourage the early standardization of such apparatus.

It was also recommended that the term "National Laboratory" be altered to include all the laboratories in each country which could usefully take part in such a programme.

2.- Standard noise sources

(a) It was recommended that the programme of the permanent sub-commission of Commission I should be extended to include a study of the following types of noise source:

(I) Thermal
(II) Diode
(III) Crystal
(IV) Gas discharges (with and without magnetic fields)
(V) Multiplier tubes.

It was also recommended that an investigation of other types of noise-source should be made, with a view to their use either as a basic standard, or as reproducible instruments.

(b) It was recommended that the permanent sub-commission of Commission I should determine the accuracy required for noise-sources at different radio frequencies. This investigation should include both absolute standards, and sources for normal laboratory use.

3.- The measurement of radio-frequency power

It was recommended that the permanent sub-commission of Commission I should investigate:

(a) The progress made in different countries on the comparison between calorimetric and bolometric measurement of radio-frequency power.

(b) The progress made in different countries on the comparison of bolometric measurements with standard noise sources.

(c) The requirements of accuracy in radio-frequency power measurements. It was suggested that an accuracy of 5% should be attempted for low-power measurements at frequencies of 3000 Mc/s and higher. Since low-power standardization can at present only be achieved by comparison with high power calorimetric measurements, the accuracy of high-power measurements must be better, and a figure of 2% was suggested.

(d) The interchange of power measuring apparatus between the laboratories of the different countries.

4.- General

Since many of the papers submitted to Commission I will not be printed in full, it was recommended that authors should be asked to submit references to other publications in which their work is described. These references should then be published in the Monthly Bulletin of U.R.S.I.

# RESOLUTIONS

## Commission II - On Radio Wave Propagation

1.- Recommended that hourly variations from mean (or median) ionospheric values be published for the five magnetically quiet, and the five magnetically most disturbed, days of each month.

2.- Recommended that the Association of Terrestrial Magnetism and Electricity be asked to provide the lists of days referred to in (1.-) above for publication in the U.R.S.I. Bulletin.

To prevent undue delay these might be provisional lists based on the results of a well distributed group of magnetic observatories.

3.- Recommended that the Association of Terrestrial Magnetism and Electricity be informed that the K, magnetic figures have proved of great value in the correlation of ionospheric and magnetic phenomena. The International Scientific Radio Union therefore hopes that the publication of such figures will be continued, and further suggests that, where such K figures are published, the G.M.T. of magnetic storms (marked S.C. or otherwise) should be added for the same period.

ICSU
D.1022

# RESOLUTIONS

## Commission III - Perturbations Atmosphériques

1.- Qu'une coopération scientifique soit établie entre la Commission III et l'Organisation Météorologique Internationale.

2.- Qu'il soit formé un groupe de travail pour étudier les spécifications et la normalisation des dispositifs expérimentaux utilisés dans les mesures de bruit d'origine atmosphérique.

3.- Que, pour faciliter l'exposition des travaux relatifs aux formes des atmosphériques individuels, il soit adopté comme base de travail la désignation chiffrée des formes utilisée dans les publications du Laboratoire National de Radioélectricité de Paris.

4.- Qu'une sous-commission permanente de la Commission III soit chargée d'organiser:

(A) une semaine internationale d'études des formes d'atmosphériques individuels pendant chacune des quatre saisons, au cours de laquelle seraient effectués:

1. des enregistrements synchrones de forme et de direction,

2. des enregistrements synchrones du champ de bruit dû aux atmosphériques à l'aide d'équipements identiques travaillant dans des bandes de fréquences spécifiées et cela en des lieux proches et éloignés des sources,

3. des relevés de toutes les données météorologiques et radiogoniométriques se rapportant aux sources étudiées pendant ces périodes internationales.

(B) des observations synchrones de forme et de direction à la demande d'une station principale capable d'observer, au cours de ses mesures habituelles, une activité des atmosphériques d'un intérêt spécial.

La Commission attire l'attention sur l'intérêt que présentent les enregistrements simultanés de forme et de direction des atmosphériques individuels, aussi bien de jour que de nuit.

5.- (A) que le document n°163 "Report on Solar and Galactic Noise" préparé par Sir Edward V. Appleton, soit publié sous forme de Rapport Spécial n°1 de l'U.R.S.I., sans mention du nom de l'auteur et sous le titre original. (Rapport sur les Radio-Bruits d'Origine Solaire et Galactique).

(B) que, pour une source ponctuelle de bruit, l'unité employée soit le watt par mètre carré par période par seconde, et, pour une source diffuse, le watt par mètre carré par période par seconde par stéradian. Que l'on puisse aussi, dans ce dernier cas, utiliser le concept de température équivalente.

Qu'enfin, la polarisation des ondes reçues soit toujours spécifiée.

# RESOLUTIONS

## Commission IV - Radiophysique

I.- Commission IV recommends to split up into two new Commissions:

1. Waves and Oscillations.

2. Electronics.

It is understood that Commission IV, 1., remains ready to accept papers and discussions of a general scientific interest which might perhaps not fall under the two headings 1. and 2.

II.- Commission IV recommends finally:

The further study of the theory and the facts of non-linear oscillations.

Bureau of IUTAM

Professor J. Pérès

Dr. R.V. Southwell,

Professor J.M. Burgers,

Dr. H.L. Dryden,

Professor G. Colonnetti,

Professor F. van den Dungen,

Professor H. Favre,

Professor H. Solberg.

CALENDAR

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|---|---|---|---|
| 31 Aug.-3 Sept. 1948 | UNESCO | INTERLAKEN (Switzerland) | International Conference on HIGH ALTITUDE RESEARCH STATIONS. |
| 1-10 Sept. 1948 | | THE HAGUE (Scheveningen) | VIth Congress, International PHOTOGRAMMETRY CONGRESS. |
| 5-10 Sept. 1948 | | BRUSSELS | Conseil de Physique SOLVAY |
| 5-11 Sept. 1948 | IUTAM | LONDON | VIIth International Congress of APPLIED MECHANICS. |
| Sept. 1948 | IUTAM | LONDON | Executive Committee, INTERNATIONAL UNION OF THEORETICAL AND APPLIED MECHANICS. |
| 13 Sept. 1948 | IUC | BRUSSELS | Executive Committee, INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY. |
| 13-16 Sept. 1948 | | LIEGE (Belgium) | International Association for BRIDGE AND STRUCTURE ENGINEERING. |
| 14-15 Sept. 1948 | ICSU | BRUSSELS | Executive Committee of the INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS. |
| 14-17 Sept. 1948 | | LONDON | International Conference of TANK SUPERVISORS. |
| 20-23 Sept. 1948 | ICSU | SCHEVENINGEN (Netherlands) | Joint Commission on RHEOLOGY. |
| 20-25 Sept. 1948 | | SCHEVENINGEN (Netherlands) | International RHEOLOGICAL CONGRESS. |
| 30 Sept.-7 Oct. 1948 | UNESCO | FONTAINEBLEAU (France) | International Conference on PROTECTION OF NATURE. |
| 1-6 Oct. 1948 | | PARIS | International Colloquium: REACTIONS DANS L'ETAT SOLIDE |

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| 4-5 Oct. 1948 | | PARIS | Executive Committee, INTERNATIONAL UNION OF BIOLOGICAL SCIENCES. |
| 4-11 Oct. 1948 | | LONDON | Conference of the INTERNATIONAL SCIENTIFIC FILM ASSOCIATION. |
| 10-15 Oct. 1948 | | PARIS | International Colloquium: ELECTRO-PHYSIOLOGY |
| 12 Oct. 1948 | | PARIS | General Conference on WEIGHTS AND MEASURES. |
| 16-18 Dec. 1948 | IUC | THE HAGUE | Executive Committee, INTERNATIONAL UNION OF CHEMISTRY. |
| May 1949 | | | Pan-American RESEARCH CONFERENCE. |
| 5-6 May 1949 | IUTAM | PARIS | Bureau, INTERNATIONAL UNION OF THEORETICAL AND APPLIED MECHANICS. |
| 16 May-3 June 1949 | ECOSOC | U.S.A. | U.N. Conference on CONSERVATION AND UTILIZATION OF NATURAL RESOURCES. |
| 14-16 June 1949 | ICSU | PARIS | COMMITTEE ON SCIENCE AND ITS SOCIAL RELATIONS |
| 20-25 June 1949 | UNESCO | PARIS | International Conference on SCIENCE ABSTRACTING. |
| 15-19 Aug. 1949 | | STOCKHOLM | XIIth International DAIRY CONGRESS. |
| 6-10 Sept. 1949 | IUC | AMSTERDAM | XVth General Conference, INTERNATIONAL UNION OF CHEMISTRY. |
| 14-16 Sept. 1949 | ICSU | COPENHAGEN | General Assembly, INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS. |
| Oct. 1949 | | PARIS | Vth International Congress on ANIMAL HUSBANDRY |
| Oct. 1949 | | | VIIth Pacific Science Congress. |

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| 7 July-1 Aug. 1950 | | AMSTERDAM | IVth International Congress of SOIL SCIENCE. |
| 1950 | IUBS | STOCKHOLM | General Assembly, INTERNATIONAL UNION OF BIOLOGICAL SCIENCES. |
| 1950 | | STOCKHOLM | VIIth International BOTANICAL CONGRESS. |
| 1950 | IUHS | BUCAREST | International Congress of HISTORY OF SCIENCE |
| 1950 | IUBS | RIO DE JANEIRO | Vth International Congress of MICROBIOLOGY |
| Probably July 1950 | | LONDON | IVth WORLD POWER CONFERENCE. |
| 30 Aug.-6 Sept. 1950 | | CAMBRIDGE (U.S.A.) | Congrès International de MATHEMATIQUES. |
| 9-17 Sept. 1951 | IUC | WASHINGTON and NEW YORK | XIIth Congress of PURE AND APPLIED CHEMISTRY XVIth General Conference, INTERNATIONAL UNION OF CHEMISTRY. |
| May 1951 | IUGG | BRUSSELS | General Assembly, INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS. |
| Summer 1952 | | ISTANBUL | VIIIth International Congress for APPLIED MECHANICS. |

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INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

# MONTHLY BULLETIN of INFORMATION

September 1948. No 13.

Réunion du Comité Exécutif

du

CONSEIL INTERNATIONAL DES UNIONS SCIENTIFIQUES

Le Comité Exécutif de l'I.C.S.U. s'est réuni au Palais des Académies à BRUXELLES les 14 et 15 Septembre.

En l'absence du Président Dr. J. FLEMING, c'est le Professeur Emile BOREL qui a présidé les débats.

Etaient présents :

Prof. M.R.IRVIT, ancien Président, Prof. A. SOLBERG (Membre), Prof. B. LINDBLAD et B. SIRO GREN (I.A.U.), Prof. F.J. VENING MEINESZ et Dr. J.M. STAGG (I.G.G.U.), Prof. R. DELABY et Prof. E. BERNER (I.U.C.), Colonel E. HERBAYS (U.R.S.I.), Prof. H.A. KRAMERS et Prof. P. FLEURY (I.U.P.A.P.), Prof. E. de PENSONNE, Prof. N.E. BOERGAN et Dr. M.A. LEFEVRE (I.G.U.), Prof. H. Munro FOX et Prof. P. VAUSSIERE (I.U.B.S.), Prof. P.P. EWALD et Dr. R.C. EVANS (I.U.Cr.), Prof. J.M. BURGERS et Prof. E.H. van den DUNGEN (I.U.T.A.M.), Prof. P. SERGESCU (I.U.H.S.), Prof. P. AUGER et Dr. WANG GING-HSI (Département des SCIENCES EXACTES ET NATURELLES de l'UNESCO, Prof. F.J.M. STRATTON, Secrétaire Général de l'ICSU et Dr. A. ESTABLIER, représentant de l'ICSU auprès de l'UNESCO.

Le Comité a adopté une résolution proposée par la ROYAL SOCIETY de Grande Bretagne, concernant l'admission de nouvelles unions à l'I.C.S.U.. Dorénavant les organisations nationales adhérentes à l'ICSU seront consultées avant l'admission d'une Union.

Le Comité, après avoir pris connaissance d'une proposition du "Committee on International Scientific Unions of the NATIONAL RESEARCH COUNCIL of the U.S.A." concernant la structure de l'ICSU, a décidé la création d'une sous-commission qui se réunira à PARIS au mois de février, et qui sera chargée d'examiner le problème et de préparer un rapport pour l'Assemblée Générale de l'ICSU en 1949.

Cette sous-commission est ainsi composée :

Prof. M.R. IRVIT (Président), Dr. J. FLEMING, Prof. A. SOLBERG, Prof. J.M. BURGERS, Prof. H. Munro FOX, Prof. I.J. SIKKS. Le Dr. A. ESTABLIER assistera à la réunion, et l'UNESCO sera invité à déléguer un représentant.

Le Comité Exécutif a approuvé la création des Commission Mixtes suivantes :

a) ETALONS ET UNITES DE RADIOACTIVITE - I.U.C. (Union-mère) 6 membres et I.U.P.A.P. 6 membres.

b) SPECTROSCOPIE - I.U.P...P. (Union-mère ) 8 membres et I.A.U. 6 membres.

c) STATIONS DE HAUTE ALTITUDE - I.U.B.S. (Union-mère) 4 membres, I...U. 3 membres, I.G.G.U. 4 membres et I.U.P...P. 3 membres.

D'autre part I.U.B.S. a été demandé de créer, en son sein, une commissions des CHAMPIGNONS PATURELLES aux travaux de laquelle seront invitées à prendre part l'I.G.G.U., l'I.A.U., l'I.G.U. qui désigneront leurs représentants.

Le Comité a pris connaissance de l'adhésion du PAKISTAN.

Le Dr. A. ESTABLIER a été, de nouveau, nommé "Liaison Officer ICSU-UNESCO" pour 1949.

Une longue discussion a suivi l'exposé du Professeur J.M. BURGERS Président de la C.S.S.R. qui a donné un aperçu des travaux de cette Commission. Il fut décidé d'augmenter le nombre des membres de la Commission en donnant une représentation proportionnée aux Sciences Sociales. On approuva, en outre, que les rapports de la C.S.S.R. soient imprimés et distribués aux participants à l'Assemblée Générale de l'ICSU en 1949.

Par contre, la proposition de la CSSR de publier un journal fut repoussée.

Le Comité Exécutif décida de soumettre au Directeur Général de l'UNESCO et aux Organisations Nationales adhérentes à l'ICSU la résolution suivante :

"The Executive Committee of the International Council of Scientific "Unions wishes to stress the importance of the unimpeded passage of "Scientists from one country to another for attending meetings of "recognized scientific bodies, for visiting places of research or "instruction or for other forms of international scientific contact.

"With a view to facilitate the work of the consulates in any "case of doubt as to the granting of a visa, the Executive Committee "offers its help by naming the national adhering body which is best "qualified to certify that the applicant is a bona fide scientist "and that his application is for a genuine scientific purpose.

"The Executive Committee requests the Director General of

"UNESCO to forward this resolution to the Governments of Member "States with a suggestion that they may give their consulates "suitable instructions.

"Contact with I.C.S.U. could be made through its liaison "officer at UNESCO House, Paris, or through the General Secretary, "Professor F.J.M. STRATTON, Gonville and Caius College, Cambridge, "England."

Le comité décida de demander aux Unions de préparer des suggestions détaillées relatives à l'ordre de priorité à donner à l'établissement de laboratoires internationaux de recherche scientifique. Ces rapports devront être présentés avant la fin du mois de janvier 1949. Cette résolution fut prise comme suite à une lettre du Dr. L. HUGLIN, Secrétaire Général du Département des Questions Sociales de l'O.N.U., demandant l'avis des Unions scientifiques internationales à ce sujet.

Il fut décidé que la prochaine Assemblée Générale de l'UGGI aurait lieu à COPENHAGUE les 14 et 15 Septembre 1949.

---

## Meeting of the Joint Commission on RADIO-METEOROLOGY

## of the I.U.G.G.

The Joint Commission on RADIO-METEOROLOGY met in STOCKHOLM on July 22 and 23, under the Chairmanship of Professor Chas N. DUROUS.

Besides a number of purely administrative questions examined at the Executive Meeting, the following resolutions were passed :

1) It was agreed that the Joint Commission should direct its attention, as opportunity arose, to the theoretical and experimental determination of those properties of the lower atmosphere which affect radio propagation, and that these should include :

(a) factors controlling temperature and humidity profiles ;

(b) temporal and spacial variations of temperature and humidity of a random nature ;

(c) radio climatology ;

(d) reflection and scattering from particles and other inhomogeneities ;

(e) gaseous absorption ;

(f) instruments for measuring temperature, humidity, total water-vapour content, dropsize, drop density, etc. ;

(g) storm detection by radar ;

(h) storm detection by sferics ;

(i) frontal passage by field-strength measurements.

2) It was agreed to bear in mind not only the need for fostering development of those aspects of meteorology required for radio science, but also ways in which radio technique can be used as an aid in meteorology.

3) It was agreed that the President should investigate the possibility of adding the names of Prof. [illegible] and Dr. [illegible] to the Joint Commission in place of Dr. A. H. GOLDIE and [illegible], it was also agreed that it would be desirable for [illegible] to be added to the Joint Commission to act as a permanent secretary.

4) It was agreed to ask the INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS for a grant of £4.000 to support, at the discretion of the Joint Commission, the following four items of research :

(a) To produce a report summarizing all the information at present available on turbulence likely to be useful in radio meteorology.

(b) To analyse existing data on coastal anomalies in radio meteorology with a view to understanding particularly the phenomenon of the coastal front and the influence of sea breeze in radio meteorology.

(c) To investigate the possibility of measuring the temperature of clouds by measuring radiation from them at microwave-lengths.

(d) To examine the possibility of measuring the temperature of the lower atmosphere by measuring radiation from the water vapour contained therein.

The need for research on subsidence was also mentioned.

5) It was agreed to hold the next meeting in about two years' time. The view was expressed that a meeting at the end of another Conference was undesirable.

The following papers were presented at the Technical Session :

(1) A theory on radar reflections from the Lower Atmosphere, by [illegible] GORDON

(2) Weather Radar Research at MASSACHUSETTS INSTITUTE OF TECHNOLOGY, by Alan C. DEVIS.

(3) Radar Echoes from Precipitation, by [illegible]

(4) Scattering and Attenuation of Microwave Radiation through Rain, by Fred. [illegible]

(5) The World Distribution of Radio Noise, by H.A. THOMAS.

(6) Atmospherics, by T.[illegible] BOTTELL and E.T. PIERCE.

(7- Microwave Atmospheric Absorption and Cosmic Noise, by [illegible] SCHULEIN.

(8) Appareil pour la Mesure de l'Epaisseur d'Eau condensable : quelques Résultats, par [illegible] et L. VASSY.

(9) The Canterbury Project, a Radio Meteorological Investigation in the South Island of NEW ZEALAND, by R.[illegible] GRIN and [illegible] PALMER.

(10) Summary of Australian Radio Meteorological Research Programme - Suggested List of Problems for consideration by the Commission, by F.G. BOOKER.

(11) A survey of superrefraction in the coastal regions of AUSTRALIA, by F.J. [illegible].

(12) Some Problems in Radio Meteorology, by H.G. BOOKER.

(13) Summary of Tropospheric Experiments carried out in FRANCE, by [illegible] BERTAUX.

(14) Comparison of Tropospheric Reception at 44.1 Mc/s. with 92.1 Mc/s. over the 167-mile Path, Alpine, New Jersey, to Needham, Massachusetts, by G.[illegible] PICKARD and W.T. STETSON.

(15) Refractive Index Profiles deduced from Radio Observations, by J.[illegible] GREEN.

(16) Average Radio Ray Refraction in the Lower Atmosphere, by L. SCHULEIN,

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Joint Committee on RADIOLOGY

of the I.C.S.U.

The Joint Committee on RADIOLOGY met on September 20 and 22, 1922, at SCHEVENINGEN (Netherlands), during the International Congress on RADIOLOGY.

The following members were present :

J.M. BURGERS ) representatives of the International Union of
G.W. SCOTT BLAIR) PURE AND APPLIED PHYSICS

Mme A. DOBRY-DUCLAUX) representatives of the International Union
R. SIGNER ) of CHEMISTRY

G. van ITERSON Jr.) representatives of the International Union of
P. EGGLETON ) BIOLOGICAL SCIENCES

M.C. PETERSEN) representatives of the International Union of
Ch.SAHRON ) THEORETICAL AND APPLIED MECHANICS .

In the absence of Professor Th. von KARMAN Madame DOBRY presided over the meetings.

From the three subjects brought forward at the meeting of September 1947, rheological nomenclature, abstracts of rheological publications, and standards for high viscosities, the first one had made the greatest progress. A preliminary report by J.M. BURGERS and G.W. SCOTT BLAIRappeared in April 1948, and since then has been forwarded to a great number of scientists interested in this subject. A discussion with members of the British Rheologist's Club took place in LONDON, on 11 May, 1948.

During the Rheological Congress discussions with members of the Congress have been arranged on the afternoon of September 20 and during part of the afternoon meeting of September 21. Remarks have also been received by letter. It was not deemed suitable to propose resolutions to be adopted at theese meetings, but it was decided that BURGERS and SCOTT BLAIR should prepare a new edition of the report on nomenclature, taking account of the points of view expressed by those who had taken part in the discussions. The revised report will be published in the Proceedings of the Congress and will serve as a basis for further consideration. It was also decided that french and german translations of important terms should be added, for which purpose the cooperation of M. LOUIS and of other scientists will be asked.

With regard to abstracts of rheological literature, it was decided to form a sub-committee consisting of G.W. SCOTT BLAIR and Mme A. DOBRY to formulate, before January 31, 1949, a project which can serve as a basis for inviting the co-operation of rheological societies and of individual scientists, and eventually that of UNESCO. The sub-committee has the power to co-opt members, and in the first place will seek the co-operation of Prof. J.J. HERMANS at GRONINGEN (Netherlands).

With regard to standards of high viscosities (up to $10^6$ Poise and over) Prof. Ch. SAHRON was charged to consider this subject and to seek contact with the committees on the physical and chemical properties

of macromolecular substances, working under the auspices of the International Unions of CHEMISTRY and of PURE AND APPLIED PHYSICS.

It was decided that the next meeting of the Joint Committee would take place in 1949, if possible just before or after the meeting of the Committee on AGRO CIRCULAR SUBSTANCES and at the same place. The Secretary was directed to correspond with Professor H. MARK on this matter.

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U.N.E.S.C.O. grants in 1950

Requests for grants-in-aid from UNESCO to the International Scientific Unions federated in the I.C.S.U., for 1950 should reach the ICSU Liaison Officer at UNESCO Headquarters, PARIS, before the 15th of March 1949 (in triplicate).

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CALENDAR

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|---|---|---|---|
| 30/9-7/10 1948 | UNESCO | FONTAINEBLEAU (France) | International Conference on the PROTECTION OF NATURE |
| Oct. 1-6 1948 | | PARIS | International Colloquium : REACTIONS DANS L'ETAT SOLIDE |
| Oct. 4-5 1948 | IUBS | PARIS | Executive Committee, INTERNATIONAL UNION OF BIOLOGICAL SCIENCES |
| Oct. 4-11 1948 | | LONDON | Conference of the INTERNATIONAL SCIENTIFIC FILM ASSOCIATION |
| Oct. 10-15 1948 | | PARIS | International Colloquium : ELECTRO-PHYSIOLOGY |
| Oct. 12 1948 | | PARIS | General Conference on WEIGHTS AND MEASURES |
| 18/11-11/12 '48 | UNESCO | BEIRUT | General Conference, 3rd Session. |
| Dec. 16-18 1948 | IUC | THE HAGUE | Executive Committee, INTERNATIONAL UNION OF CHEMISTRY |
| Feb. 1949 | IUBS | LONDON | Executive Committee, INTERNATIONAL UNION OF BIOLOGICAL SCIENCES |
| Feb. 1949 | | NEW ZEALAND | VII PACIFIC SCIENCE CONGRESS |
| May 1949 | | | Pan-African RESEARCH CONFERENCE |
| May 5-6 1949 | IUTAM | PARIS | Bureau, INTERNATIONAL UNION OF THEORETICAL AND APPLIED MECHANICS |
| 16/5-3/6 1949 | ECOSOC | U.S.A. | U.N. Conference on CONSERVATION AND UTILIZATION OF NATURAL RESOURCES |
| June 14-16 1949 | ICSU | PARIS | COMMITTEE ON SCIENCE AND ITS SOCIAL RELATIONS |
| June 20-25 1949 | UNESCO | PARIS | International Conference on SCIENCE ABSTRACTING |
| Aug. 15-19 1949 | | STOCKHOLM | XII International DAIRY CONGRESS |
| Sept 6-10 1949 | IUC | AMSTERDAM | XV General Conference, INTERNATIONAL UNION OF CHEMISTRY |

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| Sept 14-16 | 1949 | ICSU | COPENHAGEN | General Assembly, INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS |
| Oct. | 1949 | | PARIS | Vth International Congress on ANIMAL HUSBANDRY |
| 24/7- 1/8 | 1950 | | AMSTERDAM | IV International Congress of SOIL SCIENCE |
| | 1950 | | STOCKHOLM | General Assembly, INTERNATIONAL UNION OF BIOLOGICAL SCIENCES |
| | 1950 | | STOCKHOLM | VIIth International BOTANICAL CONGRESS |
| | 1950 | | BUCAREST | International Congress of HISTORY OF SCIENCE |
| | 1950 | | RIO DE JANEIRO | Vth International Congress of MICROBIOLOGY |
| July | 1950 | | LONDON | IVth [illegible] |
| 30/8-6/9 | 1950 | | CAMBRIDGE, USA | Congrès International de MATHEMATIQUES |
| Feb. | 1951 | | NEW DELHI | IVth Congress on LARGE DAMS |
| Sept. 8-17 | 1951 | IUC | WASHINGTON and NEW YORK | XIIth Congress of PURE & APPLIED CHEMISTRY<br>XVIth General Conference, INTERNATIONAL UNION OF CHEMISTRY |
| Aug. 2nd half | 1951 | UIGG | BRUSSELS | General Assembly, INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS |
| Summer | 1952 | | ISTANBUL | VIIIth International Congress for APPLIED MECHANICS |
| | 1952 | | | International GEOLOGICAL CONGRESS |

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Liaison de l'UNESCO
9, Avenue Kléber
PARIS 16e

INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

# MONTHLY BULLETIN OF INFORMATION

ICSU
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October-November 1948 N° 14

Conseil de la Fondation

"Station scientifique du JUNGFRAUJOCH"

Le Conseil de la Fondation "Station scientifique du JUNGFRAUJOCH" s'est réuni au Château de SPIEZ le 30 août 1948.

Etaient présents :

M. Jean WILLEMS, Bruxelles, Directeur du Fonds national de la Recherche scientifique belge,
Professeur E.D. ADRIAN, Cambridge, pour la ROYAL SOCIETY, Londres,
le Dr J. WILSON, Manchester, - - - - -
Professeur Max MORAND, Paris, pour la SORBONNE, Paris,
Professeur A. DURIG, pour l'Académie des SCIENCES, Vienne,
Professeur A. de MURALT, Président de la S.H.S.N., Suisse,
M. le Directeur Jean LUGEON, Secrétaire de la S.H.S.N.,
Maître E. TENGER, Trésorier de la Fondation,
M. G. FREI, Directeur de la Société du Chemin de fer de la JUNGFRAU,
Professeur P. FLEURY, Paris, représentant l'I.C.S.U.,
le Dr WANG GING-HSI, représentant l'Unesco,
le Dr STÄMPFLI, de la Station scientifique du JUNGFRAUJOCH

Extrait du rapport du Président : La station est occupée de plus en plus par des chercheurs étrangers, surtout par des physiciens, travaillant dans la recherche concernant les rayons cosmiques. Actuellement, deux méthodes de recherches sont surtout préconisées :

a) celle de la chambre à expansion de Wilson,
b) celle des plaques photographiques.

Dans les deux domaines, on constate une très forte activité.

L'astrophysique, elle aussi, prend une part importante dans la recherche scientifique, surtout grâce au Professeur Chalonge, de Paris, qui est en train d'accomplir un grand travail sur le spectre UV des étoiles, en étroite collaboration avec un groupe suisse d'astronomes.

La glaciologie a moins contribué aux recherches de l'an 1947, mais, en 1948, des recherches de grande envergure ont été entreprises par un groupe anglais, assisté par des glaciologistes suisses. Un tube d'acier de 136 mètres de long a été introduit verticalement dans le glacier, et on est en train de mesurer avec un inclinomètre le fléchissement du tube aux différents niveaux, ce qui permettra de répondre à une question fondamentale de la glaciologie, de savoir quelles couches avancent le plus rapidement.

Le domaine médico-physiologique a également amené différents chercheurs au JUNGFRAUJOCH sous la direction du Professeur Verzar, de Bâle. Les résultats diffèrent complètement des résultats obtenus en physiologie d'aviation. D'autres travaux ont été entrepris en zoologie, météorologie et minéralogie.

Les vingt-trois glaciologistes qui fréquentaient la station pour une visite informative étaient venus, sauf M. Seligman, de Cambridge.

Les dix-neuf astronomes formaient un groupe de recherches franco-suisse sous la direction du Professeur Chalonge, de Paris, et du Professeur Schürer, de Berne. L'année 1947 avec son beau temps fut très riche en résultats, et il faudra des années de travail à Paris pour en tirer les conclusions.

Parmi les dix-sept chercheurs qui ont travaillé dans le domaine de la médecine et de la physiologie, mentionnons le Professeur Verzar, de Bâle, le Docteur Rongo, d'Uppsala (Suède), et quelques investigateurs de l'Institut de médecine légale de Berne. Ceux-ci ont étudié l'influence de l'altitude sur la résistance contre l'intoxication par l'alcool éthylique. L'alcool passe, en hautes altitudes, beaucoup plus vite dans le sang, mais il est également détruit plus rapidement, de façon que les effets d'ingestion d'alcool sont plus précoces, plus prononcés, mais de moins longue durée qu'en plaine.

