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IUPAP 1970

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PHYSIQUE INTERNATIONALE

I.U.P.A.P. News-Bulletin No. 18 September 1970

INTERNATIONAL CONFERENCES

The complete list of IUPAP-sponsored international conferences was published in News-Bulletin No. 13 (October 1969). Readers are reminded of the following Fall meeting:

15. Semiconductor Heterojunctions
Budapest, HUNGARY October 11-17

Note: Conference No. 9, on Statistical Mechanics, originally planned for Mexico, October 19-24, has been re-scheduled. This Conference will now be held in Chicago, USA, from March 29-April 2nd, 1971, and the organizer is Prof. Stuart A. RICE.

WORLD-SYSTEM for ABSTRACTING

The ICSU Abstracting Board, of which Prof. H.W. KÖCH (USA) is IUPAP's representative, has announced its plans to go ahead with the first stage of a world-system for abstracting and indexing services for science and technology.

The stage will be planned by eleven of the world's major abstracting services from France, Germany, U.S.A., U.S.S.R., and the United Kingdom. Each of these will be responsible for abstracting journals in a certain area and contributing the abstracts to a pool. This will greatly reduce the duplication of work and reduce the number of articles processed by each service.

Subsequent stages will consolidate and meld the pool interchanges. Scientists will greatly benefit by being assured that each service gives complete covergae of his area, thus reducing his search time.

BULLETIN DISTRIBUTION

Copies of this Bulletin are distributed to all IUPAP international Commissions and National Committees. In addition, 23 member countries either distribute copies to individual physicists or reproduce it in their Physics journal.

We still await the answer of 15 member countries to our questionnaire concerning the distribution of the News-Bulletin.

CHANGES in NATIONAL COMMITTEES

Dr. Santos MAYO has replaced Dr. Carlos Varsavsky as Chairman of Argentina's National Committee for IUPAP. His address is:

Asociacion Fisica Argentina
Casilla de Correo 17
Victoria B
Buenos Aires.

In Bulgaria, the President of the National Committee is Dr. Emil NADJAKOV.

These changes should be noted in IUPAP-16

The HISTORY of PHYSICS

Growing interest in the history of Physics, particularly its spectacular developments in the 20th century, was underlined at the recent IUPAP-sponsored Conference on the Role of History of Physics in Physics Education held at M.I.T. July 13-17. Consideration was given to the need for preserving archival materials, and for publications in this field. Cooperation with the International Union of History and Philosophy of Science was also discussed. Formal proposals will soon be made to the IUPAP Executive for action.

CONFERENCES in 1971

Requests for sponsorship from IUPAP have been received from over 20 organizations planning international conferences in 1971. This number is at variance with the opinion widely held last year that the current austerity felt in most Physics communities would result in a decreased number of meetings. It upholds the opinion that more frequent meetings ensures less duplication of work and more efficient use of research funds.

CHANGES in Executive Members' addresses:

Please note the following new addresses:

Dr. S. BHAGAVANTAM
525 Rajamahal Extensions
Bangalore 6, INDIA.

Dr. Walter BOAS
Dept. of Metallurgy, University of Melbourne
Parkville, Victoria 3052.

PHYSIQUE INTERNATIONALE

News-Bulletin no. 17 July 1970

INTERNATIONAL CONFERENCES

The complete list of IUPAP-sponsored international conferences was published in News-Bulletin No. 13 (October 1969). Readers are reminded of the following late Summer - early Fall meetings:

1. Atomic Physics : Oxford - July 21-24
2. Nuclear Reactions : Madison - Aug. 31-Sep.4
4. Angular Correlations: Delft - Sept. 1-6
5. Magnetism: Grenoble - Sept. 14-19
5a Electronic Charge: Aussois - Sept. 7-12
5b Magnetic Films: Prague - Sept. 21-23
7. Physics Teachers: Eger - Sept. 11-17
8. High Energy Physics: Kiev - Aug.26-Sept.4
10. Low Temperatures: Kyoto - Sept. 4-10
10a Transport Properties: Sydney - Aug. 27-29
11. Décharges électriques: Waterloo - Sept.
13. Semiconductors: Boston - Aug, 17-21
13a. Radiation Effects: Albany - Aug. 24-26
14. Precision Measurements: Maryland - Aug.3-7
15. Semiconductor Heterojcts: Budapest - Oct. 11-17
16. Metastable Alloys: Brela - September

For further details, see Bulletin No. 13.

The following additional information has been received concerning conferences.
Please correct your Bulletin No. 13:

9. Statistical Mechanics: This Conference will be held March 29 - April 2nd, 1971.
For information, contact: Prof. Stuart RICE, The James Frank Institute, University of Chicago, 5640 Ellis Ave., Chicago, Ill.60637.

Please add the following