Un autre travail médical, certainement le plus important de cette année, a été accompli par le Dr Horning, du Royal Cancer Hospital, à Londres. Il avait inoculé trois lots de quatre-vingts souris, chacune avec une substance cancérogène et les avait exposées ensuite à différentes intensités de rayons cosmiques, en les plaçant :

a) sous 2 cm. de plomb (gerbes de rayons cosmiques maximales),

b) sans écran de plomb (intensité habituelle des r.c. au JUNGFRAUJOCH),

c) dans un tunnel, sous quelques mètres de rocher.

Horning constatait sous le plomb un développement plus rapide du cancer, mais ensuite, à un certain moment, de nouveau une diminution du volume. Il y avait des différences significatives entre les trois lots, et il semble incontestablement prouvé qu'il existe une influence des rayons cosmiques sur la croissance du cancer. Le Dr Horning compte revenir l'année prochaine.

Le Dr George, du Birbeck College, et ses collaborateurs, s'occupaient des mésons. Ce groupe mesurait aussi les intensités du r.c. auquel les souris du Dr Horning étaient exposées. Le Professeur Rosemblum, en collaboration avec le Dr Powell, de Bristol, a monté le grand aimant permanent de Bellevue (France) au JUNGFRAUJOCH pour la déviation magnétique des particules. Un projet de grand électro-aimant est en préparation pour l'année prochaine.

En zoologie, un chercheur de Cambridge, le Dr George Salt, a compté et différencié par une méthode ingénieuse le nombre et les espèces des insectes trouvés par mètre carré de glacier ou de rocher au JUNGFRAUJOCH, et il est arrivé à des chiffres se montant à plusieurs milliers.

Un météorologiste d'Oxford s'est servi de la station pour mettre au point ses appareils pour un prochain séjour en Nouvelle-Zélande.

Quelques minérologistes suisses se sont occupés de questions de géologie et de pétrographie au Jungfraujoch.

Au cours de l'année 1947, de nombreux achats pour le remplacement et pour l'amélioration du mobilier et de l'appareillage de la station étaient nécessaires.

Le Onzième Congrès international de médecine militaire a visité la station.

Le matériel amené au JUNGFRAUJOCH par le Dr George Salt pesait douze tonnes.

Les instruments astronomiques de l'Observatoire de Simeis, en Crimée, amenés au Jungfraujoch par les S.S. ont été rendus à leur propriétaire.

Après le rapport du Trésorier, le Président donne un aperçu de la situation financière, d'où il ressort qu'un déficit important rend indispensable une participation aux frais de logement des chercheurs. A la suite d'une discussion générale sur la question de savoir si cette participation aux frais devrait être payée individuellement par les chercheurs ou par les pays membres, on tombe d'accord sur le projet proposé par le Professeur Fleury, à savoir :

1. de permettre aux pays fondateurs de verser une somme forfaitaire d'au moins 4.000 francs suisses par an, qui servirait jusqu'à épuisement à loger les nationaux de ce pays à la station au prix de Fr. 10,--, même si la somme forfaitaire était épuisée pour cette année;

2. de demander aux chercheurs venant de pays membres de la Fondation n'ayant pas versé la somme forfaitaire mentionnée sous 1) une taxe journalière de Fr. 15,— par personne;

3. de demander aux chercheurs provenant de pays non membres une somme de Fr. 20,— par jour et par personne.

## UNION INTERNATIONALE DES SCIENCES BIOLOGIQUES

Réunion du Bureau, Paris,
4-5 octobre 1948

Le Bureau de l'U.I.S.B. s'est réuni les 4 et 5 octobre 1948 à la Maison de l'Unesco à Paris, sous la présidence du Dr H. Munro Fox, Vice-Président de l'Union.

Le Professeur P. Vayssière, Secrétaire général de l'Union, a fait un exposé général sur les activités de l'Union en 1947-1948.

Huit congrès internationaux patronnés par l'U.I.S.B. ont tenu leurs assises : Cytologie expérimentale (Stockholm, juillet 1947); Physiopathologie de la reproduction animale de la fécondation artificielle (Milan, juin 1948); Sériciculture (Alès, France, juin 1948); Génétique (Stockholm, juillet 1948); Zoologie (Paris, juillet 1948); Entomologie (Stockholm, août 1948); Limnologie (Zürich, août 1948).

L'Union a été chargée par les comités permanents de ces congrès d'établir, à l'avenir, un calendrier rationnel des diverses manifestations scientifiques envisagées, afin d'éviter que plusieurs réunions aient lieu en même temps dans des villes différentes.

Des Colloques pour l'étude d'un problème précis furent organisés par l'U.I.S.B. et semblent avoir tous eu des résultats très heureux pour la recherche scientifique : Présence des éléments rares chez les végétaux (Rothamsted, novembre 1947), problèmes et aspects de la taxonomie de la nomenclature botanique (Utrecht, septembre 1948), terminologie en génétique et cytologie (Stockholm, juillet 1948), relations entre oeuf et sperme (Milan, juin 1948), nécessité d'une organisation internationale de la lutte biologique contre les animaux et les végétaux nuisibles (Stockholm, août 1948); à l'issue de ce dernier, un voeu fut adopté en vue de la constitution d'une organisation internationale et plus particulièrement de laboratoires internationaux, dans un esprit correspondant au désir émis le 10 août à Genève par le Conseil économique et social des Nations Unies. Une lettre accompagnant le texte de ce voeu a été écrite dans ce sens à l'Unesco.

Jusqu'en 1947, une seule section spécialisée, celle de botanique, fonctionnait activement. Sept autres ont été constituées et leur existence a été consacrée par les congrès internationaux correspondants : Cytologie expérimentale, génétique, microbiologie, entomologie, zoologie, limnologie, embryologie. La Section de zoologie a été chargée d'entreprendre ou d'aider la publication des catalogues de types qui n'avait pu être réalisée jusqu'à ce jour. Le premier qui a vu le jour, avec une subvention de l'U.I.S.B., est celui des types de batraciens des collections du Muséum national d'Histoire naturelle de Paris. L'Association internationale des microbiologistes, constituée en Section de microbiologie de

l'U.I.S.B., continue à organiser un grand service international groupant toutes les collections de types microbiens : quatorze centres furent subventionnés en 1947, dix-huit le seront en 1948. Le Dépôt international de préparations microscopiques de Cytologie, qui n'avait pu remplir son rôle depuis sa création en 1938 à Louvain, a largement diffusé une circulaire faisant connaître son but, et déjà des préparations ayant une valeur historique et scientifique lui ont été adressées, et un certain nombre de lettres peuvent témoigner de l'intérêt suscité par cette initiative.

Plusieurs périodiques, essentiellement de bibliographie analytique, de caractère international ont été subventionnés : Resumptio genetica (Pays-Bas), Zoological Record (Grande-Bretagne), l'Année biologique (France), Biologia (Etats-Unis), ainsi que les comités chargés de la constitution de répertoires (Terminologia genetica et cytologiae, et Index herbariorum).

Grâce à des subventions de l'Unesco, des bourses ont pu être accordées à des travailleurs scientifiques pour leur permettre de faire des stages dans des laboratoires étrangers. Ces bourses furent au nombre de quatre.

Lors de l'Assemblée générale de 1947, la constitution de deux commissions mixtes avait été envisagée : Radiobiologie et étude scientifique des calamités naturelles. La première seule a, jusqu'à ce jour, reçu l'assentiment de l'I.C.S.U.. En dehors de l'U.I.S.B., elle fait appel au concours des unions internationales de chimie et de physique.

UNION INTERNATIONALE DES SCIENCES BIOLOGIQUES

Réunion du Bureau les 4 et 5 octobre 1948
(Maison de l'Unesco, 19, avenue Kléber, Paris, 16e)

ORDRE DU JOUR :

I. Activité de l'U.I.S.B. en 1948,

II. Exposé du Trésorier sur la situation financière
(Paiements des cotisations - Nouvelles adhésions)

III. Répartition des subventions Unesco
(1947 - 1948 - 1949 - 1950)

IV. Relations U.I.S.B. avec..... Unesco
..... I.C.S.U.
..... Cultures types microbiens
..... Nomenclature zoologique
..... Divers

V. Compte rendu de la réunion du Conseil de l'I.C.S.U. -
Unions adhérentes - Unions proposées,

VI. Nouvelles sections
(Sections sanctionnées - Sections proposées)

VII. Nouveaux organismes adhérents
(Institut international d'Embryologie d'Utrecht
Musée sérologique Rutgers University,
Association internationale des allergistes)

VIII. Commissions mixtes : Radiobiologie,
Calamités naturelles,
Biophysique,
Hautes altitudes

IX. Bourses

X. Congrès et Colloques en 1949 et 1950

XI. Assemblée générale de 1950

XII. Réunion du Bureau en 1949 (à Londres ? Comité britannique ?
(à Paris ?

XIII. Questions diverses :
Union des associations internationales
etc...

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## INTERNATIONAL FEDERATION OF CULTURE COLLECTIONS OF MICRO-ORGANISMS

The International Federation of Culture Collections (IFCC), which was established at the Fourth International Congress for Microbiology, Copenhagen 1947, is through the International Association of Microbiologists (IAMB) in association with the International Union of Biological Sciences (IUBS) and the International Council of Scientific Unions (ICSU) and through that body with the United Nations Educational, Scientific and Cultural Organization (Unesco).

The Federation operates through a Standing Commission of the Nomenclature Committee of the IAMB consisting of the following members :

Professor A.J. Kluyver (Chairman)
Dr. Henrique Aragao
Dr. R.E. Buchanan
Sir Alexander Fleming
Professor Paul Haudurcy
Professor Th. Madsen
Professor Stuart Mudd
Professor E.G.D. Murray
Dr. Ralph St. John-Brooks (Secretary)

The Commission acts in an advisory capacity and deals, through the IUBS, with the administration of funds that may be allocated to the IAMB by Unesco or other agencies in support of the various Culture Collections.

Names and addresses of Institutes or Collections that have formally joined the Federation

Algeria — Institut Pasteur à Alger, Dr. Edmond Sergent, Director

Argentina — Facultad de Agronomia y Veterinaria, Catedra de Bacteriologia, Buenos Aires. Dr. José J. Montoverde, Professor of Bacteriology

Australia — The Walter and Eliza Hall Institute of Medical Research, Royal Melbourne Hospital, Melbourne, N.2. Director, Dr. F.M. Burnet, F.R.S. Collection of viruses in charge of Miss P. Lind

Dr. E.V. Keogh, Commonwealth Serum Laboratories, Parkville, N.2., Victoria

Salmonella Centre for Australia, Bacteriology Department, The University, Box 498D., G.P.O., Adelaide. Miss Nancy Atkinson

Professor H.K. Ward, Department of Bacteriology, The University of Sydney, Sydney, N.S.W.

Belgium — Institut de Médecine tropicale Prince Léopold, 155, rue Nationale, Antwerp. Dr. P. Brutsaert, Professor of Bacteriology

Institut agronomique, Département de Microbiologie, Parc d'Arenberg, Héverlé. Professor P. Simonart

Brazil — Dr. Henrique Aragao, Director, Instituto Oswaldo Cruz, Rio de Janeiro

Colecao Brasileira de Tipos Microbianos, Laboratorio de Parasitologia, Universidade do Brasil, Avenida Pasteur, 458, Rio de Janeiro.

British West Indies — * Colonial Microbiological Research Institude, Port-of-Spain, Trinidad. Director, Dr. A.C. Thaysen

Bulgaria — Professor Wl. Markoff, Société Bulgare de Microbiologie, 3, rue Dounaw, Sofia

Canada — Division of Bacteriology and Dairy Research, Department of Agriculture, Central Experiment Farm, Ottawa. Dr. A.G. Lochhead, Dominion Agricultural Bacteriologist

China — * National Bureau of Industrial Research, P.O. Box 108, Nanking. Director, Dr. Yu-Tsuan Ku.

* Microbiological Collection of the National Shenyang Medical College, Shenyang. Director, Dr. Koda Guo.

Czechoslovakia — Centre de Collection de Types microbiens de Tchécoslovaquie. Director, Prof. O. Jirovec, Dept. of Parasitology, Charles University, Viniena 7, Praha II.

Collection de microbes pathogènes, Institut d'hygiène publique, Praha. Director, Dr. Raska

Collection de microbes industriels, Institut de mycologie, l'Ecole technique supérieure, Praha. Director, Professor B. Jelinek

Collection des microbes d'agriculture, Institut de recherches d'agriculture, le Ministère de l'agriculture, Praha. Director, Dr. K.Kas

Culture Collection Algarum, Hepaticarum et Muscorum, Ustav Pro Fysiologii Rostlin, Charles University, Viniena 5, Praha II. Directors, Professor S. Prat and Dr. Rotovsky

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|---|---|
| Denmark | Statens Seruminstitut, Enterobacteriaceae Centre, Amager Boulevard, 80, Copenhagen S. Dr. F. Kauffmann |
| Dutch East Indies. | 's Lands Plantentuin, Treub-Laboratorium, Buitenzorg, Java. Director, Dr. M.H. van Raalte |
| Egypt | * Bacteriological Department, Faculty of Medicine, Fouad I University, Kasr El-Aini Hospital, Cairo. Professor M.A. Gohar |
| France | Museum national d'Histoire naturelle, Laboratoire de Cryptogamie, 12, rue de Buffon, Paris Ve, Professor R. Heim |
| | Institut Pasteur, 20 bd. Louis XIV, Lille. Director, Professor Ch. Gernez-Rieux |
| | Institut Pasteur, 25, rue du Docteur Roux, Paris XVe. Dr. A.R. Prévot, Chef de service |
| | Institut Pasteur, 25, rue du Docteur Roux, Paris XVe. Dr. J. Bretey, Chef du Service de la Tuberculose |
| | Institut Pasteur, 28, rue du Docteur Roux, Paris XVe. Dr. J. Magrou, Chef du Service de Phytopathologie et de Mycologie. |
| | Institut Pasteur, 25, rue du Docteur Roux, Paris XVe. Dr. P. Lépine, Service de Virus. |
| | Institut de Parasitologie, 15, rue de l'Ecole de Médecine, Paris VIe. Dr. M. Langeron, Chef de Service |
| | Laboratoire de Bactériophagie, 40, rue Olivier de Serres, Paris XVe. Director, Dr. F. d'Herelle |
| Great Britain | Culture Collection of Algae and Protozoa, Botany School, Downing Street, Cambridge. Curator, Dr. E.G. Pringsheim |
| | Wellcome Physiological Research Laboratories, Langley Court, Beckenham, Kent. Culture Collection. H. Proom, Esq., B.Sc. |
| | * Sub-department of Medical Mycology, London School of Hygiene and Tropical Medicine. Director, Dr. J.T. Duncan |
| | * Commonwealth Mycological Institute, Ferry Lane, Kew, Surrey. Director, Dr. S.P. Wiltshire |

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| Holland | Institute for Tropical Hygiene, Mauritzkade 57, Amsterdam. Dr. J.W. Wolff, Chief Bacteriological Department |
| | Centraal bureau voor Schimmelcultures, Javalaan 4, Baarn. Prof. Johanna Westerdijk, Director |
| | Technische Hoogeschool, Laboratorium voor Microbiologie, Nieuwe Laan 5, Delft. Prof. A.J. Kluyver, Director |
| India | * Indian Type Culture Collection, Indian Institute of Science, Malleswaram P.O., Bangalore, Director, Prof. M. Sreenivasaya |
| | * Indian Agricultural Research Institute, New Delhi, Director, Dr. J.N. Mukherjee |
| Iran | Institut d'Etat pour la Préparation des Sérums et Vaccins, Hessarak-Karadj-Iran. Dr. L. Delpy, Director-General |
| Italy | Laboratorio di Batteriologia, Istituto Superiore di Sanita Viale Regina Margherita 299, Rome. Prof. G. Penso, Director. |
| | Istituto ed Orto Botanico, Laboratorio Crittogamico, Università di Pavia, Via Scopoli, Pavia. Prof. R.Ciferri |
| New Zealand | University of Otago, Medical School, King Street, C.1., Dunedin. Sir Charles Hercus, Dean |
| Philippine Islands | * Institute of Hygiene, University of the Philippines, Manila. Dr. Florante Bocobo. |
| Switzerland | Centre de Collection de types microbiens, Institut d'Hygiène, 19, avenue César Roux, Lausanne. Prof. P. Haudurcy, Director. |
| | Centrale laitière de Lausanne, avenue César Roux-St. Martin, Lausanne. Dr. Dorner |
| | Institut vétérinaire de laboratoire de recherches Galli-Valerio, 19, avenue César Roux, Lausanne. Dr. Bouvier, Director |
| Tunis | Institut Pasteur de Tunis. Dr. L. Balozet, Director |
| Turkey | Institut d'Hygiène de l'Université d'Istanbul, Istanbul. Prof. Julius Hirsch. |

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U.S.A.

American Type Culture Collection 2029 M Street, N.W., Washington 6, D.C. Dr. L.A. Rogers, Chairman, Executive Committee; Dr. Ruth E. Gordon, Curator

University of Illinois, Department of Bacteriology, 362 Noyes Laboratory of Chemistry, Urbana, Illinois. Prof. F.W. Tanner, Head, Bacteriology Department

Rutgers University, New Jersey Agricultural Experiment Station, Nichol Avenue, New Brunswick, N.J. Dr. S.A. Waksman, Microbiologist

State Department of New York, Department of Health, Division of Laboratories and Research, New Scotland Avenue, Albany 1. Miss Julia M. Coffey, Associate Bacteriologist

* USDA, National Regional Research Laboratory, Fermentation Division, Culture Collection, Peoria 5, Ill. Dr. Kenneth B. Raper

* Department of Microbiology, Hopkins Marine Station, Pacific Grove, Calif. Dr. C.B. van Niel, Professor of Microbiology.

* Joined Federation in 1948.

## CALENDAR

| | | | |
|---|---|---|---|
| Dec. 16-18 1948 | IUC | THE HAGUE | Executive Committee, INTERNATIONAL UNION OF CHEMISTRY |
| Jan. 18-21 1949 | CIPSH | BRUSSELS | 1ère Session Assemblée générale du CONSEIL INTERNATIONAL DE PHILOSOPHIE ET SCIENCES HUMAINES |
| Feb. 14-15 1949 | IUBS | LONDON | Bureau, INTERNATIONAL UNION OF BIOLOGICAL SCIENCES |
| Feb. 2-22 1949 | | NEW ZEALAND | VII PACIFIC SCIENCE CONGRESS |
| Apr. 1949 | IGU | LISBON | Congrès international de GEOGRAPHIE |
| Apr. 4-9 1949 | Under UNESCO - WHO auspices | BRUSSELS | Assemblée générale constitutive du CONSEIL PERMANENT pour la COORDINATION des CONGRES INTERNATIONAUX des SCIENCES MEDICALES |
| May 1949 | | | Pan-African RESEARCH CONFERENCE |
| May 5-6 1949 | IUTAM | PARIS | Bureau, INTERNATIONAL UNION OF THEORETICAL AND APPLIED MECHANICS |
| 16/5-3/6 1949 | ECOSOC | U.S.A. | U.N. Conference on CONSERVATION AND UTILIZATION OF NATURAL RESOURCES |
| June 14-16 1949 | ICSU | PARIS | COMMITTEE ON SCIENCE AND ITS SOCIAL RELATIONS |
| June 20-25 1949 | UNESCO | PARIS | International Conference on SCIENCE ABSTRACTING |
| Aug. 15-19 | | STOCKHOLM | XII International DAIRY CONGRESS |
| Sept. 6-10 1949 | IUC | AMSTERDAM | XV General Conference, INTERNATIONAL UNION OF CHEMISTRY |
| Sept. 14-16 1949 | ICSU | COPENHAGEN | General Assembly, INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS |
| Oct. 1949 | | PARIS | Vth International Congress on ANIMAL HUSBANDRY |

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|---|---|---|---|---|
| 24/7- 1/8 | 1950 | | AMSTERDAM | IV International Congress of SOIL SCIENCE |
| | 1950 | | STOCKHOLM | General Assembly, INTERNATIONAL UNION OF BIOLOGICAL SCIENCES |
| | 1950 | | STOCKHOLM | VIIth International BOTANICAL CONGRESS |
| | 1950 | | BUCAREST | International Congress of HISTORY OF SCIENCE |
| | 1950 | | RIO DE JANEIRO | Vth International Congress of MICROBIOLOGY |
| July | 1950 | | LONDON | IVth WORLD POWER CONFERENCE |
| 30/8-6/9 | 1950 | | CAMBRIDGE, USA | Congrès international de MATHEMATIQUES |
| Feb. | 1951 | | NEW DELHI | IVth Congress on LARGE DAMS |
| Summer | 1951 | IUCr | Europe | 2nd General Assembly, INTERNATIONAL UNION OF CRYSTALLOGRAPHY |
| Sept.8-17 | 1951 | IUC | WASHINGTON | XIIth Congress of PURE & APPLIED CHEMISTRY<br>XVIth General Conference, INTERNATIONAL UNION OF CHEMISTRY |
| Aug. 2nd half | 1951 | UIGG | BRUSSELS | General Assembly, INTERNATIONAL UNION OF GEODESY & GEOPHYSICS |
| Summer | 1952 | | ISTANBUL | VIIIth International Congress for APPLIED MECHANICS |
| | 1952 | | | International GEOLOGICAL CONGRESS |

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Issued by : ICSU-UNESCO Liaison Office
Maison de l'Unesco
19, avenue Klóber,
PARIS 16e

# INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

MONTHLY BULLETIN

OF

INFORMATION

ICSU
D. 1.147

DECEMBER 1948 No. 15

UNITED NATIONS EDUCATIONAL,
SCIENTIFIC AND CULTURAL ORGANIZATION

Third Session of the General Conference

Beirut, November and December 1948

At the third Session of the General Conference of Unesco, the following budget was adopted for the NATURAL SCIENCES :

| | |
|---|---|
| Science Co-operation Offices | $ 221,856 |
| World Centre of Scientific Liaison | $ 146,111 |
| Co-operation with United Nations, Specialized Agencies and Non-Governmental Organizations (Grants-in-aid to Scientific Bodies, Institute of the Hylean Amazon, etc) | $ 242,374 |
| Popularization of Science | $ 14,476 |

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THE SCIENCE CO-OPERATION OFFICES

Through its four Science Co-operation Offices, located in the Middle East (Cairo), East Asia (Nanking and Shanghai), South Asia (Delhi) and Latin America (Montevideo), Unesco is overcoming the feeling of isolation and even abandonment in which many scientific groups still find themselves in various parts of the world.

These stations or science "bases" will continue to aid scientists and technicians to raise the local standards of living and to facilitate the exchange of scientific knowledge and information within the regions and with the rest of the world. The peoples in the regions are thus given a feeling of being a part of the world community and of taking part in its modern development.

In view of the success of these Offices, the Beirut Conference agreed that such activities should be maintained "as an undertaking of the highest priority in the NATURAL SCIENCES programme".

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## Aid to Organizations in the Pure and Applied Sciences

Since its creation in 1946, Unesco has recognized the important contribution made by international non-governmental organizations in the fields of the pure and applied sciences in furthering the aims and purposes of Unesco and in showing how people of all countries can work together on concrete problems.

Through grants-in-aid and contracts to organizations, such as the INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS (ICSU) and its ten federated Unions (Astronomy, Biological Sciences, Chemistry, Crystallography, Geodesy and Geophysics, Geography, History of Sciences, Theoretical and Applied Mechanics, Pure and Applied Physics, Radio-Science), the WORLD POWER CONFERENCE and various International Medical Congresses, Unesco has given renewed life and vigour to the work of international scientific collaboration.

In the fields of Agricultural and Medical Sciences Unesco's work is closely co-ordinated with the FOOD AND AGRICULTURE ORGANIZATION and the WORLD HEALTH ORGANIZATION.

In April 1949, a meeting to create a PERMANENT COUNCIL FOR THE CO-ORDINATION OF INTERNATIONAL CONGRESSES OF MEDICAL SCIENCES will be held in Brussels, in collaboration with WHO. The World Health Organization has allocated the sum of $20,000 for 1949 to assist in the organization of this Council. The Council will be an independent non-governmental organization, with agreements with Unesco and WHO. The Council will press forward the publication of the results of the Congresses to spread new medical knowledge to the widest international public.

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## Scientific Literature

Considerable progress has already been made on the internationally vital problem of what is called "Science abstracting". As in most other parts of Unesco programme, this work is carried on in close co-operation not only with other aspects of the Organization's programme (Libraries), but with other Agencies of the United Nations (WHO, FAO).

ICSU
D. 1.147

It is estimated that about a million technical articles are published in different countries each year. Since no scientist can possibly hope to read all the articles even within his special field of interest, abstracts or résumés of these articles are published. However, some articles are abstracted many times and others not at all.

Unesco has set itself the goal of attempting to achieve a co-ordination of the activities of different abstracting organizations. Already an Interim Co-ordinating Committee on Medical and Biological Abstracting has been formed under the auspices of Unesco and WHO. A world Conference on science abstracting and other problems concerning scientific literature will be held in Unesco House in June 1949.

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## Scientific Apparatus

The Beirut Conference approved the further development of the SCIENTIFIC APPARATUS INFORMATION SERVICE (SAIS), whose establishment was recommended by the Conference of Allied Ministers of Education in London. This novel service answers queries concerning scientific and technological apparatus for education and research.

In order to extend the available services of information, assurances of close co-operation have been obtained from representatives of scientific equipment manufacturers in nine countries. Such contacts are being further extended to include universities, research associations and international scientific organizations.

There has been a long-felt need among science teachers the world over for an internationally agreed standard of basic equipment for teaching science in primary and secondary schools, universities and technical colleges.

To meet this need Unesco has obtained the services of experts in five leading countries to compile such inventories, and it is planned to publish them during 1949 in French, English and Spanish and later in Chinese and Arabic.

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## International Scientific Institutes

The International Institute of the HYLEAN AMAZON is expected to start on its first programme of research during 1949. At Beirut a $12,000 subvention to the new Institute was approved to cover projects of special interest to Unesco.

A new venture along this line was proposed by India and approved by the Beirut Conference. During 1949 Unesco will study the possibilities of establishing an INTERNATIONAL INSTITUTE OF THE ARID ZONE which would devote its efforts to the problems of the ever expanding desert areas that now cover one-fourth of the earth's surface.

The following programme is envisaged :

First year - Study of a programme by a Committee of Experts and of delegates of International Organizations such as FAO, WHO, IUPN and preparation of a comprehensive report and a draft constitution.

Second year - Meeting of a constitutive International Conference and the formation of an Interim Commission which would take the first step towards the creation of IIAZ.

Third year - Final establishment of the IIAZ.

As a first step, a letter has been sent to the International Unions of BIOLOGICAL SCIENCES, GEODESY and GEOPHYSICS, THEORETICAL AND APPLIED MECHANICS and PURE AND APPLIED PHYSICS of ICSU, asking them to make reports on the significant fundamental research that could be carried out by such an Institute in the domain of these Unions.

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## Special Projects

### Popularization of Science and its Social Implications

At Mexico City, Unesco decided to launch a programme to initiate in Member States discussions each year on a scientific theme of current international importance. For 1949 the theme selected is "FOOD AND PEOPLE".

The following is a list of the pamphlets which Unesco will publish during 1949 as part of its effort to arouse discussion on the major Unesco theme of the year "FOOD AND PEOPLE".

ICSU
D.1.147

A. - General pamphlet on Food and People - A.HUXLEY and E.J. RUSSELL.

B. - Background pamphlets for popular level discussions :

(1) - Population: Facts and Prospects - Mrs. A. MYRDAL and Dr. P. VINCENT.

(2) - Food: Facts and Prospects - Dr. E. KELLOGG

C. - Background Pamphlets for semi-popular levels :

(1) - Fundamental education and Natural Resources (Fundamental Education experiments in Mexico and Latin America) - Dr. Guillermo NANNETTI.

(2) - Family and Food Habits (Anthropological study) - Mrs. Margaret MEAD.

(3) - International Co-operation (Summary discussion on behalf of Specialized Agencies and United Nations) - (Author still indefinite).

(4) - Child Nutrition - (Author still indefinite).

D. - Background pamphlets for academic levels:

(1) - Science, Technology and Population - Dr. Warren S. THOMPSON.

(2) - Balance and Movements of Population, including three papers:

(a) Areas of Rapid Population Growth - Dr. KINGSLEY DAVIS.

(b) Areas of Low Population - Dr. G. LOYO

(c) Movements of Population - Dr. Julius ISAACS

(3) - Population Problems of China - Dr. TA CHEN.

(4) - Population Problems of India - Dr. S. CHANDRASEKHAR.

(5) - Genetics, Food and People (General story on genetics) - Dr. C.H. WADDINGTON.

(6) - Food and Nutrition, including :

(a) Introduction: food and welfare - Dr. André MEYER;

(b) South America - (Author still indefinite);

(c) Eastern Europe - (Author still indefinite)

(d) Switzerland - or - United Kingdom - (Author still indefinite)

(7) - Scientific Advances in Agriculture - Dr. B.A. KEEN.

(8) - Soil, Forest and Water - Dr. Raymond FURON.

(9) - Food from Stream and Sea - Dr. H.E. BLEGVAD.

(10) - Full Development of the World's Food Resources - Dr. E. de VRIES.

(11) - Distribution of the World's Food - Dr. S. KROLIKOWSKI.

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Conservation of Resources and Protection of Nature

In August 1949 the United Nations is calling a Scientific Conference on the Conservation and Utilization of Resources at Lake Success. Unesco has participated in the preparations for this Conference, especially concentrating on the problems of education.

Unesco is calling, jointly with the newly established International Union for the Protection of Nature, an International Technical Conference on the Protection of Nature. It will be held in the United States of America immediately following the United Nations Conference.

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Dr. Angel ESTABLIER, Liaison Officer between the International Council of Scientific Unions and Unesco has been appointed Principal Science Co-operation Officer of Unesco for Latin America. Dr. Establier will take up duty in Montevideo by 1 January 1949.

# C A L E N D A R

| | | | |
|---|---|---|---|
| Jan. 18-21 1949 | CIPSH | BRUSSELS | 1ère Session de l'Assemblée du CONSEIL INTERNATIONAL DE PHILOSOPHIE ET DES SCIENCES HUMAINES |
| Feb. 14-15 1949 | IUBS | LONDON | Bureau, INTERNATIONAL UNION OF BIOLOGICAL SCIENCES |
| Feb. 2-22 1949 | | NEW ZEALAND | VIIth PACIFIC SCIENCE CONGRESS |
| Apr. 8-15 1949 | UGI | LISBON | Congrès International de GEOGRAPHIE |
| Apr. 4-9 1949 | UNDER UNESCO - WHO auspices | BRUSSELS | Assemblée Générale constitutive du CONSEIL PERMANENT pour la CO-ORDINATION des CONGRES INTERNATIONAUX des SCIENCES MEDICALES |
| Apr. Mid- 1949 | | PARIS | International Colloquium on the POLARIZATION of MATTER |
| May 1949 | | | Pan-African RESEARCH CONFERENCE |
| May 5-6 1949 | IUTAM | PARIS | Bureau, INTERNATIONAL UNION OF THEORETICAL AND APPLIED MECHANICS |
| May 17-20 1949 | | ISTANBUL | International Congress of COMPARATIVE PATHOLOGY |
| June 14-16 1949 | ICSU | PARIS | COMMITTEE ON SCIENCE AND ITS SOCIAL RELATIONS |
| June 20-25 1949 | UNESCO | PARIS | International Conference on SCIENCE ABSTRACTING |
| June 22 - July 7 1949 | NETHERLANDS | | International GRASSLAND Conference |
| July 21-29 1949 | | LONDON | International Congress of CROP PROTECTION |
| Aug. 6-13 1949 | | LONDON | International VETERINARY Conference |
| Aug. 15-19 1949 | | STOCKHOLM | XIIth International DAIRY Congress |
| Aug. 19-25 1949 | | CAMBRIDGE (England) | First International BIOCHEMICAL Congress |

ICSU
D.1.147

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|---|---|---|---|---|
| Aug.17 - Sept.6 | 1949 | UNSCCUR | Lake Success U.S.A. | U.N. Conference on CONSERVATION AND UTILIZATION of NATURAL RESOURCES |
| Aug.24-31 | 1949 | UNESCO-UIPN | U.S.A. | Conférence Technique pour la PROTECTION DE LA NATURE |
| Sept.6-10 | 1949 | IUC | AMSTERDAM | XV General Conference, INTERNATIONAL UNION OF CHEMISTRY |
| Sept.14-16 | 1949 | ICSU | COPENHAGEN | General Assembly, INTER-NATIONAL COUNCIL OF SCIENTIFIC UNIONS |
| Sept. 19-30 | 1949 | UNESCO | PARIS | IVth Session of the General Conference |
| October | 1949 | | PARIS | Vth International Congress on ANIMAL HUSBANDRY |
| May 1 -25 | 1950 | UNESCO | FLORENCE (Italy) | Vth Session of the GENERAL CONFERENCE |
| July 10-15 | 1950 | | U.K. | IVth Plenary WORLD POWER Conference |
| July 24 - Aug.1 | 1950 | | AMSTERDAM | IVth International CONGRESS of SOIL SCIENCE |
| | 1950 | | STOCKHOLM | General Assembly, INTERNATIONAL UNION OF BIOLOGICAL SCIENCES |
| | 1950 | | STOCKHOLM | VIIth International BOTANICAL Congress |
| | 1950 | | BUCHAREST | International Congress of HISTORY OF SCIENCE |
| | 1950 | | RIO DE JANEIRO | Vth International Congress of MICROBIOLOGY |

ICSU
D. 1.147

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|---|---|---|---|---|
| Aug. 30 - Sept. 6 | 1950 | | CAMBRIDGE, U.S.A. | Congrès International de MATHEMATIQUES |
| Feb. | 1951 | | NEW DELHI | IVth Congress on LARGE DAMS |
| Summer | 1951 | IUCr | EUROPE | Second General Assembly, INTERNATIONAL UNION OF CRYSTALLOGRAPHY |
| Sept. 8-17 | 1951 | IUC | WASHINGTON | XIIth Congress of PURE & APPLIED CHEMISTRY<br>XVIth General Conference, INTERNATIONAL UNION OF CHEMISTRY |
| Aug. 2nd half | 1951 | UGGI | BRUSSELS | General Assembly, INTERNATIONAL UNION OF GEODESY & GEOPHYSICS |
| Summer | 1952 | | ISTANBUL | VIIIth International Congress for APPLIED MECHANICS |
| | 1952 | | | International GEOLOGICAL Congress |

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INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

# MONTHLY BULLETIN OF INFORMATION

ICSU
D.1.180

JANUARY-FEBRUARY 1949 No. 16

UNION INTERNATIONALE DES SCIENCES BIOLOGIQUES

Réunion du Comité Exécutif

LONDRES 14 - 15 Février 1949

Etaient présents :

Prof. M.J. SIRKS, Président (Netherlands)
Prof. H. Munro FOX, Vice-Président (U.K.)
Prof. P. VAYSSIERE, Secrétaire général (France)
Prof. F. CHODAT (Switzerland)

Dr. Ronald FRASER (ICSU-UNESCO Liaison Officer)

Après le rapport du Secrétaire général sur les questions d'ordre administratif, le Trésorier expose la situation financière, d'où il ressort que 16 pays adhérents ont acquitté leur cotisation cependant qu'un certain nombre de pays sont encore en retard pour le versement de leur cotisation.

A la demande du Trésorier, le Président se référant aux statuts, engage celui-ci, dans le cas de retard prolongé, à informer l'organisme national représentant le pays défaillant, que la radiation de ce dernier sera demandée à la prochaine Assemblée générale. En définitive, le Trésorier fait constater que la situation financière de l'Union s'est nettement améliorée depuis octobre 1948.

Sections :

Un échange de vues s'établit sur les principes qui doivent présider à la constitution des sections. Il suffit, semble-t-il, de s'en tenir aux termes des statuts de l'IUBS : si un organisme international spécialisé est reconnu comme pouvant prendre en mains la formation et l'activité d'une nouvelle section, il reste entendu que tout spécialiste peut s'intéresser aux travaux de ladite section, et faire partie du Bureau, sans devoir, ipso facto, s'affilier à l'organisme en question s'il ne le désire pas.

Entomologie : Le Secrétaire général a communiqué au Dr. RILEY un important manuscrit sur les genres et les génotypes d'Acariens dont la publication pourrait être assurée grâce à la subvention reçue par la section de l'UNESCO. Le Dr. RILEY espère que ce mémoire pourra être publié par la Société linnéenne de LONDRES et les tirés à part se présenteront comme des travaux de l'IUBS.

ICSU
D. 1.180

Génétique : Le Prof. SIRKS expose les activités diverses de la section et il attire l'attention sur le projet de publication de l'Index geneticorum et sur l'organisation des laboratoires de multiplication des Drosophiles.

Microbiologie : Le fonctionnement de cette section paraît s'identifier, en grande partie, avec celui de l'ensemble des centres internationaux de cultures microbiennes pour lesquels des rapports sont fournis séparément.

Zoologie : L'Index Zoologicorum a pu être commencé grâce à une subvention supplémentaire de 1.000 dollars obtenue de l'UNESCO en fin d'année.

Pour information, le Secrétaire général donne connaissance du voeu émis par le Comité français des Sciences biologiques au sujet du fichier international et des catalogues des types zoologiques, voeu qui a été transmis au Président de la section. Il exprime sa conviction qu'il serait utile de mener de front l'impression des catalogues et l'établissement du fichier.

Enfin, la section a admis comme sous-section le Serological Museum de la RUTGERS University.

Organismes adhérents et candidatures :

Louvain : Une circulaire a été diffusée dans le monde entier, rédigée en deux langues dans le but de faire connaître l'existence du Dépôt international de Préparations microscopiques.

Naples : le Prof. Munro FOX rappelle qu'il a assisté à la dernière réunion du Conseil administratif de la Station en qualité de représentant de l'IUBS. Il insiste sur la nécessité absolue de conserver à ce laboratoire une subvention annuelle d'au moins 1.000 dollars.

Génétique humaine : La section de Génétique a décidé d'accepter le Bureau international de Génétique humaine comme sous-section.

Commissions mixtes :

1) de l'Union :

Radiobiologie : Grâce à l'activité du Dr. BONET-MAURY, qui vient de remettre un rapport, la Commission est constituée, et elle tiendra sa première réunion le 4 Septembre prochain, à PARIS. Ses membres participeront à un colloque sur le "Mécanisme de l'action biologique des radiations ionisantes".

Calamités naturelles : La demande d'une Commission mixte sera présentée de nouveau à la prochaine Assemblée générale de l'ICSU.

2) de l'ICSU :

Hautes Altitudes : Quatre membres ont été prévus pour représenter l'IUBS à cette Commission; trois sont désignés, à savoir : Dr. STAMPFLI (Suisse), Prof. MONGE (Pérou) et le Prof. F. CHODAT (Suisse). Le quatrième représentant sera un Zoologiste dont le nom n'est pas encore connu.

Le Dr. FRASER informe que l'UNESCO, indépendamment de l'ICSU, patronne un colloque sur "la vie aux Hautes Altitudes", qui doit se tenir en 1949 au Pérou. Les Unions intéressées sont invitées à s'y faire représenter, mais l'UNESCO ne prend à sa charge aucuns frais de déplacement.

Océanographie : Le Prof. SIRKS croit savoir que la Commission se réunira à STOCKHOLM en 1950.

Laboratoires internationaux :

Le Secrétaire général expose l'historique de la question des laboratoires internationaux : l'ONU a demandé à l'UNESCO de lui indiquer des laboratoires ayant un intérêt général (et spectaculaire) dont l'ONU pourrait prendre le fonctionnement complètement à sa charge. Les trois projets proposés par l'IUBS sont :

a) Centre international de la Lutte biologique (Genève)
b) Centre international de culture de Drosophiles (Pallanza)
c) Centre international de cultures microbiennes (Lausanne)

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## GENERAL ASSEMBLY OF ICSU

The next meeting of the General Assembly of the INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS will be held in COPENHAGEN on September 14, 15, 16 next, by invitation of the Royal Danish Academy of Sciences.

The agenda will include proposed changes of statutes, a discussion on the general distribution of subjects among the Unions, a proposal for a journal to be published by the COMMITTEE ON SCIENCE AND ITS SOCIAL RELATIONS, action to be taken on defaulting countries and reports from the various Unions and Joint Commissions.

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## INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

At the last meeting of the Executive Committee of the INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS held at BRUSSELS on the 14-15 September, 1948, it was decided to appoint a Special Sub-Committee to consider the structure of ICSU with special reference to the increasing number of applications for adherence to the Council.

A meeting of this Special Sub-Committee was held at THE HAGUE on February 18th, 1949, under the Chairmanship of Professor H.R. KRUYT.

Present were :

Prof. H.R. KRUYT, President of the Committee (THE HAGUE)
Prof. J.M. BURGERS (DELFT, Netherlands) } Members
Prof. P. FLEURY (PARIS) } Members
Prof. M.J. SIRKS (GRONINGEN, Netherlands) } Members
Prof. L. SOLBERG (OSLO) } Members

Dr. R. FRASER, ICSU-UNESCO Liaison Officer
Prof. P. AUGER, Head, Natural Sciences Department of UNESCO.

The present structure of ICSU was considered, and a number of amendments to the Statutes were decided upon. The draft of the revised Statutes will be presented to the General Assembly of ICSU (COPENHAGEN, September 14-16, 1949) for discussion and final decision.

After careful examination of applications for adherence to the Council of a number of International Unions, it was agreed to recommend to the General Assembly that a) some applications be accepted, b) others be referred to other international bodies and c) that a third group be reconsidered at a later date according to circumstances.

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Dr. Ronald FRASER has been appointed to succeed Dr. A. ESTABLIER as Liaison Officer between the INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS and UNESCO as from January 1st, 1949.

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## ICSU

At the last meeting of the Executive Committee of the INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS it was decided to create three new Joint Commissions of the Council on :

- High Altitude Research Stations,
- Spectroscopy,
- Radioactive Standards and Units.

While all members of the two first Joint Commissions have not been appointed as yet, the composition of the Joint Commission on RADIOACTIVE STANDARDS AND UNITS is the following :

Representatives of the INTERNATIONAL UNION OF CHEMISTRY (Mother Union) : 6.

(Since this Commission already existed under the IUC before becoming a Joint Commission, and has so far consisted of 8 members of the Union of Chemistry, it will be decided at the forthcoming meeting of the Executive Committee of this Union who will be the 6 representatives of the Union of Chemistry on the new Joint Commission.)

Melle E. GLEDITSCH, Professor, Universitetets Kjemiske Institutt, Blindern-OSLO (Norway)
G. HEVESY, Sandasgatan 2, STOCKHOLM 6 (Sweden)
W.C. JOHNSON, Professor, Dept. of Chemistry, University of CHICAGO (Illinois, USA)
F. JOLIOT, Membre de l'Institut, B.P. 307, 69 rue de Varenne, PARIS 7e (France)
S.C. LIND, Professor, Institute of Technology, MINNEAPOLIS 14, (Minnesota, USA)
S. MEYER, Professor, Institut für Radium-Forschung, Boltzmangasse 3, WIEN IX (Autriche)
F.A. PANETH, Londonderry Laboratory for Radiochemistry, Professor, University, South Road, DURHAM (G.B.)
G.T. SEABORG, Professor, University, Dept. of Chemistry, BERKELEY (California, USA)

Representatives of the INTERNATIONAL UNION OF PURE & APPLIED PHYSICS : 6.

Sir John COCKCROFT, Atomic Energy, Research Establishment, HARWELL (Berkshire, G.B.)
L.F. CURTISS, National Bureau of Standards, WASHINGTON 25. D.C. (USA)
C. JACOBSEN, Institut for teoretisk Fysik, Blegdamsvej 15, COPENHAGEN (Denmark)
R.D. EVANS, Professor, Massachusetts Institute of Technology, CAMBRIDGE (Mass. USA)
Mme JOLIOT-CURIE, Professeur, Faculté des Sciences, 11 rue Pierre Curie, PARIS 5e (France)
G.J. SIZOO, Professor, Natuurkundig Laboratorium der Vrije Universiteit, de Lairessestraat 174, AMSTERDAM (Netherlands).

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ICSU
D. 1.180

INTERNATIONAL COUNCIL FOR PHILOSOPHY AND HUMANISTIC STUDIES

International Organizations representing philosophy, folk arts and folklore, languages, historical sciences and classical and academic subjects are for the first time centralizing their work through the INTERNATIONAL COUNCIL FOR PHILOSOPHY AND HUMANISTIC STUDIES.

This Council, which was created on January 18th, 1949, under the auspices of UNESCO, held its first General Assembly in BRUSSELS and drew up a programme of work for the next three years.

The Council's first aim will be to establish contacts between scientists working in different fields but whose subject matter for research is the study of Man.

Until now there has been little or none of the cross fertilization which human sciences need in order to progress. The Council's work as a clearing house of information on the activities going on in this broad field on intellectual activity is expected to be of great value to human scientists throughout the world.

The Council's programme to facilitate this cross diffusion of information will include the exchange of bibliographies, résumés of articles, general information bulletins and the organization of conferences, symposia and scientific missions.

Six international organizations are at present represented on the Council :

- International Academic Union;
- International Commission on Folk Arts and Folklore;
- Permanent International Committee of Linguists;
- International Committee of Historical Sciences;
- International Federation of Classical Associations;
- International Federation of Philosophical Societies.

At its meeting in BRUSSELS, January 1949, the Council elected the following officers :

Chairman : M. J. RUEFF, representative of INSTITUT DE FRANCE, on the Int. Academic Union.

Vice-Chairmen : Mr. A. SOMMERFELT, President of the Permanent Int. Committee of Linguists, Professor at OSLO University.

Sir Harold BELL, representative of the BRITISH ACADEMY on the Int. Academic Union.

ICSU
D. 1.180

General Secretary : M. R. FAWTIER, Vice-President of the Int. Committee of Historical Sciences, Professor at Sorbonne.

The next meeting of the Permanent Committee, which is responsible for carrying out the Assembly's decisions, will be held at UNESCO House, PARIS, June 1949.

Members of the Permanent Committee are :

M. de VISSCHER, President of the Int. Academic Union, Judge of the International Court of Justice;

Mr. PERRIEN, Member of the American Council of Learned Societies, Professor at HARVARD University;

M. RIVET, Director, Musée de l'Homme, PARIS;

Melle MOHRMANN, Secretary General, Permanent International Committee of Linguists, Professor at UTRECHT University;

M. NABHOLZ, President of the Int. Committee of Historical Sciences, Professor at University of ZURICH;

M. HOEG, President of the Int. Federation of Classical Associations, Professor at the University of COPENHAGEN;

M. POS, President of the Int. Federation of Philosophic Societies, Professor at the University of AMSTERDAM.

## AMERICAN ACADEMY OF ARTS AND SCIENCES

The Secretary General of the INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS has received the following letter from the Executive Officer of the American Academy of Arts and Sciences :

Dear Sir,

Thinking that your readers might be interested to know of the hospitality that is extended to them by the American Academy of Arts and Sciences should they visit BOSTON, we suggest you might wish to publish the following notice :

Scholars from overseas who visit BOSTON and its environs are invited to visit the house of the

AMERICAN ACADEMY OF ARTS AND SCIENCES
28 Newbury Street
BOSTON 16
(Massachusetts)

The staff of the Academy is happy to co-operate in arranging travel and hotel accomodations and personal contacts with scholars and institutions in the BOSTON district. Mail and telephone calls may also be received at the Academy.

Sincerely yours,

(Signed) Ralph W. BURHOE
Executive Officer

ICSU
D. 1.180

## C A L E N D A R

| | | | | |
|---|---|---|---|---|
| Mar. 22-23 | 1949 | IUBS | CHICAGO | Symposium sur la REGENERATION DES NERFS |
| Apr. 8-15 | 1949 | UGI | LISBON | Congrès International de GEOGRAPHIE |
| Apr. 4- 9 | 1949 | Under UNESCO - WHO Auspices | BRUSSELS | Assemblée Générale Constitutive du CONSEIL PERMANENT pour la COORDINATION des CONGRES INTERNATIONAUX des SCIENCES MEDICALES |
| Apr. 4-99 | 1949 | | PARIS | International Colloquium on the POLARIZATION OF MATTER |
| Apr. 22-23 | 1949 | IUC | PARIS | Executive Committee, INTERNATIONAL UNION OF CHEMISTRY |
| May | 1949 | | | Pan-African RESEARCH CONFERENCE |
| May 5- 6 | 1949 | IUTAM | PARIS | Bureau INTERNATIONAL UNION OF THEORETICAL AND APPLIED MECHANICS |
| May 8 | 1949 | | WASHINGTON | 9th International Congress of SEED TESTING ASSOCIATION |
| May 13-20 | 1949 | | ISTANBUL | International Congress of COMPARATIVE PATHOLOGY |
| May 16 | 1949 | IUPAP | FLORENCE | Comité Exécutif, INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS |
| May 17-20 | 1949 | IUPAP | FLORENCE | Commission on THERMODYNAMICS |
| May 17-20 | 1949 | | EDINBURGH | International Congress on STATISTICAL MECHANICS and ELEMENTARY PARTICLES |
| May 21-25 | 1949 | IUBS | BRUXELLES | Symposium sur le ROLE DES ANAEROBIES DANS LE SOL |
| June 13-17 | 1949 | | OHIO, USA | Symposium on MOLECULAR STRUCTURE and SPECTROSCOPY |
| June 14-16 | 1949 | ICSU | PARIS | COMMITTEE ON SCIENCE AND ITS SOCIAL RELATIONS |
| June 20-25 | 1949 | UNESCO | PARIS | International Conference on SCIENCE ABSTRACTING |
| June 22-July 7 - | 1949 | | Netherlands | International GRASSLAND Conference |
| July 21-29 | 1949 | | LONDON | International Congress of CROP PROTECTION |
| Summer | 1949 | IUBS | BERNE | Symposium sur l'INDUCTION DANS LE DEVELOPPEMENT EMBRYONNAIRE |
| Aug. 6-13 | 1949 | | LONDON | International VETERINARY Conference |

ICSU
D. 1.180

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|---|---|---|---|---|
| Aug. 15-19 | 1949 | | STOCKHOLM | XIIth International DAIRY Congress |
| Aug. 19-25 | 1949 | | CAMBRIDGE (England) | First International BIOCHEMICAL Congress |
| 17/8 - 6/9 | 1949 | UNSCCUR | LAKE SUCCESS (U.S.A.) | U.N. Conference on CONSERVATION and UTILIZATION of NATURAL RESOURCES |
| Aug. 24-31 | 1949 | UNESCO - UIPN | U.S.A. | Conférence technique pour la PROTECTION DE LA NATURE |
| Sept. | 1949 | | LISBON | International NAVIGATION Congress |
| Sept. 4-11 | 1949 | | BERNE | General Meeting, 26th Session of the INTERNATIONAL STATISTICAL INSTITUTE |
| Sept. 5- 6 | 1949 | ICSU | AMSTERDAM | Joint Commission on THEOLOGY |
| Sept. 5- 9 | 1949 | IUPAP | BÂLE | Colloque : PHYSIQUE NUCLEAIRE |
| Sept. 6-10 | 1949 | IUC | AMSTERDAM | XV General Conference, INTERNATIONAL UNION OF CHEMISTRY |
| Sept. 11-16 | 1949 | IUPAP | COMO | Colloque sur les RAYONS COSMIQUES |
| Sept. 13-16 | 1949 | ICSU | COPENHAGEN | Executive Committee, INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS |
| Sept. 14-16 | 1949 | ICSU | COPENHAGEN | General Assembly, INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS |
| Sept. 19-30 | 1949 | UNESCO | PARIS | IVth Session of the General Conference |
| October | 1949 | | PARIS | Vth International Congress on ANIMAL HUSBANDRY |
| Oct. 7- 8 | 1949 | IUBS | PARIS | Bureau, INTERNATIONAL UNION OF BIOLOGICAL SCIENCES |
| | 1950 | | GAND (Belgium) | Congrès International de LIMNOLOGIE |
| | 1950 | IUBS | STOCKHOLM | General Assembly, INTERNATIONAL UNION OF BIOLOGICAL SCIENCES |
| | 1950 | | STOCKHOLM | VIIth International BOTANICAL Congress |
| | 1950 | IUHS | Netherlands | VIth International Congress of HISTORY of SCIENCES |
| | 1950 | | RIO DE JANEIRO | Vth International Congress of MICROBIOLOGY |
| Feb. | 1950 | IUBS | AMSTERDAM | Bureau, INTERNATIONAL UNION OF BIOLOGICAL SCIENCES |

ICSU
D. 1.180

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|---|---|---|---|---|
| May 1-25 | 1950 | UNESCO | FLORENCE | Vth Session of the GENERAL CONFERENCE |
| July 10-15 | 1950 | | U.K. | IVth Plenary WORLD POWER Conference |
| July 24- Aug. 1 | 1950 | | AMSTERDAM | IVth International Congress of SOIL SCIENCE |
| Aug. 30- Sept. | 1950 | | CAMBRIDGE U.S.A. | Congrès International de MATHEMATIQUES |
| Sept. | 1950 | | YALE UNIVERSITY U.S.A. | International Congress of CELL - BIOLOGY |
| Feb. | 1951 | | NEW DELHI | IVth Congress on LARGE DAMS |
| Summer | 1951 | IUCr | Europe | 2nd General Assembly, INTERNATIONAL UNION OF CRYSTALLOGRAPHY |
| Sept. 8-17 | 1951 | IUC | WASHINGTON | XIIth Congress of PURE & APPLIED CHEMISTRY<br>XVIth General Conference, INTERNATIONAL UNION OF CHEMISTRY |
| Aug. 2nd half | 1951 | UGGI | BRUSSELS | General Assembly, INTERNATIONAL UNION OF GEODESY & GEOPHYSICS |
| Summer | 1952 | | ISTANBUL | VIIIth International Congress for APPLIED MECHANICS |
| | 1952 | | | International GEOLOGICAL Congress |

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# INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

## MONTHLY BULLETIN OF INFORMATION

ICSU
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July-August 1949 No. 20

# RECOMMENDATIONS OF THE COMMITTEE FOR ENGINEERING SCIENCES,

following Meeting 11-13 July 1949, at Unesco House.

At its Third Session, the General Conference of Unesco instructed the Director-General:

> to further international scientific co-operation by means of grants-in-aid and other similar forms of assistance to international scientific and technological organizations, unions and societies;
>
> to assist in the international organization of scientists engaged in the fields of engineering, agriculture and medicine, provided that in the two latter fields the necessary close co-operation with the Food and Agriculture Organization and the World Health Organization respectively be maintained;

In order to determine the best way of carrying out this programme in the engineering sciences, the Secretariat:

(1) made a careful survey of the present situation of international relations in this field;

(2) convened a Committee of Experts in Paris, 11-13 July, 1949, with the following terms of reference:
   (a) to consider whether any improvements should be made in current methods of international co-operation in the field of engineering sciences;
   (b) if so, to recommend practical steps to that end.

The members of the Committee were invited as individuals and not as delegates of the various engineering organizations to which they belong. The views expressed must therefore be considered as personal opinions. However, the Committee was composed of persons well acquainted with the various aspects of international collaboration among engineers and it may be assumed that their advice reflects the feelings and views of a great number of engineers throughout the world.

The following persons attended this meeting:

- A. ANTOINE, President, World Engineering Conference
- A. BARIL, Elected President, Société des Ingénieurs Civils de France
- E. CHOISY, Elected President, Swiss Society of Engineers and Architects
- H.V. COES, Past President, American Society of Mechanical Engineers
- A. COYNE, President, International Commission on Large Dams
- G. COLONNETTI, Leading member of the Italian Engineers Association and Initiator of the International Meetings of Buildings Research and Testing Laboratories
- E. GRAHAM CLARK, Secretary, Institution of Civil Engineers (U.K.)
- C.H. GRAY, Secretary, World Power Conference
- Sir Henry GUY, Secretary, Institution of Mechanical Engineers (U.K.)
- Sir Harold HARTLEY, Chairman, International Executive Board World Power Conference
- Shri A.N. KHOSLA, Chairman, Central Water Power, Irrigation and Navigation Commission of the Government of India
- L. TANIEWSKI, President, Foreign Relations Committee Polish Federation of Engineering Organizations (N.O.T.)
- J. Th. THIJSSE, Secretary, International Association for Hydraulic Structures Research

- E. VELANDER, Director of the Royal Swedish Academy of Engineering Sciences.

Dr. E. Velander was elected Chairman and Mr. C.H. Gray was elected Rapporteur.

The first day was entirely devoted to a general discussion in the course of which information and views were exchanged among all the members of the Committee.

In the second day, the Committee approved unanimously, three Resolutions, the first of which had been proposed by Mr. E. Graham Clark. A fourth Resolution was adopted by a majority vote, a dissenting vote by Sir Henry Guy being recorded below.

Resolution No. 1

That Unesco be asked to consider the formation of a Committee (in French, "Organisme") to act in an advisory capacity in connexion with International Engineering Congresses, to assist in preventing clashing of dates and overlapping of programmes and to advise Unesco in respect of any grants of money.

Resolution No. 2

That Unesco be requested to call an International Conference in 1950 or as soon as possible, consisting of delegates of appropriate international bodies, to consider the establishment of a Committee (in French, "Organisme") as recommended in Resolution No. 1.

Resolution No. 3

All those present at the meeting of the Committee held during the afternoon of 12 July 1949, go on record as willing to serve as an Advisory Committee during the preparation of the Conference referred to in Resolution No. 2.

Resolution No. 4

After consultation with the temporary Advisory Committee, set up pursuant to Resolution No. 3, a limited number of experts may be invited as observers to the Conference mentioned in Resolution No. 2, to give information about related international activities not covered by the delegates specified under Resolution No. 2.

Note to Resolution No. 4: Sir Henry Guy dissented, pointing out that:

Such an action would be destructive of the step which this Committee has taken in preparation for the proposed International Conference.

Note to Resolution No. 2: Mr. A.N. Khosla proposed the following alternative wording:

That Unesco be asked to consider the formation of a Committee to act in an advisory capacity in connexion with International Engineering Congresses to assist in

preventing clashing of dates and overlapping of functions and programmes, in extending activities into fields of Engineering and into areas, undeveloped or under-developed, not covered at present, and to advise Unesco in respect of any grants of money.

This alternative wording was not voted upon by the Committee. However, at its next meeting, the Committee, without passing a formal Resolution, placed on record its general sympathy with the ideas underlying Mr. Khosla's suggestion.
It was further agreed:

(1) That international organizations such as the World Power Conference, the International Commission on Large Dams and the International Conference of High Tension Electric Systems (C.I.G.R.E.) ought to be invited to send delegates to the International Conference referred to in Resolution No. 2, that three delegates for each organization might provisionally be envisaged as a suitable representation and that the widest possible geographical distribution of delegates should be ensured.

(2) That Unesco be requested to prepare a tentative list of the international organizations which might be invited to send delegates to this International Conference, that Unesco would provide detailed information as to the organizations in question and forward it to the members of the Committee at least one month before the next meeting, which might eventually be held about the second half of November 1949.

(3) That, in preparing this tentative list, Unesco would take into account the feelings expressed during the discussion, in particular:

  (a) the total number of organizations invited to send delegates should be about twelve or fifteen;

  (b) organizations having an administrative, trade or commercial rather than a scientific character should be excluded;

  (c) that organizations affiliated to ICSU on the one hand and international standardizing bodies on the other should be excluded but might be invited to send observers.

(4) That the problem of collaboration between the national engineering societies, which appeared to be a matter of concern to a number of members of the Committee, should be left in abeyance pending a meeting which, it was understood, was to be convened in London in September, 1949, by the three senior engineering Institutions of the United Kingdom.

The Temporary Advisory Committee referred to in Resolution No. 3 is composed of all persons listed above except Mr.Coyne, who was obliged to leave after the second meeting and was therefore unable to vote on

Resolution No. 3. However, Mr. Coyne has informed Unesco that he would be happy to continue in helping with his advice all matters pertaining to engineering sciences.

Mr. E. Choisy was unanimously elected Chairman of the Temporary Advisory Committee, to hold office until the commencement of the next meeting and Mr. Haussard, member of the Unesco Secretariat, was asked to serve as Secretary of the Committee. It was understood that Unesco would provide the necessary Secretariat arrangements.

I.U.T.A.M. - I.A.U.

Symposium

on

Aerodynamical Problems of Motion of Gaseous Masses of Cosmical Dimension

Paris, 16 - 19 August 1949

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The original intention had been to hold this symposium, arranged jointly by the International Union of Theoretical and Applied Mechanics and the International Astronomical Union, at Oslo. Difficulties with accommodation, however, prevented this, and the organizers were happy to receive an offer of hospitality from Professor J. PERES, Joint Director of the Centre National de la Recherche Scientifique, Professor A. DANJON, Director of the French Observatories, and Professor H. MINEUR, Director of the Institut d'Astrophysique at Paris, to hold the meetings at this Institute.

The following scientists were present:

J. PERES, A. DANJON, H. MINEUR, D. BARBIER, E. SCHATZMAN, J. DELHAYE, G. de VANCOULEURS, P. GUINTINI, M. LAFFINEUR, J.C. PECKER, Mme. Ch. PECKER (all from Paris), J. KAMPE de FERIET (Lille);

G. TEMPLE, G.C. McVITTIE, Mrs. E.M. BURBRIDGE (all from London), F. HOYLE, G.K. BATCHELOR, R.A. LYTTLETON (from Cambridge);

Th. von KARMAN, F. ZWICKY, L. DURBRIDGE, H. LIEPMANN, F.E. MARBLE (all from Pasadena, Calif. U.S.A.), N.U. MAYALL (Lich Observatory, Calif.), J. von NEUMAN, L. SPITZER (both from Princeton, N.J.), Mrs. C. PAYNE-GAPOSCHKIN (Cambridge, Mass.), P. van de KKAMP (Swarthmore, Pa.), R.J. SEEGER (Washington, D.C.), S.A. SCHAAF (Berkeley, Calif.), G. COLCHAGOFF (Dayton, Ohio), S.C. LOWELL (Off. Nav. Res., London);
J.H. OORT, H.C. van de HULST, Miss H. KLUYVER (all from Leiden, Holland), J.M. BURGERS (Delft), M. MINNAERT and C. de JAGER (both from Utrecht);

R. COUTREZ (Uccle, Brussels), P. LEDOUX, (Liége), P. DRUMAN (Ghent);
B. STRUMGREN and M. RUDKJOBING (both Copenhagen);
B. LINDBLAD, H. ALFVEN and C. WALEN (all Stockholm);
J. TUOMINEN (Helsinki);
C.F. van WEIZSACHER and W. HEISENBERG (Göttingen);
Miss L. SAPPA (Merate, Como); F. EGGER (Zürich).

The Symposium opened on Tuesday, 16 August, with a general introduction by J.H. OORT. This was followed in the afternoon by papers by B. STRUMGREN on "Problems of interstellar gas clouds", and by L. SPITZER on "Physical properties of the interstellar gas". The following took part in the discussion: J. von NEUMAN, C.F. von WEIZSACHER, H. ALFEN, J.H. OORT, F. HOYLE and E. SCHATZMAN. Two further lectures were given by H. ALFVEN on "Electromagnetic phenomena in the motion of gaseous masses of cosmical dimension", and H.C. van de HULST on "Interstellar polarization and magnetic fields", leading to a discussion in which took part : G. SCHATZMAN, C. WALEN, M. MINNAERT, and F. HOYLE.

On Wednesday, 17 August, after some introductory remarks by J. von NEUMANN, J.M. BURGERS gave an exposition of the "Aerodynamical description of elementary expansions phenomena and shock waves", followed by a paper by G.C. McVITTIE on "The expansion of an interstellar gas cloud into a vacuum". J. von NEUMANN then gave a summary of what could be said with reference to the uniqueness or the multiplicity of the solutions of the aerodynamical equations and the applicability of these solutions to actual physical cases. The following took part in the discussion: H. LIEPMANN, G. TEMPLE, Th. Von KARMAN and W. HEISENBERG, after which BURGERS summed up in a few words what importance these considerations can have for astronomical problems.

In the afternoon R.J. SEEGER spoke on "Physical problems of high altitude flight", leading up to cases where gas dislocations occur and situations can be found approaching those studied by astro-physicists. Then followed lectures by Miss H. KLUYVER on "The electric field produced by the collision of clouds with a high relative velocity"; by E. SCHATZMAN on "The heating of the Solar Chromosphere by shock waves and Related Problems", and a short communication by J.M. BURGERS on "The propagation of a shock wave in a gas with decreasing density".

Next Mrs. C. PAYNE-GAPOSCHKIN spoke on "Observations of Novae", and H.C. van de HULST on "The rings of Nova Aquilae"; while finally J.H. OORT spoke on the "Interaction of Nova and Supernova with the interstellar medium". C. WALEN, G. TEMPLE, F. ZWICKY and H. ALFVEN took part in the discussion.

The session on Thursday morning, 18 August, was devoted to the problem of turbulence. After a few opening words by B. LINDBLAD, Th. von KARMAN gave a general "Introductory Lecture on Turbulence", stressing in particular the problem of the transmission of the shearing force, and the basic properties of the spectrum of turbulence. This was followed by a paper by G.K. BATCHELOR "Magnetic Fields and Turbulence in a Fluid of High Conductivity", and one by C.F. von WEIZSACHER on "Turbulence in the interstellar matter". In the discussions on these subjects there took part G.C. McVITTIE, J.H. OORT, M. MINNAERT, C. WALEN, L. SPITZER, J. von NEUMANN, H. ALFVEN, F. ZWICKY and F. HOYLE.

The sessions on Friday, 19 August, were devoted to Spiral Nebulae and other problems. The first lecture was by N.V. MAYALL who spoke for Dr. BAADE and himself, on the "Distribution and Motions of Gaseous Masses in Extragalactic Nebulae". A discussion followed in which took part J.H. OORT, F. ZWICKY and B. STROMGREN. Then B. LINDBLAD gave a lecture "On the Motion of Dark Clouds in Galaxies, and some Related Problems". The next lecture was by F. HOYLE on "The origin of the Rotations of Gaseous Masses", which was followed by a discussion with W. HEISENBERG and C.K. BATCHELOR. C.F. von WEIZSACKER then continued his lecture of the previous day.

In the afternoon, F. ZWICKY spoke first on the "Morphology of Large Scale Aggregations of Matter". After this followed a discussion mainly bearing upon von WEIZSACKER's lecture, in which took part F. HOYLE, H. LIEPMANN, Th. von KARMAN, B. LINDBLAD, L. SPITZER, J.M. BURGERS, J.H. OORT, E. SCHATZMAN, W. HEISENBERG, G.K. BATCHELOR and H. ALFVEN. After this M. MINNAERT spoke on "Hydrodynamic Problems connected with the Solar Atmosphere". Finally, P. DRUMAN developed some considerations on the motion of extragalactic nebulae.

At the end of the session a short summary of the material considered during the meeting was given by J.M. BURGERS, and the symposium was closed with some words of thanks by H. MINEUR, B.LINDBLAD and J. PERES.

## COMMITTEE OF SCIENTIFIC EXPERTS ON INTERNATIONAL RESEARCH LABORATORIES

A joint UN - Unesco Committee of Experts met at Unesco House from 16 to 24 August, to consider proposals regarding the establishment of United Nations Research Laboratories.

The membership of the Committee was as follows:

| | |
|---|---|
| Chairman: Professor J. NEEDHAM, F.R.S., | Bio-chemist and embryologist, Fellow of Caius College, University of Cambridge, CAMBRIDGE, England. |
| Professor T. CASPERSSON | Geneticist, Director of the Institute for cell-research and genetics, Karolinska Institutet, Stockholm, Sweden. |
| Professor R. DEBRE | Physiologist, Professor of Pedriatics, School for Medicine, University of Paris. |
| Professor C. LEVI-STRAUSS | Social anthropologist, Deputy-Director, Museum of Man, Paris. |
| Professor R.LIKERT | Social psychologist, Director of the Institute for Social Research, University of Michigan, Ann Arbor, Michigan, U.S.A. |
| Professor M. OZORIO DE ALMEIDA | Physiologist, Professor of Physiology, Graduate School of Agriculture, Rio de Janeiro |
| Professor H. SHAPLEY | Astronomer, Director of the Harvard Observatories, Harvard University, Cambridge, Mass. |
| Dr. A.T.M. WILSON | Social psychiatrist, Director of the Tavistock Institute of Human Relations, London, |

with Professor P. AUGER representing the Unesco Secretariat.

The following table contains specific proposals relating to the establishment of United Nations Research Laboratories.

The authors of the recommendations are distributed as follows:

(1) Governments ..... 8

(2) Specialized Agencies ..... 4

(3) International Organizations ..... 11

(4) National Organizations ..... 19

(National Research Councils ..... 3)

(Universities ..... 9)

(Other institutions ..... 7)

(5) Individual Scientists ..... 55

(Exact and natural sciences ..... 26)

(Biological and medical sciences 17)

(Social Sciences ..... 12)

| Fields in which establishment of research institutions has been proposed | Gov. | Spec. Ag. | Int. Org. | Nat. Org. | Indiv. Scientists |
|---|---|---|---|---|---|
| (1) Exact and natural sciences | | | | | |
| Astronomy | | | | | |
| (Astronomical observatories) | 1 | 1 | 2 | 1 | 7 |
| (Astronomical laboratories) | | | | | 1 |
| Cosmic rays | | | | | 3 |
| Solar and terrestrial relationships | | | | | 1 |
| Utilization of atomic energy | 1 | | | | 2 |
| Geophysics (general) | | | 1 | | 1 |
| Meteorology | 1 | 1 | 2 | 5 | 3 |
| Floating laboratories | | | 1 | | 4 |
| Geomagnetism | | | 1 | | 2 |
| Oceanography (marine biology, fisheries, gravity in deep seas, etc.) | 1 | | 3 | 2 | 1 |
| Geodesy | | | | 1 | 2 |
| Fluids and soil mechanics | | | | 1 | 2 |
| Erosion | | | 1 | | 3 |
| Vulcanology | | | 1 | 1 | |
| Theory of chemical reactions (application of mathematics and physics to chemistry) | | | | | 1 |
| Photometry | | | | | 1 |
| Polarography | | | | 1 | |
| Ornithology | | 1 | | | |
| Mining | | | | 1 | |
| Building materials | | | 1 | | |
| Cartography | | 1 | 1 | | |
| Balneology | | | | 1 | |
| Applied mathematics (computing centre) | 3 | 1 | | 1 | |
| Statistics | | | | 1 | |

| | | | | | |
|---|---|---|---|---|---|
| (2) Regional studies | | | | | |
| Humid tropical zones | 3 | 1 | | | 3 |
| Arid zones | 1 | 1 | | | |
| Arctic and Antarctic | | 3 | | 5 | |
| Middle East | | | | | 2 |
| High altitudes | | 1 | | | 1 |
| (3) Nutrition and food | | | | | |
| Nutrition and food technology | 4 | 1 | | | |
| Biological vegetable and animal resources of world | | | | | 1 |
| New food plants | | | | | 1 |
| (4) Biology and medicine | | | | | |
| Biology (general) | 1 | | | | 2 |
| Biology and human genetics | 1 | 1 | | | |
| Cultures of drosophilia | | | 1 | | |
| Biotypology | | | | | 1 |
| Microbe type-cultures | | | 1 | | |
| Biological campaign against crop pests | | | 1 | | |
| Medicine (general) | | | | 1 | |
| Hygiene and epidemiology | | | | | 1 |
| Geo-medicine | | | | 1 | |
| Cancer | 3 | 1 | | 1 | 1 |
| Tuberculosis | 1 | 1 | | 1 | 1 |
| Malaria | | | | | 1 |
| Psychiatry (Brain Institute) | | | | | 8 |
| Typhus | | | | | 1 |
| Malta fever | | | | | 1 |
| Onchocerciasis | | | | | 1 |
| Odontology | | | | 2 | |
| (5) Social Sciences | | | | | |
| General research (Institute of human study) | 1 | 1 | 1 | 2 | 6 |
| Individual and social psychology | | 1 | | 1 | 1 |
| Chain of world social science institutes | | | | 1 | 1 |
| Effects of war on children | | | | | 1 |

| | | | | |
|---|---|---|---|---|
| Human development in Africa | | 1 | | |
| Socio-physiology | | | | 1 |
| Linguistics | | | 1 | |
| Experimental Phonetics | | | 1 | |
| Public finance | | | 1 | |
| Forensic medicine | | | 1 | |
| (6) Collection centres | | | | |
| New substances | 1 | | | |
| Pure chemical substances | | | | 1 |
| Scientific standards and collections of type cultures | 2 | 1 | | |
| Standardization of biological substances of pharmacological activity | | | | 1 |

The Committee recommended 3 proposals for consideration at the highest priority: namely

Computing Centre,
Brain Institute,
Institute for Human Study,

and a further 4 proposals for consideration at high priority: namely

Astronomical Laboratory,
Meteorological Laboratory,
Institute of the Arid Zone,
Institute of Cell Biochemistry.

CALENDAR

| | | | | |
|---|---|---|---|---|
| 17.8 - 6.9 | 1949 | UNSCCUR | Lake Success (U.S.A.) | UN Conference on CONSERVATION AND UTILIZATION OF NATURAL RESOURCES |
| 24/31.8 | 1949 | UNESCO/ IUPN | U.S.A. | Conférence Technique pour la PROTECTION de la NATURE |
| 31.8 | 1949 | | Neuhaus, Switzerland | Council of the International High Altitude Research Station JUNGFRAUJOCH |
| 30.8/3.9 | 1949 | | GENEVA | International BIOMETRIC Conference |
| September | 1949 | | LISBON | International NAVIGATION Congress |
| 4/11 | 1949 | | BERNE | General Meeting, 26th Session of the INTERNATIONAL STATISTICAL INSTITUTE |
| 5.9 | 1949 | | PARIS | Comité Exécutif, ACADEMIE INTERNATIONALE d'HISTOIRE DES SCIENCES |
| 6/7.9 | 1949 | IUHS | PARIS | Comité Exécutif, International Union of HISTORY OF SCIENCE |
| 5/6.9 | 1949 | ICSU | AMSTERDAM | Joint Commission on RHEOLOGY |
| 5/9.9 | 1949 | IUPAP | BALE | Colloque sur la PHYSIQUE NUCLEAIRE |
| 6/10.9 | 1949 | IUC | AMSTERDAM | 15th General Conference, International UNION OF CHEMISTRY |
| 11/16.9 | 1949 | IUPAP | COMO, Italy | Colloque sur les RAYONS COSMIQUES |
| 13/16.9 | 1949 | ICSU | COPENHAGEN | Executive Committee, INTERNATIONAL COUNCIL of SCIENTIFIC UNIONS |
| 14/15.9 | 1949 | ICSU | COPENHAGEN | General Assembly, INTERNATIONAL COUNCIL of SCIENTIFIC UNIONS |
| 19/30.9 | 1949 | UNESCO | PARIS | Fourth Session of the General Conference |
| 7/8.10 | 1949 | IUBS | PARIS | Bureau, International Union of BIOLOGICAL SCIENCES |
| 10/15.10 | 1949 | | PARIS | Symposium de l'Institut International des SCIENCES THEORIQUES sur les PROBLEMES DE L'EVOLUTION |
| 17/22.10 | 1949 | | PARIS | Congrès International de PHILOSOPHIE DES SCIENCES |

| | | | | |
|---|---|---|---|---|
| 23/30.10 | 1949 | | BARCELONA | International Congress of INDUSTRIAL CHEMISTRY |
| 3/10.11 | 1949 | | PARIS | Fifth International Congress on ANIMAL HUSBANDRY |
| 16/18.12 | 1949 | | WASHINGTON | International ORNITHOLOGICAL Conference |
| | 1950 | | GHENT, Belgium | Congrès International de LIMNOLOGIE |
| February | 1950 | IUBS | AMSTERDAM | Bureau, International Union of BIOLOGICAL SCIENCES |
| 1/25.5 | 1950 | UNESCO | FLORENCE | Fifth Session of the GENERAL CONFERENCE |
| July | 1950 | IUBS | STOCKHOLM | General Assembly, International Union of BIOLOGICAL SCIENCES |
| 10/15.7 | 1950 | | LONDON | Fourth Plenary WORLD POWER Conference |
| 12/20.7 | 1950 | | STOCKHOLM | Seventh International BOTANICAL CONGRESS |
| August | 1950 | IUHS | AMSTERDAM | Sixth International Congress of HISTORY OF SCIENCES |
| September | 1950 | URSI | ZURICH | Ninth General Assembly, UNION RADIO-SCIENTIFIQUE INTERNATIONALE |
| | 1950 | | RIO DE JANEIRO | Fifth International Congress of MICROBIOLOGY |
| 24.7/1.8 | 1950 | | AMSTERDAM | Fourth International Congress of SOIL SCIENCE |
| 25/28.7 | 1950 | | OXFORD, England | International ANATOMICAL Congress |
| 30.8/6.9 | 1950 | | CAMBRIDGE, U.S.A. | Congrès International de MATHEMATIQUES |
| September | 1950 | | YALE UNIVERSITY, U.S.A. | International Congress of CELL-BIOLOGY |
| February | 1951 | | NEW DELHI | Fourth Congress on LARGE DAMS |
| Spring | 1951 | IUTAM | ROME | General Assembly, International Union of THEORETICAL & APPLIED MECHANICS |
| Summer | 1951 | IUCr | Europe | Second General Assembly, International Union of CRYSTALLOGRAPHY |
| 8/17.9 | 1951 | IUC | WASHINGTON | Twelfth Congress of PURE AND APPLIED CHEMISTRY<br>Sixteenth Conference, International Union of CHEMISTRY |
| August 2nd Half | 1951 | IGGU | BRUSSELS | General Assembly, International Union of GEODESY AND GEOPHYSICS |

| | | | | |
|---|---|---|---|---|
| 15.8/15.9 | 1952 | | ISTANBUL | International Congress for APPLIED MECHANICS |
| | 1952 | | ALGIERS | International GEOLOGICAL Congress |
| | 1952 | IGU | NEW YORK | International GEOGRAPHICAL Congress |

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Maison de l'UNESCO,
19, avenue Kléber,
PARIS, 16e.

# THE YEAR BOOK

## OF THE

## INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

## 1954

Price 5s.

# THE YEAR BOOK

OF THE

# INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

1954

*Issued by:*
THE SECRETARY-GENERAL OF ICSU
c/o The Royal Society
Burlington House
Piccadilly, London, W.1

# CONTENTS


| | PAGE |
|---|---|
| Calendar of Arrangements for 1954 | 1 |
| The Bureau (1952-1955) | 3 |
| The Executive Board (1952-1955) | 3 |
| The Administrative Office | 3 |
| National Members of the Council | 4 |
| List of Countries adhering to the Unions | 6 |
| Officers of the International Scientific Unions | 8 |
| Members of Joint Commissions | 11 |
| Committees of ICSU | 14 |
| Alphabetical List of Members of the Bureau, Executive Board, Joint Commissions, Committees of ICSU, and Officers of the Unions | 15 |
| A Short History of ICSU | 27 |
| Statutes and Rules of ICSU | 29 |
| Rules for Joint Commissions | 43 |
| Text of the Agreement between ICSU and UNESCO | 45 |
| Report of the Secretary-General, 1952-1953 | 47 |
| Reports of Joint Commissions and Committees, 1952-1953 | 51 |
| Representatives of ICSU at International Meetings in 1953 | 55 |
| Treasurer's Report, 1952-1953 | 56 |
| Financial Statement for ten months ended 31st October, 1952 | 57 |
| Financial Statement, 1952-1953 | 66 |
| Addresses of International Organizations | 78 |
| Index | 80 |

## CALENDAR 1954

| | | | | |
|---|---|---|---|---|
| April | 21 - 24 | ICSU | London | X Meeting of the Bureau. |
| May | 5 - 6 | IGU | London | Meeting of Executive Committee. |
| June | 28 - 30 | IUBS | Paris | Meeting of Policy Board. |
| June July | 29 - 3 | IUPAP | Amsterdam | Colloquium on Insulators and Semi-conductors. |
| July | 1 - 3 | ICSU | Lund | Joint Commission on Spectroscopy. |
| ,, | 2 - 14 | IUBS | Paris | VIII Botanical Congress. |
| ,, | 7 - 10 | IUPAP | London | VIII General Assembly. |
| ,, | 12 - 14 | IAU | Liege | Executive Committee. |
| ,, | 13 - 17 | IUPAP | Bristol | Colloquium on Defects in Crystalline Solids. |
| ,, | 13 - 17 | IUPAP | Glasgow | Colloquium on Nuclear Physics. |
| ,, | 16 - 21 | ICSU | London | Joint Commission on Electron Microscopy. |
| ,, | 21 - 28 | IUCr | Paris | III General Assembly and International Congress of Crystallography. |
| ,, | 27 - 28 | IUTAM | Brussels | III General Assembly. |
| ,, | 29 - 30 | IUCr | Paris | Symposia on the Location and Function of Hydrogen and the Mechanism of Phase Transitions in Crystals. |
| ,, | 29 - 31 | IUTAM | Brussels | Colloquium on Photoelasticity and Photoplasticity. |
| ,, | 30 - 31 | ICSU | Brussels | I Meeting Executive Committee, ICSU Abstracting Board. |
| August | 16 - 18 | ICSU | Brussels | Joint Commission on the Ionosphere. |
| ,, | 20 - 21 | URSI | The Hague | Executive Committee. |
| August Sept. | 23 - 2 | URSI | The Hague | XI General Assembly. |
| August | 30 | IMU | The Hague | Executive Committee. |
| August Sept. | 31 - 1 | IMU | The Hague | II General Assembly. |
| Sept. | 1 - 7 | IUBS | Leiden | VIII Congress of Cell Biology. |
| ,, | 2 - 9 | IMU | Amsterdam | International Congress of Mathematicians.<br>Symposia on Stochastic Processes, Algebraic Geometry, Mathematical Interpretation of Formal Systems. |
| ,, | 3 - 5 | IUPAC | Münster | Colloquium on the Chemistry of Phosphorus, Sulphur, and Silicon. |
| ,, | 3 - 7 | IUPAP | Parma | Colloquium on Infra-red Spectroscopy. |

| | | | |
|---|---|---|---|
| Sept. 6 - 8 | ICSU | Brussels | Joint Commission on Radio-meteorology. |
| „ 13 - 14 | ICSU | Rome | Joint Commission on Oceano-graphy. |
| „ 14 - 25 | IUGG | Rome | X General Assembly. |
| Sept. 27 - October 3 | IUPAC | Milan | Colloquium on Mechanism of Polymerization Reactions. |
| Sept. 30 - October 4 | ICSU | Rome | II Meeting of the Special Committee for the International Geophysical Year (CSAGI). |
| October 4 - 6 | IUPAC | Turin | Colloquium on Characterization of Polymers in Relation to their Technical Properties. |
| „ 4 | ICSU | Naples | XI Meeting of the Bureau. |
| „ 5 - 7 | ICSU | Naples | VI Meeting of Executive Board. |

## BUREAU
### (1952-1955)

| | |
|---|---|
| Professor B. LINDBLAD (Sweden) | President. |
| Professor H. SOLBERG (Norway) | Vice-President. |
| Colonel E. HERBAYS (Belgium) | Vice-President. |
| Professor A. von MURALT (Switzerland) | Retiring President. |
| Professor W. Albert NOYES, Jr. (U.S.A.) | Treasurer. |
| Professor A. V. HILL (U.K.) | Secretary-General. |
| Professor J. PÉRÈS (France) | Elected member. |
| Professor N. KAMEYAMA (Japan) | Elected member. |

This Bureau will continue until the end of the Seventh General Assembly of the International Council of Scientific Unions in 1955.

## EXECUTIVE BOARD
### (1952-1955)

The Executive Board consists of the members of the Bureau (see above), together with representatives of the International Scientific Unions, as follows:

| | |
|---|---|
| Astronomy | Professor O. Struve (U.S.A.). |
| | Professor P. Th. Oosterhoff (Netherlands). |
| Geodesy and Geophysics | Professor S. Chapman (U.K.). |
| | Colonel G. R. Laclavère (France). |
| Pure and Applied Chemistry | Professor A. Tiselius (Sweden). |
| | Professor R. Delaby (France). |
| Scientific Radio | Father P. Lejay (France). |
| Pure and Applied Physics | Professor N. F. Mott (U.K.). |
| | Professor P. Fleury (France). |
| Geography | Professor G. B. Cressey (U.S.A.). |
| Biological Sciences | Professor S. Hörstadius (Sweden). |
| | Professor G. Montalenti (Italy). |
| Crystallography | Dr. R. C. Evans (U.K.). |
| Theoretical and Applied Mechanics | Professor F. H. van den Dungen (Belgium). |
| History of Science | Professor P. Sergescu (France). |
| Mathematics | Professor M. H. Stone (U.S.A.). |
| | Professor E. Bompiani (Italy). |

## OFFICE

| | |
|---|---|
| *Administrative Secretary* | Dr. Ronald Fraser. |
| *Assistant* | Miss P. Upward, B.A. |
| *Postal Address:* | Administrative Secretariat,<br>International Council of Scientific Unions,<br>29 Tavistock Square, London, W.C.1. |
| *Telephone:* | EUSton 6423. |

The address of the Secretary-General, Professor A. V. Hill, is c/o The Royal Society, Burlington House, Piccadilly, London, W.1.

The auditors of the Council's accounts are Herbert Gimson & Son, Chartered Accountants, Charterhouse, London, E.C.1.

## NATIONAL MEMBERS OF THE COUNCIL

| *Country* | *National Adhering Organization* |
|---|---|
| Australia | Academy of Sciences, *Canberra, A.C.T., Australia.* |
| Austria | Die Oesterreichische Akademie der Wissenschaften, *Vienna 1, Universitätsplatz 2, Austria.* |
| Belgium | Académie Royale de Belgique, *Palais des Académies, Brussels, Belgium.* |
| Brazil | Conselho Nacional de Pesquisas, *Presidencia da Republica, Rio de Janeiro, Brazil.* |
| Bulgaria | The Government (through *The Bulgarian Legation, 12 Queen's Gardens, London, S.W.7, England*). |
| Canada | National Research Council, *Ottawa, Ontario, Canada.* |
| China | Academia Sinica, *115 East Hoping Road, 1st Section, Taipei, Formosa.* |
| Czechoslovakia | Čechoslovenská Akademie Véd Prague, *Prague, Czechoslovakia.* |
| Denmark | Kongelige Danske Videnskabernes Selskab, *Ny vestergade 23, Copenhagen, Denmark.* |
| Egypt | The Government (through *The Royal Egyptian Embassy, 75 South Audley Street, London, W.1, England*). |
| Finland | Suomalainen Tiedeakatemia, *Snellmaninkatu 9-11, Helsinki, Finland.* |
| France | Académie des Sciences, *Institut de France, 25 Quai de Conti, Paris 6, France.* |
| German Federal Republic | Deutsche Forschungsgemeinschaft, *Buchelstrasse 55, Bad Godesberg, Germany.* |
| Great Britain | The Royal Society, *Burlington House, London, W.1, England.* |
| Greece | Akadimia Athinon, *Athens, Greece.* |
| India | Department of Scientific Research, *New Delhi, India.* |
| Indonesia | Organization for Scientific Research, *Merdeka Selatan, 11 pav, Djakarta, Indonesia.* |
| Israel | The Research Council of Israel, *P.O.B. 607, Jerusalem.* |
| Italy | Il Consiglio Nazionale di Ricerche, *Rome, Italy.* |
| Japan | The Science Council of Japan, *Ueno Park, Tokyo, Japan.* |
| Mexico | Dirección de Geografía y Meteorologia, *Oficina de Geografía, Observatorio, 192 Tacubaya, D.F., Mexico.* |
| Morocco | The Government (through *M. le Résident Général, French Morocco*). |
| Netherlands | Koninklijke Nederlandse Akademie van Wetenschappen, *Amsterdam, Netherlands.* |
| New Zealand | The Royal Society of New Zealand, *Victoria University College Building, Wellington, W.I., New Zealand.* |
| Norway | Det Norske Videnskaps-Akademie, *Oslo, Norway.* |
| Pakistan | Pakistan Association for the Advancement of Sciences, *University Institute of Chemistry, The Mall, Lahore, Pakistan.* |

| | |
|---|---|
| Peru | Instituto Geografico Militar, *Apartado Nr. 2038, Lima, Peru.* |
| Philippines | National Research Council, *University of the Philippines, Quezon City, Philippines.* |
| Poland | Polskiej Akademii Nauk, *Nowy Swiat 72, Warsaw, Poland.* |
| Portugal | The Government (through *The Portuguese Embassy, London, England*). |
| Spain | Consejo Superior de Investigaciones Científicas, *Madrid, Spain.* |
| Sweden | Kungl. Vetenskapsakademien, *Stockholm 50, Sweden.* |
| Switzerland | Société Helvétiques des Sciences Naturelles, *Bühlplatz 5, Berne, Switzerland.* |
| Thailand | The Government (through *Department of Science, Rama VI Road, Bangkok, Thailand*). |
| Tunis | l'Institut des Hautes Etudes, *Tunis.* |
| Union of South Africa | Council of Scientific and Industrial Research, *Private Bag 189, Pretoria, South Africa.* |
| United States | National Research Council, *2101 Constitution Avenue, N.W., Washington 25, D.C., U.S.A.* |
| Uruguay | Servicio Geografico Militar, *Montevideo, Uruguay.* |
| Vatican City State | Academy of Science, *Vatican City State, Italy.* |
| Yugoslavia | Akademski Savet F.N.R.J., *Božidara Adzije No. 11, Belgrade, Yugoslavia.* |

## COUNTRIES ADHERING TO THE ELEVEN INTERNATIONAL SCIENTIFIC UNIONS

Column (1) International Council of Scientific Unions (included for comparison).
" (2) International Astronomical Union.
" (3) International Union of Biological Sciences.
" (4) International Union of Pure and Applied Chemistry.
" (5) International Union of Crystallography.
" (6) International Union of Geodesy and Geophysics.
" (7) International Union of Geography.
" (8) International Union of History of Science.
" (9) International Union of Theoretical and Applied Mechanics.
" (10) International Union of Pure and Applied Physics.
" (11) International Radio-Scientific Union.
" (12) International Mathematical Union.

| *Country* | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Argentina | – | x | – | x | – | x | x | x | – | x | – | x |
| Australia | x | x | x | x | x | x | – | – | – | x | x | x |
| Austria | x | – | x | x | x | x | x | – | x | – | – | x |
| Belgium | x | x | x | x | x | x | x | x | x | x | x | x |
| Brazil | x | – | x | x | x | – | x | x | – | x | – | – |
| Bulgaria | x | – | – | – | – | – | – | – | – | – | – | – |
| Canada | x | x | – | x | x | x | x | x | – | x | x | x |
| Chile | – | x | – | x | – | x | x | – | – | – | – | – |
| China | x | x | – | – | – | – | x | – | – | – | – | – |
| City of the Vatican | x | x | – | – | – | – | – | – | – | – | – | – |
| Colombia | – | – | – | x | – | x | x | – | – | – | – | – |
| Cuba | – | – | – | – | – | – | x | – | – | – | – | x |
| Czechoslovakia | x | x | x | x | x | x | x | x | x | x | x | – |
| Denmark | x | x | x | x | x | x | x | – | x | x | x | x |
| Dominican Republic | – | – | – | – | – | – | x | – | – | – | – | – |
| Egypt | x | x | x | x | – | x | x | x | – | x | – | – |
| Eire | – | x | – | – | – | x | – | – | – | – | – | – |
| Finland | x | x | x | x | – | x | x | – | – | x | – | x |
| France | x | x | x | x | x | x | x | x | x | x | x | x |
| German Federal Republic | x | x | – | x | – | x | x | – | x | x | – | x |
| Great Britain | x | x | x | x | x | x | x | – | x | x | x | x |
| Greece | x | x | – | – | – | x | x | – | – | – | – | x |
| Hungary | – | x | – | x | – | – | – | x | x | x | – | – |
| India | x | x | x | x | x | x | x | x | x | x | x | – |
| Indo-China | – | – | – | – | – | x | – | – | – | – | – | – |
| Indonesia | x | – | – | – | – | x | x | – | – | – | – | – |
| Israel | x | x | x | x | – | x | x | x | x | – | – | – |
| Italy | x | x | x | x | x | x | x | x | x | x | x | x |
| Japan | x | x | x | x | x | x | x | x | x | x | x | x |

| *Country* | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Luxembourg | – | – | x | – | – | – | – | x | – | – | – | – |
| Malaya | – | – | – | – | – | – | – | – | – | – | – | x |
| Mexico | x | x | – | – | – | x | x | – | – | x | – | – |
| Morocco | x | – | x | – | – | x | x | – | – | – | x | – |
| Netherlands | x | x | x | x | x | x | x | x | x | x | x | x |
| New Zealand | x | – | – | – | – | x | x | – | – | x | x | – |
| Norway | x | x | x | x | x | x | x | – | x | x | x | x |
| Pakistan | x | – | – | – | – | x | x | – | – | – | – | x |
| Peru | x | – | x | – | – | x | – | – | – | – | – | x |
| Philippine Republic | x | – | – | – | – | x | – | – | – | – | – | – |
| Poland | x | x | – | x | – | x | x | – | – | x | – | – |
| Portugal | x | x | – | x | – | x | x | x | – | – | x | – |
| Rumania | – | x | – | – | – | x | – | x | – | x | – | – |
| Spain | x | x | x | x | x | x | x | x | x | x | – | x |
| Sweden | x | x | x | x | x | x | x | x | x | x | x | x |
| Switzerland | x | x | x | x | x | x | x | x | x | x | x | x |
| Syria | – | – | – | – | – | x | – | – | – | – | – | – |
| Thailand | x | – | – | – | – | x | – | – | – | – | – | – |
| Tunisia | x | – | – | – | – | x | – | – | – | – | – | – |
| Turkey | – | – | – | – | – | x | x | x | x | – | – | – |
| Union of South Africa | x | x | x | x | x | x | – | – | – | x | x | – |
| U.S.S.R. | – | x | – | x | – | – | – | – | – | – | – | – |
| United States | x | x | x | x | x | x | x | x | x | x | x | x |
| Uruguay | x | – | – | – | – | – | x | x | – | – | – | – |
| Venezuela | – | – | – | x | – | – | – | – | – | – | – | – |
| Yugoslavia | x | x | x | x | – | x | x | – | – | x | x | x |
| Totals | 40 | 34 | 25 | 32 | 19 | 43 | 38 | 22 | 19 | 28 | 20 | 24 |

## OFFICERS OF THE INTERNATIONAL SCIENTIFIC UNIONS

(The International Scientific Unions are the "scientific members" of ICSU (Statute 4(*b*)): the dates given are those of their foundation.)

### ASTRONOMY (1919) — IAU

| | |
|---|---|
| President: | Professor O. STRUVE (U.S.A.). |
| Vice-Presidents: | Professor V. A. AMBARTSUMIAN (U.S.S.R.). |
| | Dr. A. COUDER (France). |
| | Professor E. RYBKA (Poland). |
| | Professor P. SWINGS (Belgium). |
| | Dr. R. v.d. R. WOOLLEY (Australia). |
| Secretary-General: | Professor P. Th. OOSTERHOFF, *Leiden Observatory, Netherlands.* |

The next General Assembly will be held in Dublin in August, 1955.

### GEODESY AND GEOPHYSICS (1919) — IUGG

| | |
|---|---|
| President: | Professor S. CHAPMAN (U.K.). |
| Retiring President: | Professor F. A. VENING MEINESZ (Netherlands). |
| Vice-Presidents: | Professor G. CASSINIS (Italy). |
| | Dr. J. BJERKNES (U.S.A.). |
| Secretary-General: | Colonel G. R. LACLAVÈRE, *30 Avenue Rapp, Paris 7, France.* |

The next General Assembly will be held in Rome in September, 1954.

### PURE AND APPLIED CHEMISTRY (1919) — IUPAC

| | |
|---|---|
| President: | *Professor A. TISELIUS (Sweden). |
| Vice-Presidents: | Sir Charles DODDS (U.K.). |
| | Professor P. KARRER (Switzerland). |
| | Professor C. J. VAN NIEUWENBURG (Netherlands). |
| | Dr. E. W. R. STEACIE (Canada). |
| | Professor R. ADAMS (U.S.A.). |
| | Professor E. BERNER (Norway). |
| | *Dr. A. STOLL (Switzerland). |
| Vice-President and Treasurer: | *Dr. L. H. LAMPITT (U.K.). |
| Member of Executive: | *Professor A. NASINI (Italy). |
| Secretary-General: | *Professor R. DELABY, *4 Avenue de l'Observatoire, Paris 6, France.* |

* Member of the Executive Committee.

The next General Conference will be held in Zurich in July, 1955.

### SCIENTIFIC RADIO (1921) — URSI

| | |
|---|---|
| President: | Father P. LEJAY (France). |
| Vice-Presidents: | Dr. C. R. BURROWS (U.S.A.). |
| | Dr. D. F. MARTYN (Australia). |
| | Professor B. D. H. TELLEGEN (Netherlands). |

Treasurer: Professor Ch. MANNEBACK (Belgium).
Secretary-General: Colonel E. HERBAYS, *42 Rue des Minimes, Brussels, Belgium.*

The next General Assembly will be held at The Hague in August, 1954.

PURE AND APPLIED PHYSICS (1922) IUPAP

President: Professor N. F. MOTT (U.K.).
Vice-Presidents: Professor E. AMALDI (Italy).
Professor G. BORELIUS (Sweden).
Professor J. HEYROWSKY (Czechoslovakia).
Sir K. S. KRISHNAN (India).
Professor M. L. E. OLIPHANT (Australia).
Dr. J. C. SLATER (U.S.A.).
Professor J. A. WHEELER (U.S.A.).
Secretary-General: Professor P. FLEURY, *3 Boulevard Pasteur, Paris 15, France.*

The next General Assembly will be held in London in July, 1954.

BIOLOGICAL SCIENCES (1923) IUBS

President: Professor S. HÖRSTADIUS (Sweden).
Vice-President: Professor R. E. CLELAND (U.S.A.).
Secretary: Professor R. ULRICH (France).
Treasurer: Professor A. LINDER (Switzerland).
Secretary-General: Professor G. MONTALENTI, *Istituto de Genetica, Via Mezzacannone 8, Naples, Italy.*

The next General Assembly will be held in Rome in April, 1955.

GEOGRAPHY (1923) IGU

President: Professor L. DUDLEY STAMP (U.K.).
Vice-Presidents: Professor G. B. CRESSEY (U.S.A.).
H.E. Dr. Hans W: SON AHLMAN (Sweden).
Professor Hans BOESCH (Switzerland).
Professor George KURIYAN (India).
Professor Orlando RIBIERO (Portugal).
Professor Max SORRE (France).
Professor H. O'REILLY STERNBERG (Brazil).
Secretary-Treasurer: Dr. George H. T. KIMBLE, *The Twentieth Century Fund, 330 West 42nd Street, New York 36, N.Y., U.S.A.*

The next General Assembly will be held in Rio de Janeiro in 1956.

CRYSTALLOGRAPHY (1947) IUCr

President: Professor J. M. BIJVOET (Netherlands).
Vice-Presidents: Dr. G. HÄGG (Sweden).
Dr. J. WYART (France).
Members of Executive: Professor J. D. BERNAL (U.K.).
Sir K. S. KRISHNAN (India).

| | |
|---|---|
| | Professor E. Onorato (Italy). |
| | Dr. A. L. Patterson (U.S.A.). |
| | Professor P. P. Ewald (U.S.A.). |
| Secretary-General: | Dr. R. C. Evans, *Cavendish Laboratory, Cambridge, England.* |

The next General Assembly will be held in Paris in July, 1954.

## THEORETICAL AND APPLIED MECHANICS (1947) — IUTAM

| | |
|---|---|
| President: | Dr. H. L. Dryden (U.S.A.). |
| Vice-President: | Professor J. Pérès (France). |
| Treasurer: | Professor G. Temple (U.K.). |
| Members of Bureau: | Professor R. Grammel (Germany). |
| | Professor F. K. G. Odqvist (Sweden). |
| | Professor J. M. Burgers (Netherlands). |
| Secretary: | Dr. F. H. van den Dungen (until November 1, 1954), *41 Avenue de l'Arbalète, Boitsfort, Brussels, Belgium.* |

The next General Assembly will be held in Brussels in July, 1954.

## HISTORY OF SCIENCE (1947) — IUHS

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| | Professor W. H. Schopfer (Switzerland). |
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| Treasurer: | Dr. D. Wittop-Koning (Netherlands). |
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The next General Assembly will be held in Italy in 1956.

## MATHEMATICS (1952) — IMU

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| President: | Professor M. H. Stone (U.S.A.). |
| Vice-Presidents: | Professor E. Borel (France). |
| | Professor E. Kamke (Germany). |
| Members of Executive: | Professor W. V. D. Hodge (U.K.). |
| | Professor S. Iyanaga (Japan). |
| | Professor B. Jessen (Denmark). |
| Secretary: | Professor E. Bompiani, *Istituto Matematico, Città Universitaria, Rome, Italy.* |

The next General Assembly will be held at The Hague in September, 1954.

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(The "parent union" is printed first in the list: the dates given are those of the first meeting.)

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Chairman: Dr. R. W. G. Wyckoff.

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Dr. F. W. Cuckow.
Dr. G. Dupouy.
Professor J. B. le Poole.

*Representing IUPAC* (2)
Dr. A. S. MacFarlane.
Professor R. Signer.

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Professor I. Manton.
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Secretary: Professor J. B. le Poole, *Technical University, Mijnbouwplein 11, Delft, Netherlands.*

### IONOSPHERE (1948)

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Sir Edward Appleton.
Dr. W. J. G. Beynon.
Father P. Lejay.
Dr. Newbern Smith.

*Representing IAU* (3)
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Dr. D. H. Menzel.
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### OCEANOGRAPHY (1947)

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Professor M. Ewing.
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Professor C. E. Zobell.

Secretary: Mr. C. D. Ovey, *Department of Geography, Downing Place, Cambridge, England.*

## RADIOACTIVITY (1950)

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## A SHORT HISTORY OF ICSU

In the latter part of the nineteenth century a number of international scientific organizations started. Some were to advance science by direct co-operation. Others were to facilitate personal acquaintance and interchange of opinion: international scientific congresses held periodically are in this class. Others aimed at establishing uniformity of standards of measurement, and of these the earliest was the *Bureau International des Poids et Mesures*: this was established at Sévres in 1873 as the outcome of an international commission set up in 1869 for the construction of metric standards. The *International Geodetic Association* developed from an *International Mid-European Geodetic Association* established in Berlin in 1861: in 1896 a convention was made between twenty-three States, each paying a subscription calculated on the basis of population. In 1903 an International Seismological Association was formed on the pattern of the International Geodetic Association: both of these lapsed in 1916 during the First German War.

An International Polar Year was held in 1882-1883 and another in 1932-1933: these were the forerunners of the *International Geophysical Year* planned by ICSU for 1957-1958 (see pp. 49 and 53).

For some years before 1898 the Academies of Munich and Vienna, with the Royal Societies of Göttingen and Leipzig, had met annually as an Association to discuss matters of common interest. In 1898 the meeting was to be held in Göttingen and the Royal Society of Göttingen invited the Royal Society of London to take part: the latter agreed to join the Association if its scope was so extended as to assume a fully international character. In 1899 the Académie des Sciences of Paris, the Accademia dei Lincei in Rome, the Imperial Academy of Sciences at St Petersburg and the National Academy of Sciences of Washington agreed to form such an international association. A preliminary conference took place at Wiesbaden in 1899 and the Council of the new Association, to be called *The International Association of Academies*, held its first meeting in Paris in 1900.

During the war of 1914-1918 meetings of the International Association of Academies and of many other international organizations could not be held, and in 1918 the Royal Society, the Académie des Sciences and the National Academy of Sciences discussed informally the future organization of the scientific undertakings which had been carried on before the war by international co-operation: ultimately the academies of all the allied countries were invited to send representatives to a conference which took place in London in October 1918. This was followed by a meeting in Paris in November 1918, when an Executive Committee was appointed to draft the statutes for an *International Research Council* (IRC) which, with a number of affiliated International Unions, might deal with matters of international scientific interest. A General Assembly of this Council was held at Brussels in July 1919, when the statutes of the Council were approved. International Unions for Astronomy, Geodesy and Geophysics, Chemistry and (shortly after) Mathematics* were formed: and to these were later added Scientific Radio (1921), Physics (1922),

* The Mathematical Union came to an end in 1932 and was reconstituted in 1952.

Geography (1923), Biological Sciences (1923), Crystallography (1947), Theoretical and Applied Mechanics (1947), History of Science (1947), Mathematics (reconstituted, 1952).

At the start the International Research Council retained control over the Unions and only allowed countries to join the Unions which already adhered to the International Research Council. Differences of opinion about this and other matters led to a reorganization in 1931 by which the IRC was transformed into the *International Council of Scientific Unions* (ICSU). Under the new arrangement the Unions became autonomous within the framework of ICSU, the General Assembly was permitted to meet elsewhere than in Brussels, and adherence of a country to any Union no longer required adherence to ICSU.

In 1946 UNESCO was formed by the United Nations. A formal and mutual draft agreement between UNESCO and ICSU was approved by ICSU in 1946 at its first General Assembly after the war of 1939-1945. This agreement was modified in 1947 and again in 1952. The present agreement is given on pages 45 and 46 below.

The Statutes of ICSU have been modified at various times. The present Statutes and Rules, adopted at the General Assembly in 1952, are given in French and English on pages 29 to 42 below. The French text is authoritative.

Previous Secretaries-General of the IRC and ICSU have been as follows:

1919-1928 Sir Arthur Schuster.
1928-1937 Sir Henry Lyons.
1937-1952 Professor F. J. M. Stratton.

Until 1952 the Secretary-General acted also as Treasurer.

Further details can be found in the article by Dr. J. A. Fleming, Volume V of Reports of the General Assembly of ICSU, pp. 109-252, 1951. See also Dr. J. A. Fleming, *Proc. Amer. Philos. Soc.*, vol. 91, p. 121, 1947; Sir Henry Lyons, *The Royal Society, 1660-1940*, pp. 316-320, Cambridge University Press, 1944; Sir Henry Lyons, *Record of the Royal Society*, pp. 69-73, Cambridge University Press, 1940; and Professor F. J. M. Stratton, *Nature*, vol. 166, p. 808, 1950. The Year Books and Council Minutes and Reports of the Royal Society from 1919 onwards refer regularly to the IRC and ICSU.

A. V. Hill.

# STATUTS ET RÈGLEMENT INTÉRIEUR DU CONSEIL

## STATUTS

### I. Objets du Conseil International

1. Le Conseil International des Unions Scientifiques a deux objectifs principaux:
   (*a*) coordonner et faciliter l'action des Unions scientifiques internationales dans le domaine des Sciences exactes et naturelles;
   (*b*) servir de centre de coordination des organisations nationales adhérant au Conseil.
2. Le Conseil a en outre pour but:
   (*a*) d'encourager l'activité scientifique internationale dans les domaines où il n'existe pas d'organisations internationales compétentes;
   (*b*) d'entrer, par l'intermédiaire des organisations nationales adhérentes, en relation avec les Gouvernements des pays adhérant au Conseil, en vue de développer la recherche scientifique dans ces pays;
   (*c*) de se tenir en contact avec les Nations Unies et leurs Institutions spécialisées;
   (*d*) d'établir les rapports et de conclure les arrangements jugés nécessaires avec d'autres Unions ou Conseils internationaux lorsque leur champ d'action recouvre, dans le domaine des Sciences exactes et naturelles, celui du Conseil.

### II. Siège

3. Le Siège légal du Conseil est fixé à Bruxelles.
Les dons et legs seront reçus et gérés conformément à la législation belge.

### III. Constitution du Conseil

4. Le Conseil est constitué par les membres suivants:
   (*a*) les Organisations nationales définies à l'article 5(*a*) et appelées membres nationaux;
   (*b*) les Unions internationales scientifiques définies à l'article 5(*b*) et appélées membres scientifiques.
5. (*a*) L'organisation nationale représentant un pays au titre de membre national peut être, soit sa principale Académie scientifique, ou son Conseil National de la Recherche Scientifique, ou toute autre institution scientifique ou groupement d'institutions; soit, à défaut, le Gouvernement.

   Peuvent être représentés au Conseil les Protectorats, ainsi que tout territoire possédant une activité scientifique reconnue indépendante.
   (*b*) Les membres scientifiques du Conseil sont les Unions dont l'admission a été prononcée par l'Assemblée générale.

Pour être admise une Union doit avoir un caractère international, et s'intéresser à un ou plusieurs domaines des sciences exactes et naturelles non encore représentés au Conseil.

## IV. Administration du Conseil

6. Le Conseil est administré par:
   (*a*) l'Assemblée générale;
   (*b*) le Bureau;
   (*c*) le Comité exécutif.

La composition et les attributions de ces organismes sont définies par les articles ci-après, dont un Règlement intérieur fixera les modalités d'application.

## V. Assemblée Générale

7. L'Assemblée générale, devant laquelle le Bureau et le Comité exécutif sont responsables, est composée des représentants des membres nationaux et des membres scientifiques.

8. Le Conseil se réunit, en principe, tous les trois ans en Assemblée générale ordinaire, en un lieu et à une date fixés par l'Assemblée générale, ou à défaut par le Comité exécutif. Le Secrétaire-Général fait connaître aux membres du Conseil, et aux membres du Comité exécutif, six mois au moins à l'avance, le lieu et la date de l'Assemblée générale.

9. Les résolutions soumises à l'Assemblée générale par les membres du Conseil doivent parvenir au Secrétaire-Général au moins quatre mois avant la réunion.

10. L'ordre du jour de l'Assemblée générale est communiqué par le Secrétaire-Général aux membres du Conseil et aux membres du Comité exécutif au moins trois mois avant le premier jour de la réunion. Toute question ne figurant pas à l'ordre du jour n'est prise en considération qu'avec l'assentiment préalable des deux-tiers des voix des membres présents au moment du vote.

11. Pour tous les votes:
   chaque membre national dispose d'une voix;
   chaque membre scientifique, classé comme Union générale, dispose de trois voix;
   chaque membre scientifique, classé comme Union spécialisée, dispose de deux voix.

Le vote de chaque membre national ou scientifique est émis par un représentant (ou suppléant) désigné par ce membre.

Les décisions de l'Assemblée générale sont prises à la majorité des voix des membres présents; en cas d'égalité des voix, le Président décide.

12. Dans des cas spéciaux le Président peut, avec le consentement du Bureau, convoquer une Assemblée générale extraordinaire; il est tenu de le faire à la demande d'un tiers des voix des membres du Conseil.

## VI. Pouvoirs et Attributions de l'Assemblée Générale

13. L'Assemblée générale élit les membres du Bureau.

14. L'Assemblée générale a le pouvoir de désigner toute Commission qu'elle juge nécessaire pour le travail administratif et scientifique du Conseil.

15. L'Assemblée générale examine et approuve le rapport du Bureau sur l'administration du Conseil depuis la dernière Assemblée générale.

16. L'Assemblée générale examine et approuve, sur proposition de la Commission des Finances, les comptes des années écoulées depuis la dernière Assemblée générale; elle en donne décharge au Trésorier.

17. L'Assemblée générale fixe, sur proposition du Comité exécutif, la cotisation annuelle des membres du Conseil.

18. Sur proposition du Bureau et du Comité exécutif, l'Assemblée générale examine les demandes d'admission au Conseil. Elle peut les accepter ou les rejeter.

19. L'Assemblée générale examine et ratifie les Règlements qui lui sont proposés par le Comité exécutif.

20. L'Assemblée générale procède, sur proposition du Comité exécutif, à la classification des membres scientifiques.

21. L'Assemblée générale peut annuler, à la majorité des deux-tiers des voix des membres du Conseil présents, l'adhésion d'un membre du Conseil ne remplissant pas ses obligations.

## VII. Bureau

22. Le Bureau du Conseil comprend:

(*a*) le Président;
(*b*) deux Vice-Présidents;
(*c*) le Secrétaire-Général;
(*d*) le Trésorier;
(*e*) deux membres ordinaires;
(*f*) le Président sortant.

Le Président, les Vice-Présidents, le Secrétaire-Général et le Trésorier du Conseil exercent les mêmes fonctions au Comité exécutif at à l'Assemblée générale.

Le Président reste en fonction jusqu'à la clôture de l'Assemblée générale ordinaire qui suit son élection; il n'est pas rééligible immédiatement.

Les membres du Bureau prévus aux alinéas (*b*) et (*e*) ci-dessus restent en fonction jusqu'à la clôture de la deuxième Assemblée générale ordinaire, à compter de la date de leur élection, sauf s'ils ont été élus pour pourvoir à une vacance; en ce cas, leur mandat prend fin à le même date que celui de leur prédécesseur. Ils ne sont jamais immédiatement rééligibles aux mêmes fonctions. Les élections sont réglées de façon qu'à chaque session de l'Assemblée générale un Vice-Président et un membre ordinaire soient dans la première période de leur mandat, et que l'autre Vice-Président et l'autre membre ordinaire soient dans la seconde. Le Secrétaire-Général et le Trésorier restent en fonction jusqu'à la clôture de l'Assemblée générale suivante; ils sont rééligibles immédiatement.

Le Bureau peut pourvoir par cooptation à toute vacance survenue parmi ses membres.

23. Tous les actes qui engagent le Conseil sont, sauf procurations spéciales, signés par deux membres du Bureau qui n'ont pas à justifier de pouvoirs vis-à-vis des tiers.

Les actions judiciaires, tant en demandant qu'en défendant, sont suivies, poursuites et diligences, par le Bureau représenté par son Président ou un membre du Bureau désigné à cet effet par le Président.

## VIII. Comité Exécutif

24. Le Comité exécutif se compose des membres du Bureau et des représentants des membres scientifiques.

En ce qui concerne la représentation au sein du Comité exécutif les membres scientifiques sont classés en deux catégories, à savoir:

(*a*) Les Unions générales, qui élisent chacune deux membres du Comité exécutif;

(*b*) Les Unions spécialisées, qui élisent chacune un membre du Comité exécutif.

25. Sur proposition d'un ou de plusieurs membres scientifiques du Conseil le Comité exécutif peut constituer des commissions mixtes.

26. Le Comité exécutif doit communiquer à chaque membre du Conseil un rapport annuel comprenant des comptes vérifiés (recettes et dépenses).

## IX. Finances

27. Le Comité exécutif établit des prévisions budgétaires pour chaque période comprise entre deux sessions de l'Assemblée générale.

28. Les ressources provenant de dons acceptés par le Conseil sont utilisées en tenant compte du désir exprimé par les donateurs.

29. Tout membre qui cesse de faire partie du Conseil perd de ce fait ses droits sur l'actif du Conseil.

## X. Dispositions Generales

30. Les présents statuts entreront en vigueur lorsqu'ils auront reçu l'approbation de l'Assemblée générale de 1952. Aucune modification ne pourra leur être apportée sans avoir été approuvée par les deux tiers des voix des membres de l'Assemblée générale définis à l'article 11, et présents au moment du vote.

31. Le présent texte français servira exclusivement pour l'interprétation à donner aux Statuts.

# RÈGLEMENT INTÉRIEUR SUR LES ATTRIBUTIONS ET LE POUVOIR

0.1. Dans l'intervalle des sessions de l'Assemblée générale, le Comité exécutif assume la direction des activités du Conseil. Le Bureau est chargé de la gestion du Conseil dans le cadre des décisions de l'Assemblée générale et du Comité exécutif.

## I. Membres du Bureau

1.1. *Le Président* est le représentant légal du Conseil dans ses relations avec d'autres organisations.

1.2. Il préside toutes les réunions du Conseils, du Comité exécutif et du Bureau.

1.3. Il présente à chaque Assemblée générale un rapport sur l'activité du Conseil.

1.4. Il peut inviter tout homme de science à assister à titre consultatif à une session de l'Assemblée générale ou du Comité exécutif.

1.5. Il peut, avec l'assentiment du Bureau, déléguer une partie ou la totalité de ses pouvoirs à un ou plusieurs membres du Bureau.

1.6. *Les Vice-Présidents* peuvent suppléer le Président; à la demande de celui-ci, ou en cas de force majeure, l'un d'eux peut remplir, totalement ou partiellement, les fonctions confiées au Président par le présent Règlement.

1.7. *Le Secrétaire-Général* est chargé de toutes les questions concernant l'Administration du Conseil, du Comité exécutif et du Bureau, et notamment de la correspondance, de la préparation et de la distribution des publications autorisées par l'Assemblée générale et par le Comité exécutif, ainsi que de la conservation des archives du Conseil.

1.8. Il établit un rapport annuel sur l'activité du Conseil; ce rapport est distribué à tous les membres du Conseil.

1.9. *Le Trésorier* est chargé de la gestion financière du Conseil conformément aux directives qui lui sont communiquées par le Bureau.

1.10. Il soumet annuellement au Bureau et au Comité exécutif une situation vérifiée des recettes et des dépenses.

1.11. Sans autorisation préalable, il peut effectuer annuellement des dépenses non prévues par le Bureau et dont le total au cours d'un exercice ne peut dépasser $200. Ces dépenses doivent être ratifiées par le Bureau.

1.12. Les membres ordinaires peuvent, à la demande du Bureau, être chargés de l'exécution d'une mission particulière incombant normalement soit au Président, soit au Secrétaire-Général.

## II. Le Bureau

2.1. Les décisions du Bureau sont prises à la majorité des membres présents, chaque membre disposant d'une voix. En cas d'égalité des voix, celle du Président est prépondérante.

2.2. Le Bureau décide si un membre national désirant être admis au Conseil remplit les conditions exigées à l'article 5(*a*) des Statuts pour son admission; il prononce, s'il y a lieu, cette admission à titre provisoire. Avant tout refus il en est référé à l'Assemblée générale.

2.3. Il autorise les paiements à effectuer par le Trésorier et procède annuellement à la vérification des comptes.

2.4. Il peut autoriser les délégations de pouvoirs présentées par le Président.

2.5. Il rédige les projets de Règlement à soumettre au Comité exécutif pour approbation par l'Assemblée générale.

2.6. Il est chargé de traiter toutes les affaires intéressant l'activité du Conseil qui ne sont réservées ni au Comité exécutif, ni à l'Assemblée générale.

2.7. Il peut charger un ou plusieurs de ses membres de l'étude d'une question particulière relevant de sa compétence.

## III. Le Comité Exécutif

3.1. Les décisions du Comité exécutif sont prises à la majorité des membres du Comité exécutif présents. En cas d'égalité des voix, celle du Président est prépondérante.

3.2. Dans l'intervalle de deux sessions de l'Assemblée générale, le Comité exécutif peut soumettre des propositions à l'approbation des membres du Conseil. Il est tenu de le faire lorsqu'il en est requis par un tiers de ces membres.

3.3. Le Comité exécutif peut nommer des Commissions spéciales pour l'étude de toute question de la compétence du Conseil. Leurs membres ne doivent pas nécessairement avoir été déléguées à une Assemblée générale. Ces Commissions spéciales peuvent, à leur tour, s'adjoindre, par cooptation, de nouveaux membres à la suite d'un vote acquis à la majorité des deux-tiers.

3.4. Il est chargé d'examiner et de présenter à l'Assemblée générale les demandes d'admission de nouveaux membres scientifiques.

3.5. Il peut admettre provisoirement une Union comme membre scientifique par un vote favorable acquis à la majorité des deux-tiers des membres du Comité exécutif effectivement présents à une réunion du Comité.

3.6. Il propose à l'Assemblée générale la catégorie dans laquelle doivent être classés les membres scientifiques.

3.7. Pour devenir membre scientifique du Conseil une Union doit communiquer ses Statuts au Secrétaire-Général six mois au moins avant une session du Comité exécutif.

Les Unions fixent librement l'organisation intérieure la plus conforme à leurs besoins. En conséquence, une Union peut comprendre plusieurs Sections ou Associations; deux ou plusieurs Unions peuvent s'associer pour former une nouvelle Union.

Les Statuts des Unions qui demandent leur admission doivent:

(*a*) indiquer les buts de l'Union;
(*b*) prévoir que les activités de l'Union sont dirigées par une Assemblée générale de ses membres;
(*c*) indiquer le barème des cotisations payées par les organisations nationales;
(*d*) faire connaître les règles relatives au vote.

Aucune Union ne peut être acceptée comme membre scientifique si:

(1) elle n'a pas l'adhésion de douze pays;
(2) elle, ou l'organisation dont elle prend la succession ou dont elle émane, n'a pas au moins six années d'existence;
(3) elle n'a pas tenu au moins deux réunions internationales.

Le Secrétaire-Général communique aux membres du Comité exécutif et du Conseil toute demande d'admission d'une Union comme membre scientifique.

3.8. Il examine et présente à l'Assemblée générale les projets de Règlements qui lui sont soumis par le Bureau.

3.9. Le Comité exécutif siège en général une fois par an, à moins que le Bureau n'estime nécessaire, en cas d'urgence, de le convoquer en session spéciale.

### IV. L'Assemblée Générale

4.1. Les membres scientifiques, les Commissions spéciales constituées en vertu de l'article 3.3 ci-dessus, ainsi que les Commissions mixtes constituées en vertu de l'article 25 des Statuts, présentent à chaque Assemblée générale, soit directement, soit par un représentant désigné par le Bureau du Conseil, un rapport de leurs activités depuis la dernière réunion de l'Assemblée générale.

### V. Finances

5.1. Le Comité exécutif établit des prévisions budgétaires pour chaque année d'une période comprise entre deux sessions de l'Assemblée générale.

Une Commission financière, nommée par l'Assemblée générale, est chargée de l'étude du budget pour la période suivante et de la vérification des comptes de la période précédente. Elle établit sur ces deux questions des rapports distincts qui sont soumis à l'Assemblée générale; après les avoir étudiées l'Assemblée fixe la cotisation de chaque espèce de membre pour les trois années suivantes.

5.2. Les cotisations annuelles des différents membres du Conseil sont fixées par chaque Assemblée générale pour une période de trois ans.

5.3. Tout membre du Conseil en retard de deux années dans le paiement de sa contribution reçoit un avertissement, et le Comité exécutif peut le priver de son droit de vote. Tout membre en retard de trois ans est passible d'expulsion du Conseil sur décision de l'Assemblée générale.

### VI. Dispositions Générales

6.1. Le présent Règlement, adopté par l'Assemblée générale le 2 Octobre 1952 en vertu de l'article 19 des Statuts et des articles 2.5 et 3.8 ci-dessus, ne peut être modifié que par l'Assemblée générale.

6.2. Le présent texte français servira exclusivement pour l'interprétation à donner au Règlement.

## STATUTES

### I. Objects of the International Council

1. The International Council of Scientific Unions has two chief objects :
   (*a*) to co-ordinate and facilitate the activities of the International Scientific Unions in the field of the Natural Sciences;
   (*b*) to act as a co-ordinating centre for the National Organizations adhering to the Council.

2. Further objects of the Council are:

(*a*) to encourage international scientific activity in subjects which do not fall within the purview of any existing international organizations;

(*b*) to enter, through the national adhering organizations, into relations with the Governments of the countries adhering to the Council in order to promote scientific investigation in these countries;

(*c*) to maintain relations with the United Nations and its Specialized Agencies;

(*d*) to make such contacts and mutual arrangements as are deemed necessary with other International Councils or Unions, where common interests exist in the field of the natural sciences covered by the Council.

## II. Domicile

3. The legal domicile of the Council is at Brussels.

Donations and legacies are received and administered according to Belgian law.

## III. Composition of the Council

4. The Council consists of the following members:

(*a*) National Organizations as defined in Article 5(*a*) and known as National Members;

(*b*) International Scientific Unions as defined in Article 5(*b*), and known as Scientific Members.

5. (*a*) The national organization which represents a country in its capacity as a National Member may be either its principal scientific Academy, or its National Research Council, or any other institution or association of institutions; or failing these, the Government.

Protectorates, or any territory having recognized independent scientific activity, may be represented on the Council.

(*b*) The Scientific Members of the Council are the Unions whose admission has been granted by the General Assembly.

In order to be admitted, a Union must be international in character, and interested in one or more branches of the natural sciences not already represented in the Council.

## IV. Administration of the Council

6. The Council is administered by:

(*a*) the General Assembly;

(*b*) the Bureau;

(*c*) the Executive Board.

The composition and function of these bodies are defined in the following articles, whose application is governed by the Rules of Procedure.

## V. General Assembly

7. The General Assembly, to which the Bureau and the Executive Board are responsible, consists of the representatives of the National Members and of the Scientific Members.

8. An ordinary meeting of the General Assembly is held, as a rule, every three years, at a place and date determined by the General Assembly, or failing that, by the Executive Board. The Secretary-General shall communicate the place and date of the meeting to the Members of the Council and to all members of the Executive Board at least six months in advance.

9. Resolutions from Members of the Council for submission to the General Assembly should reach the Secretary-General at least four months before the meeting.

10. The Agenda of the General Assembly shall be communicated by the Secretary-General to the Members of the Council and to all members of the Executive Board at least three months before the first day of the meeting. No question which has not been placed on the agenda can be discussed, unless a proposal to the effect be approved by not less than two-thirds of those present and voting.

11. Whenever a vote is taken:

each National Member has one vote;
each Scientific Member classed as a General Union has three votes;
each Scientific Member classed as a Specialized Union has two votes.

The vote of each National or Scientific Member must be given by a representative (or alternate) nominated by that Member.

Decisions of the General Assembly shall be taken by a majority of those present and voting; in the event of an equal division of votes, the Chairman shall take the final decision.

12. For special reasons the President may, with the consent of the Bureau, summon an extraordinary meeting of the General Assembly. He is obliged to do so at the request of one-third of the Members of the Council.

## VI. Powers and Functions of the General Assembly

13. The General Assembly elects the members of the Bureau.

14. The General Assembly has power to appoint any Committees it may deem necessary for the administrative and scientific work of the Council.

15. The General Assembly reviews and approves the Report of the Bureau on the administration of the Council for the period elapsing since the previous General Assembly.

16. On the proposal of the Finance Committee, the General Assembly examines and approves the accounts for the years elapsing since the last session of the General Assembly, and discharges the Treasurer of liability.

17. The General Assembly decides, on the proposal of the Executive Board, the annual contributions to be paid by Members of the Council.

18. On the proposal of the Bureau and of the Executive Board, the General Assembly examines applications for membership of the Council. which it may accept or reject.

19. The General Assembly shall consider, and may ratify Rules of Procedure proposed by the Executive Board.

20. On the proposal of the Executive Board the General Assembly shall classify the Scientific Members.

21. The General Assembly may, by a two-thirds majority vote of the Members of the Council present, cancel the membership of any Member of the Council which fails to fulfil its obligations.

## VII. Bureau

22. The Bureau of the Council consists of:

(*a*) the President;
(*b*) two Vice-Presidents;
(*c*) the Secretary-General;
(*d*) the Treasurer;
(*e*) two ordinary members;
(*f*) the retiring President.

The President, Vice-Presidents, Secretary-General and Treasurer of the Council exercise the same functions in the Executive Board and General Assembly.

The President holds office until the end of the next ordinary General Assembly, and is not eligible for re-election immediately.

The Members of the Bureau enumerated at (*b*) and (*e*) above, hold office until the end of the second ordinary General Assembly, reckoned from the date of their election, except in the case of a Member elected to fill a vacancy, who then holds office for the remaining term of his predecessor only. They are in no case eligible for re-election immediately to the same position. Their election shall be so arranged that, at the date of any particular General Assembly, one Vice-President and one ordinary Member are in the first term of office, and the other Vice-President and ordinary Member in the second term of office.

The Secretary-General and Treasurer hold office until the end of the next ordinary General Assembly and are then eligible for re-election immediately.

The Bureau may fill by co-optation any vacancy occurring among its members.

23. Unless a special instrument of procuration is given, all documents involving the responsibility of the Council shall be signed by two Members of the Bureau, who shall not be called upon to justify such powers to third parties.

The Bureau, represented by its President or by a Member of the Bureau nominated for such purpose by the President, shall take all appropriate steps to ensure that actions at law, either as plaintiff or defendant, are pursued with due diligence.

## VIII. Executive Board

24. The Executive Board consists of the members of the Bureau and of representatives of the Scientific Members.

Scientific Members are of two classes in respect of membership of the Executive Board:

(*a*) General Unions, which each elect two members to the Executive Board;

(*b*) Specialized Unions, which each elect one member to the Executive Board.

25. On the proposal of one or more scientific members of the Council, the Executive Board may set up Joint Commissions.

26. The Executive Board shall communicate an annual report, including an audited statement of receipts and expenditure, to each member of the Council.

### IX. Finance

27. The Executive Board shall prepare budget estimates for each period between two meetings of the General Assembly.

28. Funds derived from donations accepted by the Council shall be used in accordance with the wishes expressed by the donors.

29. If any Member ceases to belong to the Council, it shall at the same time lose its rights to share in the assets of the Council.

### X. General Provisions

30. These Statutes shall come into force as soon as they have received the approval of the General Assembly of 1952. No change shall be made in these Statutes except with the approval of two-thirds of the votes of the members of the General Assembly as provided in Article 11 and present at the time of the vote.

31. The French text shall be considered to be the authoritative text in the interpretations of these Statutes.

## RULES GOVERNING POWERS AND FUNCTIONS

0.1. The Executive Board directs the affairs of the Council between meetings of the General Assembly. The Bureau is charged with the administration of the work of the Council, as determined by the decisions of the General Assembly and of the Executive Board.

### I. Members of the Bureau

1.1. *The President* is the legal representative of the Council in its dealings with other Organizations.

1.2. He shall act as Chairman at all meetings of the Council, the Executive Board and the Bureau.

1.3. He shall submit a report on the Council's work to every session of the General Assembly.

1.4. He may invite any scientific man to an ordinary meeting of the General Assembly or of the Executive Board. Such invited guests may take part in the discussions, but have no power of voting.

1.5. He may, with the consent of the Bureau, delegate some or all of his powers to one or more members of the Bureau.

1.6. *The Vice-Presidents* may deputize for the President; at his request, or when necessitated by circumstances, one of them may discharge some or all of the functions conferred on the President in these Rules of Procedure.

1.7. *The Secretary-General* shall be responsible for all matters concerning the administration of the Council, the Executive Board and the Bureau and, in particular, for the conduct of correspondence, the preparation and distribution of publications authorized by the General Assembly and the Executive Board, and the safe-keeping of the archives of the Council.

1.8. He shall prepare an annual report on the Council's work, which shall be distributed to all members of the Council.

1.9. *The Treasurer* shall be responsible for the financial administration of the Council in accordance with the directions issued to him by the Bureau.

1.10. He shall submit annually to the Bureau and to the Executive Board an audited statement of receipts and expenditure.

1.11. He may in any one financial year, without prior authorization, expend sums not budgeted for by the Bureau, subject to a maximum of $200. Such expenditure shall be approved by the Bureau.

1.12. Ordinary members may, at the request of the Bureau, be made responsible for the execution of a particular duty normally discharged by either the President or the Secretary-General.

## II. Bureau

2.1. Decisions of the Bureau shall be taken by a majority of the members present, each member having one vote. In the event of an equal division of votes, the President shall have a casting vote.

2.2. The Bureau shall decide whether a National Member which desires to join the Council fulfils the conditions of Article 5(*a*) of the Statutes; if such is the case, the Bureau shall provisionally accept the application. Any question of refusal shall be referred to the General Assembly.

2.3. It shall give authority for payments to be made by the Treasurer and shall examine and approve the annual accounts.

2.4. It may authorize any delegation of powers proposed by the President.

2.5. It shall draft by-laws for submission to the Executive Board for approval by the General Assembly.

2.6. It shall be responsible for dealing with all matters concerning the Council's work which are not reserved to the Executive Board or the General Assembly.

2.7. It may commission one or more of its members to study some special question within its competence.

## III. Executive Board

3.1. Decisions of the Executive Board shall be taken by a majority of the members of the Board present. In the event of an equal division of the votes, the President shall have a casting vote.

3.2. The Executive Board, in the interval between two meetings of the General Assembly, may submit proposals to the Members of the Council for their approval. It shall do so when requested by one-third of the Members.

3.3. The Executive Board may nominate special Committees for the discussion of any question falling within the purview of the Council. The members of such Committees need not necessarily have been delegated to one of the General Assemblies. These special Committees may themselves co-opt other members by a majority of two-thirds.

3.4. The Executive Board shall be responsible for examining and submitting to the General Assembly new applications for Scientific Membership.

3.5. The Executive Board may provisionally admit a Union to Scientific Membership by a majority in favour of two-thirds of the members of the Board actually present at a meeting of the Board.

3.6. It shall propose the appropriate classification of Scientific Members to the General Assembly.

3.7. Any Union desiring to become a Scientific Member of the Council shall communicate its Statutes to the Secretary-General at least six months before a meeting of the Executive Board. Each Union is free to choose an internal structure best suited to its own needs. Thus a Union may be divided into sections or associations; two or more Unions may combine to form a new Union.

The Statutes of Unions seeking admission to the Council should:

(*a*) indicate the objects of the Union;
(*b*) provide for the direction of the work of the Union by a General Assembly of its members;
(*c*) set forth the rules governing voting.

No Union can be accepted as a Scientific Member unless:

(1) it has the support of twelve countries;
(2) it, or the organization it has succeeded or of which it is an offshoot, has been in existence for at least six years;
(3) it has held at least two international meetings.

Any application from a Union for Scientific Membership of the Council shall be communicated by the Secretary-General to the members of the Executive Board and of the Council.

3.8. The Executive Board shall examine and present to the General Assembly draft by-laws submitted to it by the Bureau.

3.9. The Executive Board shall meet in general once a year, unless convened by special decision of the Bureau in case of particular urgency.

## IV. General Assembly

4.1. Scientific Members, the special Committees constituted under the terms of Rule 3.3 above, and the Joint Commissions set up under the terms of Article 25 of the Statutes, shall submit to each session of the General Assembly, either directly or through a representative nominated by the Bureau of the Council, a report on their activities since the last meeting of the General Assembly.

## V. Finance

5.1. The Executive Board shall prepare an estimate of the budget for each of the years intervening between two meetings of the General Assembly.

A Finance Committee, nominated for the purpose by the General Assembly, shall examine the budget estimates for the ensuing period, together with the accounts for that preceding. This Committee shall submit separate reports on the two questions to the General Assembly which, having considered these reports, shall fix the contribution for each type of Member for the succeeding three years.

5.2. The annual dues of the different members of the Council are fixed by each General Assembly for a period of three years.

5.3. Any Member of the Council which is in arrears with its contribution for two years shall be warned, and may be deprived of its voting power at the discretion of the Executive Board. Any Member which is three years in arrears may be excluded from the Council by a decision of the General Assembly.

## VI. General Provisions

6.1. These Rules of Procedure, adopted by the General Assembly on October 2, 1952, in accordance with Article 19 of the Statutes and Rules 2.5 and 3.8 above, may not be amended except by the General Assembly.

6.2. The French text shall be considered to be the authoritative text in the interpretation of these Rules of Procedure.

## RULES FOR JOINT COMMISSIONS

1. Joint Commissions to study specific topics in borderline fields covering subjects appropriate to more than one Union may, with the concurrence of the Unions concerned, be set up by the Executive Board of ICSU under paragraph V.19 of the 1949 Statutes.

2.1. The Executive Board shall invite the appropriate Unions to nominate each a certain number of members to serve on such Joint Commissions.

2.2. *Membership* of a Joint Commission shall not ordinarily exceed ten. The final decision on the strength of each individual Commission rests with the Executive Board, and is subject to revision at the annual meeting of the Board.

3. The Executive Board shall designate a *Parent Union* to foster the work of each Joint Commission.

4.1. On the formation of a Joint Commission, the Parent Union shall appoint a *Provisional Secretary*.

4.2. The Provisional Secretary is responsible for obtaining the nominations to membership of the Joint Commission from the Unions concerned, and for calling the first meeting of the Commission.

5.1. The *First Meeting* of the Joint Commission shall elect a President and Secretary, both from among its members, of which at least one shall be a nominee of the Parent Union.

5.2. The initial term of Office of both President and Secretary shall be three years, when both are eligible for re-election for at least one further term of three years.

5.3. A Joint Commission may continue in being for three years, counted from the date of the first session, without reference to the Executive Board. It then rests with the Executive Board to decide whether or not the Joint Commission should continue its work for at least a further period of three years. If so, it shall be mandatory for the Unions concerned to ensure adequate rotation of membership, representative of the latest advances in technique covered by the Joint Commission in question.

5.4. Each Joint Commission, on the termination of its mandate, shall either be dissolved or be replaced by a Commission of the Parent Union, if necessary with members co-opted from other Unions.

6. A Joint Commission may appoint a number of *Advisory Councillors* if it is considered that the work of the Commission requires their assistance.

7.1. *Advisory Councillors* who may attend a meeting of the Commission can receive transportation and per diem expenses only if they take the place of full members of the Commission who are unable to attend.

7.2. If a meeting of a Joint Commission should coincide with another meeting organized by the Council or one of the Unions, transportation expenses and per diem for members of the Commission can be claimed on one count only.

7.3. *Travelling expenses* are normally claimable in respect of second class railway or steamer tickets. Air transport is claimable where large distances or notable time saving are involved.

7.4. *Per Diem expenses* to members and advisory councillors attending a meeting of the Commission with the assistance of UNESCO Subventions

are payable according to the funds available, ordinarily for a maximum period of three days, or of five days in the case of members or advisory councillors coming from distant countries, at a rate to be determined from time to time by the Bureau.

8.1. Funds for *Regular Meetings* of a Joint Commission are available at most in alternate years.

8.2. Joint Commissions may suggest *Symposia* on topics falling within their domain, to be held in any year. The total number of such symposia in any one year for which subventions may be allocated is, however, contingent on the funds available in that year from UNESCO and ICSU sources.

9.1. In order that applications for subventions from UNESCO may be submitted in time, each Joint Commission shall submit an advance list of meetings and symposia for scrutiny by the Bureau of ICSU on the occasion of an annual meeting of the Executive Board, for submission to the Board for its approval.

10.1. Requests for subventions from UNESCO or ICSU, either for regular meetings or symposia approved by the Board as in 9.1, or towards the cost of publications, shall be submitted by the Parent Union on behalf of the Joint Commission.

10.2. All subsequent dealings with UNESCO or ICSU in respect of subventions are the responsibility of the Parent Union.

10.3. Minor administrative expenses of Joint Commissions will be borne by ICSU. All other expenses must be approved by the Parent Union and by ICSU before being incurred.

11.1. The Parent Union is responsible to the Executive Board for the conduct of the work of any Joint Commission attached to it.

11.2. Joint Commissions shall render full reports of all meetings and other activities to the Parent Union.

11.3. The Parent Union shall submit an interim Report on the work of any Joint Commission attached to it at the annual meeting of the Executive Board; and a summarized report of the work of its Joint Commissions triennially to the General Assembly, through its representatives designated under Article VI.25 of the 1949 Statutes.

## ACCORD ENTRE L'ORGANISATION DES NATIONS UNIES POUR L'EDUCATION, LA SCIENCE ET LA CULTURE ET LE CONSEIL INTERNATIONAL DES UNIONS SCIENTIFIQUES

Considérant qu'aux termes de son Acte constitutif, l'Organisation des Nations Unies pour l'Education, la Science et la Culture doit, entre autres tâches, "aider au maintien, à l'avancement et à la diffusion du savoir".

Considérant que les Unions scientifiques internationales constituent une forme naturelle et appropriée pour l'organisation internationale de la science, et que le Conseil international des Unions scientifiques est l'organisme compétent pour les représenter et coordonner leurs activités,

Considérant que les tâches du Conseil international des Unions scientifiques sont en harmonie avec celles de l'Organisation des Nations Unies pour l'Education, la Science et la Culture,

Considérant que le Conseil international des Unions scientifiques exerce son activité dans un domaine qui intéresse un large secteur du programme de l'Organisation des Nations Unies pour l'Education, la Science et la Culture, et qu'il est ainsi en mesure de fournir à cette dernière une contribution importante à la réalisation de son programme et de ses objectifs,

Considérant que le Conseil international des Unions scientifiques bénéficie des arrangements consultatifs auprès de l'Organisation des Nations Unies pour l'Education, la Science et la Culture,

Considérant les termes de l'accord en due forme signé entre l'Organisation des Nations Unies pour l'Education, la Science et la Culture et le Conseil international des Unions scientifiques le 16 décembre 1946, ainsi que la résolution 33.31 adoptée par la Conférence générale de l'Organisation des Nations Unies pour l'Education, la Science et la Culture, lors de sa cinquième session, et conformément aux dispositions des Directives concernant les relations avec les organisations internationales non gouvernementales,

Le Directeur général de l'Organisation des Nations Unies pour l'Education, la Science et la Culture, désignée ci-après sous le nom d'UNESCO, et

Le Président du Conseil international des Unions scientifiques désigné ci-après par les initiales ICSU,

sont convenus de ce qui suit:

*Article 1.* L'UNESCO et l'ICSU, outre les obligations et privilèges réciproques qui découlent de l'admission de ce dernier au bénéfice des arrangements consultatifs auprès de l'UNESCO, se prêteront mutuelle assistance en vue de faciliter l'exécution de leur programme commun dans le domaine de la coopération scientifique internationale.

*Article 2.* L'UNESCO et l'ICSU se consulteront sur toutes les questions de leur compétence commune. A cet effet:

(*a*) l'ICSU désignera une ou plusieurs personnes chargées de le représenter et d'assurer une liaison permanente entre l'ICSU et l'UNESCO; de même, un représentant de l'UNESCO pourra assurer la liaison au siège de l'ICSU;

(*b*) le Directeur général de l'UNESCO se fera représenter aux sessions des organes directeurs de l'ICSU.

*Article 3.* L'UNESCO s'engage:

(*a*) sous réserve d'approbation par la conférence générale et dans le cadre des Directives concernant les relations avec les organisations internationales non gouvernementales, à accorder à l'ICSU une subvention annuelle destinée à faciliter la coordination des activités de ses organisations membres et à compléter le financement des projets scientifiques d'intérêt international conformes aux objectifs de l'UNESCO inscrits au programme de l'ICSU;

(*b*) conformément aux dispositions des Directives concernant les relations avec les organisations internationales non gouvernementales, et dans la mesure compatible avec la satisfaction de ses propres besoins, à mettre à la disposition de l'ICSU, en vue de faciliter la liaison entre son Secrétariat et celui de l'UNESCO, deux bureaux meublés, ainsi que l'usage du téléphone local, à la Maison de l'UNESCO;

(*c*) dans la mesure compatible avec la satisfaction de ses propres besoins, à mettre à la disposition de l'ICSU, contre une rémunération calculée suivant ses barèmes, les services techniques et matériels propres à en faciliter le fonctionnement.

*Article 4.* L'ICSU s'engage:

(*a*) à fournir à l'UNESCO, sur sa demande, des conseils techniques quant à l'élaboration de son programme dans le domaine de la coopération scientifique internationale, ainsi qu'à conseiller l'UNESCO en ce qui concerne ses relations de travail avec les organisations travaillant dans ce même domaine;

(*b*) à porter une attention particulière et à donner le maximum de développement aux activités de son programme qui rentrent dans le cadre du programme de base de l'UNESCO;

(*c*) après accord, à donner suite à toute demande d'enquête ou d'étude qui pourra lui être présentée, ainsi qu'à entreprendre, au nom de l'UNESCO, des tâches déterminées se rapportant au programme de l'UNESCO.

*Article 5.* Le présent accord entrera en vigueur dès qu'il aura été approuvé par les organes compétents de l'UNESCO et de l'ICSU, et signé par le Directeur général de l'UNESCO et par le Président de l'ICSU.

Toute révision éventuelle de l'accord sera soumise à la même procédure.

La période d'application du présent accord sera celle de l'année du calendrier. L'accord sera reconduit d'année en année, sous réserve d'approbation par les organes compétents des organisations intéressées.

En cas de résiliation, un préavis réciproque devra être donné par l'une ou l'autre des parties au moins un an avant la fin de l'exercice en cours.

A. VON MURALT,
*Président du*
*Conseil international des*
*Unions scientifiques.*

JAIME TORRES BODET,
*Directeur général de*
*l'Organisation des Nations Unies*
*pour l'Education, la Science et la Culture.*

# REPORT OF THE SECRETARY-GENERAL OF ICSU FOR 1952-1953

## Professor F. J. M. Stratton

Professor Stratton was Secretary-General of ICSU from 1937 to 1952: he had been Secretary of IAU from 1925-1935. During his tenure of office (in January 1947) the first agreement was signed between ICSU and UNESCO, by which the scope and resources of ICSU have been greatly extended. He has worked without ceasing for good international relations in science, radiating always good will and good sense. He retires from the office of Secretary-General of ICSU with the gratitude and affection of all who have known him.

## Bureau

Meetings of the Bureau were held in Paris on January 30 and 31, 1953; and in Strasbourg on July 7 and 8 and July 10, 1953.

## Executive Board

Meetings of the Executive Board were held in Strasbourg on July 9 and 10, 1953.

## Financial Year

The financial year 1952 was of ten months only, ending on October 31. 1952. In future the financial year will run from November 1 to October 31, The audited accounts of ICSU for 1952 and for 1952-1953 are given on pages 59-76 below.

## Publications

From 1946 to 1952 the publications of ICSU, as distinguished from those of the Unions and the Joint Commissions, have been (*a*) the Reports of the General Assemblies, every third year; and (*b*) the Reports of the Executive Committee (now Board), in the other two years. In addition the Quarterly Bulletin, issued from the Office and containing current information, is circulated to interested persons and organizations.

It was decided at the meeting of the Executive Board, in July 1953, to publish annually (instead of (*a*) and (*b*) above) a Year Book of ICSU of which this is the first number. It contains more detailed information, and in more accessible form, than the earlier publications; it includes an audited financial statement (this year it contains such statements for two years—1952, and 1952-1953): it records the important decisions of the Bureau and Executive Board, and in every third year it will report the decisions of the General Assembly; it refers to important actions taken by the Officers on behalf of the Council; it contains reports of meetings of Joint Commissions and of activities of bodies set up for special purposes (at present, the Special Committee for the International Geophysical Year, and the ICSU Abstracting Board). It will not include annual reports of the Scientific Unions themselves: but since these are required by Rule 4.1 to submit to each General Assembly reports on their activities since the last meeting of the General Assembly,

summaries of such reports will be included in the Year Book for the following year.

The present Year Book is experimental and the Secretary-General will be grateful for any corrections of fact, or for suggestions of how it could be made more useful in later issues.

The Quarterly Bulletin will continue as at present, and a short pamphlet has been prepared, for wider circulation, under the title *ICSU, a Brief Outline*.

### Applications

An application for Scientific Membership of ICSU has been received from the International Union of Scientific Psychology: and applications are impending from the International Union of Physiological Science and the International Union of Biochemistry. The International Union of the Philosophy of Science, which had applied for admission, was invited by the Executive Board in July 1953 to enter into negotiations with IMU for possible affiliation.

### Annual Contributions to ICSU

The present annual contribution to ICSU of each country is fixed at 600 gold francs ($196 or £70). Each Scientific Union contributes a sum not to exceed 1½ per cent. of its contributions from adhering countries: the present assessment is 1 per cent.

### Finance

The present annual income of ICSU, made up by subscriptions from national and scientific members (countries and Unions), is about $9,000—which is far too small for adequate and efficient working: consideration is being devoted to the question of how to increase it. The UNESCO subvention (originally $240,000, but now $180,000 annually) has made great expansion possible in the activities of Scientific Unions, Joint Commissions, etc.: but it ought to be balanced by a very substantial increase in ICSU's own proper income.

The UNESCO subvention has been subject hitherto to "categorization", by which money could not, without special permission, be transferred from one purpose to another, however desirable in the circumstances of the time such transfer might be. An application was made in February 1954 to the Director-General of UNESCO that the limitation should be removed. This was submitted to the Executive Board of UNESCO in March 1954, and it was agreed that in future the subvention should be given as a block grant, without categories, with the single exception of the grant for administration which will be regarded as a separate item. This arrangement will apply to 1954-1955 and later years. The block grant will be applicable to any purpose falling within the Directives governing such subventions. This decision will obviate a considerable amount of paper work, and will substantially increase the value of the subvention.

### Administrative Office

It was impossible for the present Secretary-General, living in London, to exercise properly the responsibilities of his post with an administrative office in Paris. The Executive Board, therefore, in July 1953, agreed to the transfer of the office to London. It came to London on November 1, 1953. Dr. Ronald Fraser, who was previously described as "liaison officer, ICSU-UNESCO", is now styled "administrative secretary", which corresponds better to his actual functions, and the responsibility for liaison with UNESCO rests with the Secretary-General.

### Geophysical Year

The project of the International Geophysical Year (IGY), 1957-1958, is a very important one and a special committee (CSAGI) has been set up to plan it. Its first meeting was held in Brussels in July 1953, at which a scientific programme was laid down; and the secretariat was accepted as a Permanent Service of ICSU by the Executive Board in July 1953. Special IGY Committees have been appointed by URSI and IUGG to meet in 1955; and twenty-four National Committees have been formed. Further references to the IGY will be found elsewhere (see pages 53-54).

### Abstracting

The problem of abstracting scientific journals is a very important one and an ICSU Abstracting Board has been set up. Its first meeting took place at Strasbourg in July 1953, and legal personality in Belgium (where the legal domicile of ICSU also is, Statute 3) was obtained in November 1953. The present scope of its activities is limited to physics, the member journals now being *Science Abstracts*, *Bulletin Analytique* and *Physikalische Berichte*.

If, as there is every reason to hope, the work of the ICSU Abstracting Board proves successful it will be possible to extend it gradually to other fields. An extension to Chemistry has already been requested by IUPAC. It is intended to proceed gradually and experimentally and not to undertake too much before machinery has been well tested. Further references will be found elsewhere (pages 14 and 52).

The ICSU Abstracting Board is under contract to UNESCO for 1953 and 1954.

### Joint Commissions

The policy has been adopted of not maintaining Joint Commissions in existence unless they have shown significant and continuing activity. The Joint Commissions on Radiobiology and on High Altitude Research Stations have been disbanded, though the question is being considered of continuing the activities of the latter in some other form. The Joint Commission on Physico-Chemical Constants and Data has become a Commission of IUPAC. The future of the Joint Commission on Radioactivity is under consideration.

### Resignations

Owing to non-payment of subscriptions the following national members were regarded by the Executive Board as having terminated their membership and have been so informed: Argentina, Cuba, Hungary and Rumania.

### UNESCO Advisory Committee on Scientific Research

This Committee was established by the Executive Board of UNESCO in December 1953, following a special meeting in Paris on July 6-7, 1953. The President of ICSU is *ex officio* a member of this Committee.

### Proposal for Federations of Unions

In 1953 the Bureau at its two meetings, and the Executive Board in July, discussed a proposal for grouping various Unions together in order to simplify administration and facilitate co-operation. One purpose of this plan was to meet the possible difficulty in coping with a number of impending applications for admission as scientific members. General opinion in the Executive Board was not favourable to any fundamental change in the present arrangement of independent Unions: but the existing Unions were invited, through their representatives on the Executive Board, each to consider the "federation" plan at its next General Assembly, and so far as possible with other Unions, and to report its findings to the Bureau. The Bureau would then prepare a statement for the General Assembly in 1955. No reports have yet been received.

### UNESCO Subvention

The practice hitherto for the division of the subvention within each category has been for the Bureau to draft proposals early in the year for consideration later by the Executive Board. This gave the Scientific Unions no opportunity of commenting on these proposals before they came up to the Executive Board, and a large meeting provides an unsuitable mechanism for the delicate task of revising the proposed division. In future the draft proposals will be submitted at once to the Unions, who will be invited to comment on them. Any comments received will be considered by a revising sub-committee of the Bureau, which will then prepare a second draft for submission to the Executive Board.

## REPORTS OF JOINT COMMISSIONS AND COMMITTEES

### Joint Commission on High Altitude Research Stations (Denver, 1953)

The Joint Commission on High Altitude Research Stations (JCHARS) met from August 22 to 24, 1953, in Denver, Colorado, U.S.A. In spite of the Decision of the Executive Board of ICSU, taken in Strasbourg, to dissolve the Commission, proposals were elaborated to secure a continuing international organization concerned with research at high altitude stations. JCHARS proposed the formation of a Commission reporting directly to ICSU; to be formed by members of JCHARS, so far as they represent existing high altitude research stations, together with others actively concerned with high altitude research. Its activities would be conducted by correspondence, thereby avoiding the cost of meetings. The only formal officer of the organization would be a secretary. The activities of the Commission would include:

(*a*) The preparation of a guide to assist high altitude research stations, indicating the facilities that are at present available and keeping this information up to date.

(*b*) To prepare such additional material as may seem useful and desirable in promoting research at high altitude stations.

(*c*) To advise and assist in the establishment of additional research facilities or in the improvement of existing ones.

(*d*) To co-operate with scientific unions in programmes of research involving high altitude facilities.

The expenses of the secretarial office would be borne by an appropriate grant from ICSU.

Other questions like the organization of World Days in Upper Atmospheric Research and the publication of the first review of high altitude research stations were discussed. This review will be issued under the direction of Professor S. A. Korff of New York University.

The Commission will continue in existence pending action by ICSU on the above proposals.

Members inspected the research facilities at Mount Evans and Echo Lake.

Robert Stämpfli.

### Joint Commission on Oceanography

A symposium entitled *The Deep-sea Floor and the History of the Earth* was held in the Jane Herdman Geology Laboratories of the University of Liverpool on September 1 and 2, 1953.

Papers were read embracing results of research on deep-sea sedimentation from geological, geophysical and biological standpoints, with evidence for possible changes in ocean-volume and climate of the past. Morphology of the deep-sea floor, interpretation of continuous echo-sounding records and the preparation of bathymetric charts were also discussed. The focus of the whole conference was upon the contribution of the various lines of work to the elucidation of the earth's history.

Among the speakers were: F. Bernard, Algeria; E. C. Bullard, Teddington; C. W. Correns, Göttingen; L. Fage, Paris; M. N. Hill, Cambridge; P. E. Kent, London; F. Koczy, Gothenburg; Ph. H. Kuenen, Groningen; J. D. Nares, International Hydrographic Bureau; H. Pettersson, Gothenburg; R. Revelle, La Jolla, California; J. D. H. Wiseman, London; C. Zobell, U.S.A.

The papers and discussions of the Symposium will be published in *Deep Sea Research* (Pergamon Press, London).

C. D. Ovey.

ICSU Abstracting Board

The main activities of the ICSU Abstracting Board for the period 1952-1953 have been:

1. *Authors' summaries:* UNESCO's decisions and the Royal Society's rules have been formally accepted by all periodicals printing papers on physics and published in U.S.A., U.K., the Netherlands, Belgium, France and Italy. It is planned to extend this action in the future to the Spanish-speaking countries.

2. *Page-proofs:* The Board has arranged with nearly all the editors of the most important journals printing papers on physics that a set of the final page-proofs of each of their issues be sent to *Science Abstracts* and the *Bulletin Analytique* du CNRS, our member-journals. The result of our action has been to speed up considerably the appearance of the most important abstracts in both journals: a delay from six to eight weeks is thus saved.

3. *Non-periodical journals:* Measures have been taken to deal with non-periodical publications.

4. *Negotiations with Germany:*

(*a*) The Association of German Physical Societies got into touch with the Board with a view to the periodical *Physikalische Berichte* applying for membership; and on June 12, 1953, the Verband Deutscher Physikalischen Gesellschaften acting on behalf of *Physikalische Berichte* formally applied for membership.

(*b*) At the request of its member-journals, the Board entered into long negotiations with German publishing houses with a view to obtaining special subscription rates and/or advance proofs. Finally the Board obtained from the firm, Julius Springer, a reduction of 20 per cent. of the subscription rates of all periodicals for its member-journals provided that the subscription be taken out by ICSU Abstracting Board.

5. At the request of one of the members of the Board the lists of Journals of Physics published in the Spanish and Portuguese languages have been reviewed.

6. ICSU Abstracting Board helped IUPAP materially in respect of papers on physics published by Russian schools.

G.-A. Boutry.

## The International Geophysical Year, 1957-1958

In 1952 ICSU, following representations of the Unions concerned, appointed a Special Committee to promote the organization of an International Geophysical Year of world-wide co-operative geophysical observation, extending from July 1, 1957, to the end of 1958—this enterprise being an extended successor of two earlier international geophysical enterprises, the First and Second International Polar Years, 1882-1883 and 1932-1933.

This Special Committee contains representatives of the following international bodies concerned with the IGY*: ICSU (Dr. L. V. Berkner, Professor S. Chapman, Lt.-Col. E. Herbays, Professor M. Nicolet), IAU (Sir Harold Spencer Jones, Professor A. Danjon), IUGG (Professor J. Coulomb, Colonel G. Laclavère, Dr. V. Laursen, Professor P. Tardi), URSI (Dr. W. J. G. Beynon, Professor M. Boella), IGU (Mr. J. M. Wordie), IUPAP† (Dr. S. Vallarta, Dr. J. A. Simpson), and WMO (Professor J. van Mieghem, Dr. T. E. W. Schumann†).

Two ICSU Joint Commissions are represented on the Committee, that on the Ionosphere, by Dr. Beynon, and that on Solar and Terrestrial Relationships, by Professor M. Nicolet.

The Committee held its first full meeting, called by its Provisional Secretary, Colonel E. Herbays, in Brussels, June 30 to July 3, 1953, when the following were elected to the Bureau: Professor S. Chapman (President), Dr. L. V. Berkner (Vice-President), Professor M. Nicolet (General Secretary, to take office at the end of the period of appointment of the Provisional General Secretary, October 31, 1953).

As a consequence of a provisional meeting of the CSAGI, held in Brussels in October 1952, Colonel Herbays had invited the nations adhering to ICSU to form National Committees of IGY. The Secretary-General of ICSU extended this invitation to academies of all other nations. Colonel Herbays reported that twenty-three such committees had been formed by June 1953, by the following countries: Australia, Austria, Belgium, Czechoslovakia, Denmark, Finland, France, German Federal Republic, Great Britain, Greece, India, Israel, Japan, Netherlands, New Zealand, Norway, Pakistan, Spain, Sweden, Switzerland, Union of South Africa, United States and Yugoslavia. By October 31, 1953, the number of national committees formed had risen to twenty-five, the additional countries concerned being as follows: Canada and Morocco. The number at the time of writing this report, in March 1954, is twenty-six, an additional national committee having been formed by Argentina.

With the aid of several observers from the national committees, CSAGI at its June 1953 meeting considered the proposed programmes of work sent in by the national committees, and also by some of the international bodies represented on CSAGI. On the basis of these proposals and their discussion, a tentative programme for IGY was drawn up for circulation to, and consideration by, the national committees and the international bodies concerned.

* In French, AGI, l'Année Géophysique Internationale—hence the Special Committee is known by the letters CSAGI, the initials of its title in French.

† Participation in CSAGI began after October 31, 1953.

This programme dealt with the following scientific branches: (1) meteorology, (2) latitude and longitude determinations, (3) geomagnetism, (4) the ionosphere, (5) aurorae and airglow, (6) solar activity, (7) cosmic rays, (8) glaciology, and (9) oceanography.

Comments on this programme, and further details of the proposed national and international programmes were later invited from the national committees and from the international bodies concerned, such material to be communicated to the General Secretary by May 15, 1954. These documents will be reviewed and discussed at the meetings of the various interested scientific bodies during the summer of 1954, and will form the basis on which the CSAGI at its meeting at Rome, September 30 to October 4, 1954, will draw up the revised and substantially definitive programme for IGY.

## REPRESENTATIVES OF ICSU AT INTERNATIONAL MEETINGS, 1953

UNESCO Advisory Committee on Arid Zone Research (Paris and London)

*May:* Dr. Ronald Fraser.

*November:* Professor L. J. Tison.

UNESCO International Consultative Committee on Bibliography (Paris)

*April:* Professor G.-A. Boutry.

UNESCO Working Party on the Establishment of an Advisory Committee on Scientific Research (Paris)

*July:* Colonel G. Laclavère.

VIII Pacific Science Congress (Manila)

*November:* Dr. Anton Bruun.

Social Sciences Council (Paris)

*December:* Professor J. Pérès.

## TREASURER'S REPORT, 1952-1953

The fiscal year which extended from November 1, 1952, to October 31, 1953, was the first under the new Treasurer. Professor Stratton, before that time, had occupied the combined office of Secretary-General and Treasurer and had maintained very cordial relationships with the various adhering organizations. These facilitated the efforts of the new Treasurer to obtain contributions from countries and Unions alike.

A total of $7566.40 was received during the fiscal year from countries and Unions. Of this, $4475.98 was in dollars and was deposited in the Washington account; nearly all the remainder was in sterling. During the year, $7500 was invested at 3 per cent. interest compounded semi-annually.

Several countries paid subscriptions for three years, thus taking advantage of the resolution passed by the General Assembly in 1952 to permit them to be reinstated in good standing. Thus at present 38 countries have paid subscriptions for 1952-1953 (6 of these paid after the close of the fiscal year). Four countries were regarded as having resigned from the Council because they had given no evidence of intention to pay. At present only one country (Bulgaria) is seriously in arrears, no subscription having been paid since 1938; but two others (Czechoslovakia and Vatican City) have not paid since 1952. All the adhering Unions have paid their subscriptions for 1952-1953.

In spite of unusual expenses, partly arising from the cost of travel to the Strasbourg meeting and partly because of transfer of the office from Paris to London, the financial situation of ICSU is satisfactory. It proved unnecessary to collect the special assessment on the Unions voted by the Executive Committee at Strasbourg to cover the extraordinary expense of the Strasbourg meeting.

Receipts during the fiscal year 1953-1954 which started November 1, 1953, continue to be satisfactory.

W. Albert Noyes, Jr.

## FINANCIAL STATEMENT FOR TEN MONTHS ENDED 31st OCTOBER, 1952

SUBSCRIPTIONS RECEIVED DURING THE TEN MONTHS ENDED 31ST OCTOBER, 1952

(EXPRESSED IN STERLING)

| *Countries* | *Subscription Years* | £ | s. | d. |
|---|---|---|---|---|
| Argentine | | | | |
| Australia | 1951 | 57 | 17 | 0 |
| Austria | 1952 | 58 | 6 | 0 |
| Belgium | 1952 | 58 | 13 | 0 |
| Brazil | 1952-53-54, part 1955 | 214 | 19 | 0 |
| Bulgaria | | | | |
| Canada | 1952 | 58 | 7 | 0 |
| China | | | | |
| Cuba | | | | |
| Czechoslovakia | | | | |
| Denmark | 1952 | 58 | 7 | 0 |
| Egypt | part of 1952 | 40 | 0 | 0 |
| Finland | 1951-52 | 116 | 14 | 0 |
| France | | | | |
| German Federal Republic | 1952 | 58 | 7 | 0 |
| Great Britain | 1952 | 58 | 7 | 0 |
| Greece | | | | |
| Hungary | | | | |
| India | 1952 | 58 | 6 | 10 |
| Indonesia | 1952 | 58 | 6 | 0 |
| Israel | | | | |
| Italy | 1952 | 58 | 7 | 0 |
| Japan | 1952 | 58 | 7 | 0 |
| Mexico | part 1951 | 51 | 5 | 4 |
| Morocco | 1952 | 58 | 13 | 5 |
| Netherlands | 1952 | 58 | 7 | 0 |
| New Zealand | | | | |
| Norway | 1952 | 58 | 7 | 0 |
| Pakistan | 1952 | 58 | 7 | 0 |
| Peru | 1949-50-51 | 156 | 14 | 0 |
| Philippine Republic | | | | |
| Poland | | | | |
| Portugal | 1952 | 58 | 7 | 0 |
| Rumania | | | | |
| South Africa, Union of, | 1952 | 58 | 7 | 0 |
| Spain | 1952 | 60 | 0 | 0 |
| Sweden | 1952 | 58 | 7 | 0 |
| | C/forward | £1,689 | 18 | 7 |

| *Countries* | *Subscription Years* | | £ | s. | d |
|---|---|---|---|---|---|
| | | B/forward | £1,689 | 18 | 7 |
| Switzerland .. .. | 1952 | .. .. | 59 | 2 | 8 |
| Thailand .. .. | 1952 | .. .. | 58 | 7 | 0 |
| Tunisia .. .. | | .. .. | | | |
| U.S.A. .. .. | 1951-52 | .. .. | 116 | 5 | 3 |
| Uruguay .. .. | | .. .. | | | |
| Vatican City .. .. | 1951-52 | .. .. | 116 | 14 | 0 |
| Yugoslavia .. .. | Part of 1952 | .. .. | 40 | 0 | 0 |
| | | | £2,080 | 7 | 6 |
| *Unions* | | | | | |
| IAU .. .. | 1949-50-51 and part 1948 | .. .. | 170 | 4 | 3 |
| IGGU .. .. | | .. .. | | | |
| IGU .. .. | 1951 | .. .. | 37 | 16 | 8 |
| IUBS .. .. | | .. .. | | | |
| IUCr .. .. | 1952 | .. .. | 8 | 0 | 0 |
| IUHS .. .. | 1952 | .. .. | 4 | 11 | 10 |
| IUPAC .. .. | 1951 | .. .. | 57 | 2 | 3 |
| IUPAP .. .. | | | | | |
| IUTAM .. .. | 1950-51-52 | .. .. | 17 | 11 | 1 |
| URSI .. .. | 1951 | .. .. | 22 | 16 | 10 |
| | | | £318 | 2 | 11 |

## RECEIPTS AND PAYMENTS FOR THE TEN MONTHS ENDED 31ST OCTOBER, 1952

### OTHER THAN RECEIPTS AND PAYMENTS ON BEHALF OF UNESCO

(ALL CURRENCIES EXPRESSED IN STERLING)

| RECEIPTS | £ | £ |
|---|---|---|
| Subscriptions: | | |
| Member Countries | 2,081 | |
| Member Unions | 318 | |
| | | 2,399 |
| Sale of Pamphlets and Reports | | 1 |
| Bank Deposit—Interest | | 15 |
| | | 2,415 |
| Net Profit on Exchange | | 11 |
| | | 2,426 |
| Free Balance at 1st January, 1952 | | 1,729 |
| | | £4,155 |

| PAYMENTS | £ | £ |
|---|---|---|
| Expenses of Meetings: | | |
| Bureau | 223 | |
| Joint Commission on Rheology | 11 | |
| | | 234 |
| Secretarial Expenses: | | |
| Joint Commission on the Ionosphere | 6 | |
| Joint Commission on Oceanography | 47 | |
| Joint Commission on Radio-Activity | 33 | |
| Joint Commission on Spectroscopy | 10 | |
| Joint Commission on High Altitude Research Stations | 48 | |
| Joint Commission on Radio-Meteorology | 2 | |
| Joint Commission on the International Geophysical Year | 1 | |
| | | 147 |
| Publications: | | |
| Joint Commission on Radio-Meteorology— | | |
| Amount by which 1951 grant was overspent | | 35 |
| Administration: | | |
| Printing of Reports and Pamphlets | 246 | |
| Provident Fund Contribution | 269 | |
| Representational and Sundry Expenses | 42 | |
| | | 557 |
| Kalinga Prize: | | |
| Payments to Judges | | 100 |
| | | 1,073 |
| Free Balance at 31st October, 1952 | | 3,082 |
| | | £4,155 |

We have prepared the above account from the books and vouchers of the International Council of Scientific Unions and from statements from the secretaries of Joint Commissions and others. In our opinion it summarizes fairly the transactions of the Council, other than receipts from UNESCO and payments on their behalf, for the ten months ended 31st October, 1952, and its cash position at that date.

Charterhouse, London, E.C.1.
*28th July*, 1953.

HERBERT GIMSON & SON,
*Chartered Accountants.*

## STATEMENT SHOWING THE UTILIZATION OF UNESCO FUNDS FOR THE TEN MONTHS ENDED 31ST OCTOBER, 1952

(ALL CURRENCIES EXPRESSED IN STERLING.)

| | £ | £ |
|---|---|---|
| Receipts from UNESCO by: | | |
| ICSU (excluding International Laboratories and Type Culture Collections) | | 13,615 |
| International Laboratories: | | |
| High Altitude Research Station, Jungfraujoch | 1,607 | |
| Naples Zoological Station | 1,964 | |
| Oceanographic Institute of Monaco | 1,429 | |
| | | 5,000 |
| Type Culture Collections: | | |
| Osborn Botanical Laboratory, Yale, U.S.A. | 357 | |
| Central Office of Cultures of Fungi, Baarn, Holland | 893 | |
| Laboratory of Microbiology, Delft, Holland | 179 | |
| Centre for Collection of Microbic Types, Lausanne | 71 | |
| Commonwealth Mycological Institute, Kew, Surrey, England | 714 | |
| National Museum of Natural History, Paris | 893 | |
| Pasteur Institute, Paris | 179 | |
| Institute of Parasitology, Faculty of Medicine, Paris | 178 | |
| Rostlin Physiological Institute, Karlowy University, Prague | 143 | |
| State Serum Institute, Copenhagen | 357 | |
| American Type Culture Collection, Washington, D.C. | 893 | |
| Hopkins Marine Station, Pacific Grove, California | 179 | |
| Walter and Eliza Hall Institute, Melbourne | 125 | |
| University of Otago, Dunedin, New Zealand | 125 | |
| International Federation of Type Culture, New York | 71 | |
| | | 5,357 |

| | £ | £ |
|---|---|---|
| Expenses of Meetings: | | |
| Executive Board | 1,232 | |
| Joint Commission on the Iono phere | 566 | |
| Joint Commission on Spectroscopy | 674 | |
| Joint Commission on Radiobiology | 248 | |
| Joint Commission on Oceanography | 1,167 | |
| Joint Commission on the International Geophysical Year | 28 | |
| Joint Commission on Solar and Terrestrial Relationships | 976 | |
| International Advisory Committee, Naples | 306 | |
| | | 5,197 |
| Publications: | | |
| Naples Zoological Station | 268 | |
| International Association for Plant Taxonomy | 89 | |
| Symposium on Plastic Flow | 179 | |
| Joint Commission on Radio-Meteorology | 161 | |
| Report on the Rheological Symposium at Lund, Sweden | 178 | |
| | | 875 |
| Organizational Expenses: | | |
| Joint Commission on the Ionosphere | 3 | |
| Joint Commission on Radiobiology | 18 | |
| | | 21 |
| Purchase of Equipment: | | |
| Hubrecht Embryological Laboratory | | 625 |

| | | |
|---|---|---|
| Member Unions: | | |
| International Astronomical Union | 5,107 | |
| International Union of Biological Sciences | 7,075 | |
| International Union of Crystallography | 2,143 | |
| International Union of Geodesy and Geophysics | 5,992 | |
| International Geographical Union | 3,928 | |
| International Union of the History of Science | 1,429 | |
| International Union of Pure and Applied Chemistry | 2,245 | |
| International Union of Pure and Applied Physics | 3,406 | |
| International Union of Radio-Science | 2,744 | |
| International Union of Theoretical and Applied Mechanics | 2,506 | |
| | | 36,575 |
| | | 60,547 |
| Balances held on behalf of UNESCO, 1st January, 1952, as per Schedule of Opening Balances | | 16,070 |
| | | £76,617 |

| | £ | | |
|---|---|---|---|
| Administration: | | | |
| Salaries of Liaison Officer and Secretary | | 3,913 | |
| Travelling Expenses of Liaison Officer and Secretary | | 256 | |
| Subsistence Allowances of Liaison Officer and Secretary | | 242 | |
| Subsistence Allowances—General Secretary | | 43 | |
| Audit and Accountancy (including Expenses) | | 210 | |
| Stationery, Postages, Telephone, etc. | | 352 | |
| Clerical Assistance | | 29 | |
| | | | 5,045 |
| International Laboratories: | | | |
| High Altitude Research Station, Jungfraujoch: | | | |
| Purchase of Equipment | 1,178 | | |
| International Research Groups | 429 | | |
| | | 1,607 | |
| Naples Zoological Station: | | | |
| Purchase of Equipment | 1,327 | | |
| Publications | 637 | | |
| | | 1,964 | |
| Oceanographic Institute of Monaco | | 1,429 | |
| | | | 5,000 |
| Type Culture Collections: | | | |
| Payments as per separate schedule | | | 4,807 |
| Member Unions: | | | |
| Payments as per separate schedule | | | 43,500 |
| | | | 65,070 |
| Balances held on behalf of UNESCO, 31st October, 1952, as per Schedule of Closing Balances | | | 11,547 |
| | | | £76,617 |

We have prepared the above account from the books and vouchers of the International Council of Scientific Unions and from statements from the secretaries of Joint Commissions and others and from returns submitted by Type Culture Collections, International Laboratories and Member Unions. In our opinion it summarizes fairly the transactions of the Council on behalf of UNESCO for the ten months ended 31st October, 1952, and the balances held on behalf of UNESCO at that date.

Charterhouse,
London, E.C.1.
*28th July*, 1953.

HERBERT GIMSON & SON,
*Chartered Accountants.*

## SUPPLEMENTARY SCHEDULES OF PAYMENTS ON BEHALF OF UNESCO FOR THE TEN MONTHS ENDED 31ST OCTOBER, 1952

### TYPE CULTURE COLLECTIONS

| | £ | £ |
|---|---|---|
| Materials, Equipment, Preparation of Catalogues and Technical Assistance in maintaining Collections: | | |
| Osborn Botanical Laboratory, Yale, U.S.A. | 357 | |
| Central Office of Cultures of Fungi, Baarn, Holland / Laboratory of Microbiology, Delft, Holland | 1,072 | |
| Commonwealth Mycological Institute, Kew, Surrey, England | 714 | |
| National Museum of Natural History, Paris | 1,025 | |
| Pasteur Institute, Paris | 179 | |
| Institute of Parasitology, Faculty of Medicine, Paris | 143 | |
| State Serum Institute, Copenhagen | 357 | |
| American Type Culture Collection, Washington, D.C. | 585 | |
| Hopkins Marine Station, Pacific Grove, California, U.S.A. | 179 | |
| Walter and Eliza Hall Institute, Melbourne, Australia | 125 | |
| | | 4,736 |
| Administration: | | |
| International Federation of Type Culture, Albany, New York | | 71 |
| | | £4,807 |

### MEMBER UNIONS

| | £ | £ |
|---|---|---|
| International Astronomical Union: | | |
| Expenses of Meetings | 1,308 | |
| Publications | 2,857 | |
| Symposia | 709 | |
| Permanent Services | 1,065 | |
| | | 5,939 |
| International Union of Biological Sciences: | | |
| Expenses of Meetings | 1,250 | |
| Publications | 2,024 | |
| Symposia | 1,726 | |
| Permanent Services | 1,643 | |
| | | 6,643 |
| International Union of Crystallography: | | |
| Publications | | 2,143 |
| International Union of Geodesy and Geophysics: | | |
| Publications | 2,143 | |
| Symposia | 1,071 | |
| Permanent Services | 3,721 | |
| | | 6,935 |
| International Geographical Union: | | |
| Expenses of Meetings | 2,366 | |
| Publications | 1,359 | |
| Symposia | 334 | |
| | | 4,059 |
| International Union of the History of Science: | | |
| Publications | | 1,429 |
| International Union of Pure and Applied Chemistry: | | |
| Expenses of Meetings | 1,049 | |
| Publications | 1,028 | |
| Symposia | 2,012 | |
| | | 4,089 |
| C/forward | | £31,237 |

## SUPPLEMENTARY SCHEDULES OF PAYMENTS ON BEHALF OF UNESCO FOR THE TEN MONTHS ENDED 31ST OCTOBER, 1952 (*continued*)

### MEMBER UNIONS (*continued*)

| | £ | £ |
|---|---|---|
| B/forward | | £31,237 |
| International Union of Pure and Applied Physics: | | |
| Expenses of Meetings .. .. .. .. .. .. .. | 1,070 | |
| Publications .. .. .. .. .. .. .. .. | 921 | |
| Symposia .. .. .. .. .. .. .. .. .. | 1,903 | |
| | | 3,894 |
| International Union of Radio-Science: | | |
| Expenses of Meetings .. .. .. .. .. .. .. | 3,250 | |
| Publications .. .. .. .. .. .. .. .. | 1,956 | |
| Organizational Expenses .. .. .. .. .. .. | 461 | |
| | | 5,667 |
| International Union of Theoretical and Applied Mechanics: | | |
| Expenses of Meetings .. .. .. .. .. .. .. | 1,934 | |
| Symposia .. .. .. .. .. .. .. .. .. | 768 | |
| | | 2,702 |
| | | £43,500 |

## STATEMENT OF OPENING BALANCES HELD ON BEHALF OF UNESCO
### (1ST JANUARY, 1952)

| | £ | £ | £ |
|---|---|---|---|
| ICSU as per 1951 Accounts ($14,179.02) (including $700 actually in the hands of IUBS, but forming a part of the 1951 grant to ICSU) | | | 5,064 |
| Type Culture Collections: | | | |
| National Museum of Natural History, Paris ($1,401.00) | | 500 | |
| Institute of Parasitology, Faculty of Medicine, Paris ($12.75) | | 5 | |
| University of Otago, Dunedin, New Zealand ($384.51) | | 137 | |
| | | | 642 |
| Member Unions: | | | |
| International Astronomical Union: | | | |
| Virements from 1951 ($7,650.00) | | 2,732 | |
| International Union of Biological Sciences: | | | |
| Virements from 1951 ($1,500.00) | 536 | | |
| *Less* Virement from grant originally made to ICSU and included in the ICSU balance at 31st December, 1951, as shown above ($700.00) | 250 | | |
| | 286 | | |
| Unspent and uncommitted ($287.66) | 103 | | |
| | | 389 | |
| International Union of Geodesy and Geophysics: | | | |
| Virements from 1951 ($1,500.00) | 536 | | |
| Unspent and uncommitted ($321.63) | 115 | | |
| | | 651 | |
| International Geographical Union: | | | |
| Shown as committed at 31st December, 1951 ($1,805.89) | 645 | | |
| *Less* Virement in respect of commission on Aerial Photography which was also shown as a commitment ($1,000.00) | 357 | | |
| | 288 | | |
| Virement from 1951 ($1,000.00) | 357 | | |
| | | 645 | |
| International Union of Pure and Applied Chemistry: | | | |
| Committed at 31st December, 1951 ($3,999.86) | 1,428 | | |
| Unspent and uncommitted ($1,640.00) | 586 | | |
| | | 2,014 | |
| International Union of Pure and Applied Physics: | | | |
| Unspent and uncommitted ($647.60) | 231 | | |
| *Less* Amount of grant for 1951 not received during that year ($633.90) | 226 | | |
| | 5 | | |
| Commitments in respect of 1951 grants ($4,946.00) | 1,766 | | |
| Commitments in respect of 1950 grants ($352.80) | 126 | | |
| | | 1,897 | |
| International Union of Radio-Science: | | | |
| Unspent and uncommitted ($5,216.18) | | 1,863 | |
| International Union of Theoretical and Applied Mechanics: | | | |
| Unspent and uncommitted ($485.00) | | 173 | |
| | | | 10,364 |
| | | | £16,070 |

## STATEMENT OF BALANCES IN HAND AT 31ST OCTOBER, 1952

| | £ | £ |
|---|---|---|
| Balances in Hand: | | |
| Sterling Account | 1,595 | |
| French Currency Account (French Francs 1,029.606 @ 980) | 1,051 | |
| American Currency Account ($11,002.37 @ 2.80) | 3,929 | |
| Belgian Currency Account (Belgian Francs 274,319.50 @ 140) | 1,959 | |
| Dutch Currency Account (Fl. 414.22 @ 10.64) | 39 | |
| In hands of Hubrecht Embryological Laboratory (equivalent of $750 @ 2.80) | 268 | |
| | | 8,841 |
| Free Balance as per Accounts | 3,082 | |
| Held on behalf of UNESCO | 5,759 | |
| | | 8,841 |

## BALANCES FOR WHICH ICSU IS ACCOUNTABLE TO UNESCO

| | £ | £ |
|---|---|---|
| Held on behalf of UNESCO, as above | | 5,759 |
| To be accounted for by Type Culture Collections: | | |
| Centre for Collection of Microbic Types, Lausanne, Switzerland | 71 | |
| National Museum of Natural History, Paris | 368 | |
| Institute of Parasitology, Faculty of Medicine, Paris | 40 | |
| Rostlin Physiological Institute, University of Karlowy, Prague | 143 | |
| American Type Culture Collection, Washington, D.C. | 308 | |
| University of Otago, Dunedin, New Zealand | 262 | |
| | | 1,192 |
| To be accounted for by Member Unions: | | |
| International Astronomical Union | 1,900 | |
| International Union of Biological Sciences | 1,071 | |
| International Geographical Union | 514 | |
| International Union of Pure and Applied Chemistry | 1,202 | |
| International Union of Pure and Applied Physics | 1,409 | |
| | 6,096 | |
| *Less* Balances due to: | £ | |
| International Union of Geodesy and Geophysics | 292 | |
| International Union of Radio-Science | 1,060 | |
| International Union of Theoretical and Applied Mechanics | 148 | |
| | 1,500 | |
| | | 4,596 |
| | | £11,547 |
| The above balances are represented by: | | |
| Virements to 1952-53 ($20,838.24) | 7,442 | |
| Commitments at 31st October, 1952 ($10,098.06) | 3,607 | |
| Balances unspent and uncommitted ($1,395.60) | 498 | |
| | | £11,547 |

# FINANCIAL STATEMENT

## 1952 - 1953

ALL CURRENCIES EXPRESSED IN
AMERICAN DOLLARS

SUBSCRIPTIONS RECEIVED DURING THE YEAR ENDED
31ST OCTOBER, 1953

| *Unions* | *Subscription Years* | $ |
|---|---|---|
| IAU | 1952 | 194.61 |
| IUBS | 1950-51-52 | 46.62 |
| IUPAC | 1952 | 131.00 |
| IUCr | 1953 | 26.04 |
| IUGG | 1951-52 | 465.78 |
| IGU | to March, 1953 | 116.25 |
| IUHS | to June, 1953 | 22.86 |
| IMU | | |
| IUTAM | | |
| IUPAP | 1951-52 | 64.60 |
| URSI | 1952 | 126.54 |
| | | $1,194.30 |

SUBSCRIPTIONS RECEIVED DURING THE YEAR ENDED 31ST OCTOBER, 1953 (*continued*)

| *Countries* | *Subscription Years* | $ |
|---|---|---|
| Australia | 1952 | 163.38 |
| Austria | 1953 | 163.00 |
| Belgium | 1953 | 163.30 |
| Brazil | | |
| Bulgaria | | |
| Canada | 1953 | 163.35 |
| China | 1951-52-53 | 489.00 |
| Czechoslovakia | 1952 | 163.38 |
| Denmark | 1953 | 163.00 |
| Egypt | 1953 | 160.66 |
| Finland | 1953 | 163.00 |
| France | 1952-53 | 326.60 |
| German Federal Republic | 1953 | 162.00 |
| Great Britain | 1953 | 163.38 |
| Greece | | |
| India | 1953 | 163.36 |
| Indonesia | 1953 | 163.00 |
| Israel | 1952 | 163.38 |
| Italy | 1953 | 163.00 |
| Japan | 1953 | 163.00 |
| Mexico | 1952-53 and part 1951 | 346.59 |
| Morocco | 1953 | 164.28 |
| Netherlands | 1953 | 163.00 |
| New Zealand | 1952 | 163.38 |
| Norway | 1953 | 163.00 |
| Pakistan | | |
| Peru | | |
| Philippine Republic | 1952 | 163.38 |
| Poland | | |
| Portugal | 1953 | 163.38 |
| Spain | 1953 | 163.00 |
| Sweden | 1953 | 163.00 |
| Switzerland | 1953 | 163.00 |
| Thailand | 1953 | 163.00 |
| Tunisia | 1951-52-53 | 489.00 |
| Union of South Africa | 1953 | 163.81 |
| United States of America | 1953 | 163.00 |
| Uruguay | | |
| Vatican City | | |
| Yugoslavia | 1953 and balance of 1950-51-52 | 317.50 |
| | | $6,372.11 |

## INCOME AND EXPENDITURE ACCOUNT

(Excluding UNESCO grants

| | | |
|---|---|---|
| **INCOME** | | |
| | $ | $ |
| Subscriptions: | | |
| Member Countries .. .. .. .. .. | 6,372 | |
| Member Unions .. .. .. .. .. | 1,194 | |
| | | 7,566 |
| Sale of Reports and Pamphlets .. .. .. .. | | 18 |
| Deposit Interest .. .. .. .. .. .. | | 192 |
| Excess of Expenditure over Income for the year ended 31st October, 1953 .. .. .. .. | | 1,753 |
| | | $9,529 |

NOTE: Although an attempt has been made, for the first time, to prepare on a Cash basis: (1) Subscriptions.
(2) Secretarial Expenses of the Joint Commissions.

The item for the Meeting of the Joint Commission on Radio- 31st October, 1952, but, as the accounts for the period ended on that date

FOR THE YEAR ENDED 31ST OCTOBER, 1953

and the utilization thereof)

| EXPENDITURE | $ | $ | $ |
|---|---|---|---|
| Expenses of Meetings: | | | |
| Bureau | | 1,162 | |
| Joint Commission on Radio-Active Standards and Units—1951: | | | |
| Expenditure in excess of amount covered by grant from UNESCO | | 14 | |
| | | | 1,176 |
| Travelling Expenses of Dr. Burgers to Congress on Rheology | | | 40 |
| Grant to ICSU Abstracting Board | | | 500 |
| Secretarial Expenses of Joint Commissions: | | | |
| High Altitude Research Stations | | 110 | |
| Ionosphere | | 6 | |
| Oceanography | | 104 | |
| Radioactivity | | 15 | |
| Radiometeorology | | 1 | |
| Spectroscopy | | 55 | |
| | | | 291 |
| Administration: | | | |
| Amount by which items charged against the UNESCO grant exceeded the amount available (see statement of the Utilization of UNESCO Funds) | | 2,379 | |
| Items paid during the year, but not claimed against the UNESCO Grant: | | | |
| Provident Fund Contribution | 798 | | |
| Printing of Reports and Pamphlets | 1,233 | | |
| Membership Fees of Conference of Consultative Non-governmental Associations | 30 | | |
| Representational Expenses | 111 | | |
| | | 2,172 | |
| Expenses incurred, but not paid, prior to 31st October, 1953, not claimed against the UNESCO Grant because it was already overspent: | | | |
| Office Removal Expenses from Paris | 336 | | |
| Customs' duties on Office Equipment | 200 | | |
| Dr. Fraser's Removal Expenses from Paris | 261 | | |
| Auditor's Fees and Expenses for the year ended 31st October, 1953 | 2,174 | | |
| | | 2,971 | |
| | | | 7,522 |
| | | | $9,529 |

an Income and Expenditure Account, the following items are ncluded

Active Standards and Units also represents an expense incurred prior to were on a cash basis, it has not previously been charged.

## STATEMENT OF THE UTILIZATION OF UNESCO FUNDS FOR THE YEAR ENDED 31ST OCTOBER, 1953

| | $ | $ | $ |
|---|---|---|---|
| EXPENDITURE INCURRED DIRECTLY BY ICSU: | | | |
| Organizational Expenses: | | | |
| Joint Commission on High Altitude Research Stations | | 175 | |
| Joint Commission on the Ionosphere | | 118 | |
| | | | 293 |
| Publications: | | | |
| Joint Commission on Solar and Terrestrial Relationships | | 355 | |
| Joint Commission on Spectroscopy | | 327 | |
| | | | 682 |
| Meetings of Committees: | | | |
| Executive Board | | 6,016 | |
| International Geophysical Year Committee | | 1,394 | |
| Joint Commission on High Altitude Research Stations | | 3,914 | |
| Joint Commission on Oceanography | | 5 | |
| Joint Commission on the Ionosphere | | 3,045 | |
| Joint Commission on Radio-Active Standards and Units—1951 | 280 | | |
| *Less* Amount by which grant was overspent | 14 | | |
| | | 266 | |
| | | | 14,640 |
| Symposia: | | | |
| Joint Commission on Oceanography | | 2,112 | |
| Symposium on the Future and Limitations of Physiological Research | | 5,276 | |
| Symposium on the Physiology of Receptors | | 798 | |
| | | | 8,186 |
| Permanent Services: | | | |
| International Geophysical Year Secretariat | | | 399 |
| Administration: | | | |
| Salaries of Liaison Officer and Secretary | | 13,778 | |
| Travelling Expenses of Liaison Officer and Secretary | | 801 | |
| Subsistence Allowances of Liaison Officer and Secretary | | 721 | |
| Travelling Expenses—General Secretary | | 33 | |
| Subsistence Allowances—General Secretary | | 10 | |
| Audit and Accountancy (including expenses)—1952 | | 1,679 | |
| General Office Expenses | | 1,789 | |
| Clerical Assistance | | 346 | |
| Bank Charges and Losses on Exchange | | 40 | |
| | | 19,197 | |
| *Less* Amount by which grant was overspent | | 2,379 | |
| | | | 16,818 |
| TOTAL EXPENDITURE ON BEHALF OF UNESCO BY ICSU ITSELF, carried forward | | | $41,018 |

## STATEMENT OF THE UTILIZATION OF UNESCO FUNDS FOR THE YEAR ENDED 31ST OCTOBER, 1953 (*continued*)

| | $ | $ | $ |
|---|---|---|---|
| TOTAL EXPENDITURE ON BEHALF OF UNESCO BY ICSU ITSELF, brought forward .. .. .. .. .. .. | | | 41,018 |
| Payments by International Laboratories: | | | |
| As per Supplementary Schedule .. .. .. .. .. | | | 10,000 |
| Payments by Type Culture Collections: | | | |
| As per Supplementary Schedule .. .. .. .. .. | | | 14,328 |
| Payments by Member Unions: | | | |
| As per Supplementary Schedule .. .. .. .. .. | | | 141,777 |
| TOTAL EXPENDITURE ON BEHALF OF UNESCO IN 1952-53 .. .. | | | 207,123 |
| *Less* UNESCO grant for the year ended 31st October, 1953 .. | | | 180,000 |
| Expenditure in excess of the grant for the year, charged against the balance brought forward at 31st October, 1952 .. | | | $27,123 |

NOTE: The above Statement includes:

(*a*) All expenditure by ICSU itself, during the year ended 31st October, 1953, which is chargeable against grants from UNESCO.

(*b*) All payments made during the year, chargeable against grants from UNESCO, which really represent expenditure of earlier years, but were not shown because previous accounts were on a cash basis.

(*c*) All payments during the year by International Laboratories, Type Culture Collections or Member Unions which are chargeable against grants from UNESCO for 1952-53 or earlier.

## STATEMENT OF THE UTILIZATION OF UNESCO FUNDS FOR THE YEAR ENDED 31ST OCTOBER, 1953 (*continued*)

### SUPPLEMENTARY SCHEDULE OF PAYMENTS BY INTERNATIONAL LABORATORIES

| | $ | $ |
|---|---|---|
| High Altitude Research Station, Jungfraujoch: | | |
| Purchase of Equipment | 2,144 | |
| Travel grants | 1,856 | |
| | | 4,000 |
| Naples Zoological Station: | | |
| Purchase of Equipment | | 5,000 |
| Oceanographic Institute of Monaco: | | |
| Publications | | 1,000 |
| | | $10,000 |

### SUPPLEMENTARY SCHEDULE OF PAYMENTS BY TYPE CULTURE COLLECTIONS

| | $ | $ |
|---|---|---|
| Materials, Equipment, Preparation of Catalogues and Technical Assistance in maintaining Collections: | | |
| Australia: | | |
| Walter and Eliza Hall Institute, Melbourne | | 600 |
| Czechoslovakia: | | |
| Rostlin Physiological Laboratory, University of Karlowy, Prague | | 400 |
| France: | | |
| National Museum of Natural History, Paris | 2,279 | |
| Pasteur Institute, Paris | 500 | |
| Institute of Parasitology, Faculty of Medicine, Paris | 491 | |
| Pasteur Institute, Lille | 400 | |
| | | 3,670 |
| India: | | |
| Indian Agricultural Research Institute, New Delhi | | 197 |
| Netherlands: | | |
| Central Office of Cultures of Fungi, Baarn | 2,650 | |
| Laboratory of Microbiology, Delft | 500 | |
| | | 3,150 |
| New Zealand: | | |
| University of Otago, Dunedin | | 882 |
| Switzerland: | | |
| Centre for Collection of Microbic Types, Lausanne | | 200 |
| United States of America: | | |
| Osborn Botanical Laboratory, Yale | 258 | |
| American Type Culture Collection, Washington, D.C. | 3,506 | |
| Hopkins Marine Station, Stanford University, California | 1,091 | |
| | | 4,855 |
| | | 13,954 |
| Administration: | | |
| International Federation of Culture Collections | | 374 |
| | | $14,328 |

## STATEMENT OF THE UTILIZATION OF UNESCO FUNDS FOR THE YEAR ENDED 31ST OCTOBER, 1953 (*continued*)

SUPPLEMENTARY SCHEDULE OF PAYMENTS BY MEMBER UNIONS

| | $ | $ |
|---|---|---|
| International Astronomical Union: | | |
| Publications | 7,968 | |
| Symposia | 6,034 | |
| Permanent Services | 3,819 | |
| | | 17,821 |
| International Union of Biological Sciences: | | |
| Publications | 5,348 | |
| Meetings of Committees | 3,250 | |
| Symposia | 6,365 | |
| Permanent Services | 5,500 | |
| | | 20,463 |
| International Union of Pure and Applied Chemistry: | | |
| Meetings of Committees | 9,883 | |
| Symposia | 3,279 | |
| | | 13,162 |
| International Union of Crystallography: | | |
| Publications | 6,500 | |
| Meetings of Committees | 1,000 | |
| | | 7,500 |
| International Union of Geodesy and Geophysics: | | |
| Publications | 18,618 | |
| Meetings of Committees | 1,300 | |
| Permanent Services | 16,092 | |
| | | 36,010 |
| International Geographical Union: | | |
| Publications | 3,867 | |
| Meetings of Committees | 1,050 | |
| Permanent Services | 1,000 | |
| | | 5,917 |
| International Union of the History of Science: | | |
| Publications | 4,267 | |
| Meetings of Committees | 2,000 | |
| | | 6,267 |
| International Mathematical Union: | | |
| Publications | 750 | |
| Meetings of Committees | 1,494 | |
| Symposia | 2,500 | |
| | | 4,744 |
| International Union of Theoretical and Applied Mechanics: | | |
| Symposia | | 3,262 |
| International Union of Pure and Applied Physics: | | |
| Publications | 2,670 | |
| Meetings of Committees | 4,500 | |
| Symposia | 13,848 | |
| | | 21,018 |
| International Union of Radio-Science: | | |
| Publications | 5,731 | |
| *Less* Organizational Expenses: | | |
| Amount paid by ICSU, Joint Commission on the Ionosphere, which is in excess of the total amount available under Category I in 1952-53, and is covered by an internal virement from URSI | 118 | |
| | | 5,613 |
| | | $141,777 |

| | $ | $ | $ |
|---|---|---|---|
| FREE BALANCE: | | | |
| Free Cash Balance as per Statement of Balances at 31st October, 1952 (£3,084) .. | | 8,630 | |
| *Add* Provident Fund Contribution for November and December, 1952, paid in advance at 31st October, 1952 .. | | 125 | |
| Total Free Balance at 31st October, 1952 .. | | 8,755 | |
| *Less* Excess of Expenditure over Income for the year .. .. .. .. | | 1,753 | |
| Free Balance at 31st October, 1953 .. .. | | | 7,002 |
| BALANCE HELD ON BEHALF OF UNESCO: | | | |
| Cash balance held on behalf of UNESCO, as per statement of balances at 31st October, 1952 (£5,759) .. .. .. | | 16,125 | |
| *Add* Salaries paid in advance at 31st October, 1952 .. .. .. .. .. | | 563 | |
| Total balance held by ICSU on behalf of UNESCO at 31st October, 1952 .. | | 16,688 | |
| Balances as per schedule at 31st October, 1952, held by: | | | |
| Type Culture Collections (£1,192) .. .. | 3,338 | | |
| Member Unions (£4,596) .. .. .. | 12,869 | | |
| | | 16,207 | |
| | | 32,895 | |
| *Add* Balances brought into account for the first time in the year ended 31st October, 1953: | | | |
| Type Culture Collections: | | | |
| Hopkins Marine Station .. .. | 1,650 | | |
| International Astronomical Union: | | | |
| Quarterly Bulletin of Solar Activity .. | 1,329 | | |
| | | 2,979 | |
| Revised balance for which ICSU is accountable to UNESCO at 31st October, 1952 | | 35,874 | |
| *Add* Refund of overpayment on behalf of UNESCO in the year ended 31st October, 1952 (received in 1952-53) | | 60 | |
| | | 35,934 | |
| *Less* Balances unspent and uncommitted at 31st October, 1952 (deducted from the 1952-53 grant) .. .. .. | | 1,396 | |
| Net Balance for which ICSU is accountable to UNESCO (in addition to the grant for 1952-53) .. .. .. .. | | 34,538 | |
| *Less* Excess of Expenditure over the grant for the year, as per statement of the Utilization of UNESCO Funds .. | | 27,123 | |
| Balance held on behalf of UNESCO at 31st October, 1953 .. .. .. | | | 7,415 |
| | | C/forward | 14,417 |

| | $ | $ | $ |
|---|---|---|---|
| BALANCES OF UNESCO FUNDS FOR WHICH ICSU IS ACCOUNTABLE, OTHER THAN THOSE ACTUALLY HELD BY THE COUNCIL ITSELF— | | | |
| HELD BY MEMBER UNIONS: | | | |
| International Astronomical Union .. .. | 1,172 | | |
| International Union of Biological Sciences .. | 2,387 | | |
| International Union of Pure and Applied Chemistry .. .. .. .. | 2,230 | | |
| International Union of Crystallography .. | 500 | | |
| International Geographical Union .. .. | 2,271 | | |
| International Union of the History of Science | 232 | | |
| International Mathematical Union .. .. | 2,756 | | |
| International Union of Theoretical and Applied Mechanics .. .. .. .. | 1,144 | | |
| International Union of Pure and Applied Physics .. .. .. .. | 3,971 | | |
| | | 16,663 | |
| *Less* Credit balances held by: | | | |
| International Union of Geodesy and Geophysics .. .. .. .. | 15,829 | | |
| International Union of Radio-Science .. | 406 | | |
| | | 16,235 | |
| | | | 428 |
| HELD BY TYPE CULTURE COLLECTIONS: | | | |
| National Museum of Natural History, Paris .. .. .. .. .. | | 2 | |
| Institute of Parasitology, Faculty of Medicine, Paris .. .. .. .. .. | | 21 | |
| Indian Agricultural Research Institute, New Delhi .. .. .. .. .. | | 303 | |
| University of Otago, Dunedin, New Zealand | | 202 | |
| Osborn Botanical Laboratory, Yale, U.S.A. .. | | 592 | |
| American Type Culture Collection, Washington, D.C. .. .. .. .. | | 5 | |
| Hopkins Marine Station, Stanford University, California .. .. .. .. | | 1,059 | |
| International Federation of Culture Collections | | 126 | |
| | | | 2,310 |
| HELD BY OTHER ORGANIZATIONS OR INDIVIDUALS: | | | |
| Secretary of the International Geophysical Year Committee (Belgian Francs 1,882) .. .. .. .. .. | 38 | | |
| Secretary-General of URSI, for the International Geophysical Year Committee (Belgian Francs 27,629.52) .. | 552 | | |
| | | 590 | |
| Hubrecht Embryological Laboratory, for the Publication of Normal Tables of Xenopus .. .. .. .. | | 1,750 | |
| Prof. Serge A. Korff, for the Publication of the Report of the Meeting of the Joint Commission on High Altitude Research Stations .. .. .. | | 250 | |
| | | | 2,590 |
| TOTAL OF BALANCES OF UNESCO FUNDS FOR WHICH ICSU IS ACCOUNTABLE, OTHER THAN THOSE ACTUALLY HELD BY THE COUNCIL ITSELF, carried forward | | | 5,328 |

| | $ | $ | $ |
|---|---|---|---|
| B/forward | | | 14,417 |
| *Note:* The above balance of $7,415, held on behalf of UNESCO at 31st October, 1953, is made up as under: | | | |
| Virements to 1953-54 .. .. .. | | 5,851 | |
| Commitments at 31st October, 1953 .. | | 1,694 | |
| Balance unspent and uncommitted .. | | 500 | |
| | | 8,045 | |
| *Less* Creditors on UNESCO account (see below) .. .. .. .. | 1,261 | | |
| *Deduct* Part of Commitment for Symposia which was covered on the UNESCO Return by payments in respect of the Symposium on the Physiology of Receptors which were made from sources other than ICSU or its member Unions .. .. | 631 | | |
| | | 630 | |
| | | 7,415 | |
| SUNDRY CREDITORS: | | | |
| On UNESCO Account .. .. .. .. | | 1,261 | |
| On ICSU Account .. .. .. .. | | 2,971 | |
| | | | 4,232 |
| | | | $18,649 |

NOTE: *Post facto* approval has been requested from the Executive
$689.46 respectively, of the $1,650 balance now brought into account
above Balance Sheet, and attached Statement of the Utilization of
but, should this not be the case, the balance held on behalf of UNESCO

REPORT OF THE AUDITORS TO THE MEMBERS OF

We have prepared the above Balance Sheet, and the attached
UNESCO Funds, from the books and vouchers of the International Council
Commissions and others, and from returns submitted by International
read in conjunction with the notes appended thereto, the above Balance
of the Utilization of UNESCO Funds give a true and fair view of the
Expenditure over Income, and of the Utilization of UNESCO Funds, for

Charterhouse,
London, E.C.1.

31*st May*, 1954.

31ST OCTOBER, 1953 (*continued*)

| | $ | $ | $ |
|---|---|---|---|
| TOTAL OF BALANCES OF UNESCO FUNDS FOR WHICH ICSU IS ACCOUNTABLE, OTHER THAN THOSE ACTUALLY HELD BY THE COUNCIL ITSELF brought forward .. .. .. .. | | | 5,328 |
| SUNDRY DEBTORS .. .. .. .. .. | | | 1,881 |
| PERPETUAL BUILDING ASSOCIATION, WASHINGTON, D.C., U.S.A.: | | | |
| Deposit Account .. .. .. .. .. | | | 7,575 |
| CASH AT BANK AND IN HAND: | | | |
| Riggs National Bank, Washington, D.C. .. | 467 | | |
| Barclays Bank Ltd., London (£1,118) .. .. | 3,129 | | |
| Société Général, Paris (French Francs 89,424) .. | 256 | | |
| | | 3,852 | |
| Petty Cash in Hand (£5) .. .. .. | | 13 | |
| | | | 3,865 |
| | | | $18,649 |

Board of UNESCO for the spending in 1952 and 1953 of $135.89 and by the Type Culture Collection at the Hopkins Marine Station. In the UNESCO Funds, it has been assumed that this approval will be granted; should be increased by $825.35 as "unspent and uncommitted".

## THE INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS

Income and Expenditure Account and Statement of the Utilization of of Scientific Unions, and from statements from the secretaries of Joint Laboratories, Type Culture Collections and Member Unions. In our opinion, Sheet and the attached Income and Expenditure Account and Statement state of the Council's affairs on 31st October, 1953, and of the excess of the year ended on that date.

HERBERT GIMSON & SON,
*Chartered Accountants.*

## ADDRESSES OF INTERNATIONAL ORGANIZATIONS

### Non-Governmental Organizations

International Council for Philosophy and Humanistic Studies (CIPSH)
*Secretariat:*
Mr. J. d'Ormesson,
Unesco House, 19 Avenue Kléber, Paris 16, France.

Council for International Organizations of Medical Sciences (CIOMS)
*Secretariat:*
Dr. J. D. Delafresnaye,
Unesco House, 19 Avenue Kléber, Paris 16, France.

Union of International Engineering Organizations (IUTA)
*Secretariat:*
Dr. B. de Comminges,
62 rue de Courcelles, Paris 8, France.

International Commission for a Scientific and Cultural History of Mankind
*Secretariat:*
Dr. G. S. Metraux,
Unesco House, 19 Avenue Kléber, Paris 16, France.

Conference of Representatives of International Non-Governmental Organizations Approved for Consultative Arrangements with Unesco
*Secretariat:*
Mr. V. Hercik,
Division of Relations with International Organizations, Unesco House, 19 Avenue Kléber, Paris 16, France.

Conference of Non-Governmental Organizations having Consultative Status with ECOSOC
*Secretariat:*
Mr. John A. F. Ennals,
1 Avenue de la Paix, Geneva, Switzerland.

Union of International Associations (UAI)
*Secretariat:*
Dr. G. P. Speekaert,
Palais d'Egmont, Brussels, Belgium.

### Inter-Governmental Organizations

United Nations Educational Scientific and Cultural Organization (UNESCO)
19 Avenue Kléber, Paris 16, France.
*Secretariat:*
Director-General: Mr. Luther H. Evans.
Head, Division of Relations with International Organizations:
Mr. Claude M. Berkeley.

Head, Department of Natural Sciences: Professor P. AUGER.
Head, Technical Assistance Department: Mr. Malcolm ADISESHIAH.

Food and Agricultural Organization (FAO)
*Secretariat:*
Viale delle Terme di Caracalla, Rome, Italy.

World Health Organization (WHO)
*Secretariat:*
Palais des Nations, Geneva, Switzerland.

World Meteorological Organization (WMO)
*Secretariat:*
Dr. G. SWOBODA,
Campagne Rigot, 1 Avenue de la Paix, Geneva, Switzerland.

Pacific Science Council
*Secretariat:*
Miss Brenda BISHOP, Bernice P. Bishop Museum, Honolulu 17, Hawaii.

Scientific Council for Africa South of the Sahara
*Secretariat:*
Dr. E. B. WORTHINGTON,
B.P. 5175, Bukavu, Belgian Congo.

# INDEX


Abstracting, 49, 52
Address, office, 3
Addresses, International Organizations, 78, 79
Addresses, officers, members of commissions, etc., 15-26
Adhering countries, 4-7
Administration (Statute IV), 30, 36
Administrative office, 3
Annual contributions, 48
Applications for membership, 48
Astronomy, officers of International Union, 8
Auditors, 3

Biological Sciences, officers of International Union, 9
Bureau (Rules I and II), 33-4, 39-40
Bureau (Statute VII), 31, 38
Bureau meetings, 1953, 47
Bureau membership, 3

Calendar, 1, 2
Chemistry, officers of International Union, 8
Commissions, *see* Joint Commissions
Composition of Council (Statute III), 29, 36
Countries adhering to Unions, 6, 7
Crystallography, officers of International Union, 9, 10

Dates of meetings in 1954, 1, 2
Domicile (Statute II), 29, 36

Effect of Statutes (Statute X), 32, 39
Electron Microscopy, Joint Commission, 11
Executive Board (Rule III), 34-5, 40-1
Executive Board (Statute VIII), 32, 38, 39
Executive Board meeting, 1953, 47
Executive Board membership, 3

Federation proposed, 50
Finance (Secretary-General's Report), 48
Finance (Rule V), 35, 42
Finance (Statute IX), 32, 39
Financial year, 47
Financial Statement for the ten months ending October 31st, 1952, 57
Financial Statement, 1952-53, 66ff

General Assembly (Rule IV), 35, 41
General Assembly (Statute V), 30, 31, 37, 38
Geodesy and Geophysics, officers of International Union, 8
Geography, officers of International Union, 9

High Altitude Research Stations, 49, 51
History of ICSU, 27-8
History of Science, officers of International Union, 10

ICSU Abstracting Board, 49, 52
ICSU Abstracting Board Executive Committee, 14
International Association of Academies, 27
International Council of Scientific Unions, foundation, 28
International Geophysical Year, 14, 49, 53
International Organizations, Addresses, 78, 79
International Research Council, 27, 28
INTERNATIONAL UNIONS:
  Astronomy, 8, 27
  Biological Sciences, 9, 28
  Crystallography, 9, 10, 28
  Geodesy and Geophysics, 8, 27
  Geography, 9, 28
  History of Science, 10, 28
  Mathematics, 10, 27, 28
  Pure and Applied Chemistry, 8, 27
  Pure and Applied Physics, 9, 27
  Scientific Radio, 8, 9, 27
  Theoretical and Applied Mechanics, 10, 28
Ionosphere, Joint Commission, 11

Joint Commissions, 11-13, 49
Joint, Commissions, Rules, 43-4
JOINT COMMISSIONS:
  Electron Microscopy, 11
  High Altitude Research Stations, 49, 51
  Ionosphere, 11
  Oceanography, 11, 51
  Physico-Chemical Constants and Data, 49
  Radioactivity, 12
  Radiobiology, 49
  Radiometerology, 12
  Solar and Terrestrial Relationships, 12
  Spectroscopy, 13

Mathematics, officers of International Union, 10
Members of Bureau, 3
Members of Committees, 14
Members of ICSU, 4, 5
Members of Executive Board, 3
Members of Joint Commissions, 11-13
Members of Unions, 6, 7

National members of ICSU, 4, 5
Nations adhering to Unions, 6, 7

Objects of ICSU (Statute I), 29, 35
Oceanography, Joint Commission, 11, 51
Office, 3
Officers of Unions, 8-10

Physics, officers of International Union, 9
Postal address of ICSU, 3
Publications, 47

*Quarterly Bulletin*, 48

Radioactivity, Joint Commission, 12
Radiobiology, Joint Commission, 49
Radiometeorology, Joint Commission, 12
Reports of Joint Commissions and Committees, 51-4
Representatives at international meetings, 1953, 55
Resignations, 50
Rules for Joint Commissions, 43-4
Rules governing powers and functions, 32-5, 39-42

Scientific Radio, officers of International Union, 8, 9
Secretaries-General of IRC and ICSU, 28
Solar and Terrestrial Relationships, Joint Commission, 12
Special Committee for the International Geophysical Year, 14
Spectroscopy, Joint Commission, 13
Statutes, 29-42
Stratton, Professor F. J. M., 47

Telephone number, 3
Theoretical and Applied Mechanics, officers of International Union, 10
Treasurer's Report, 56

UNESCO, 28, 45, 48, 50
UNESCO agreement, 45-6
UNESCO Advisory Committee on Scientific Research, 50

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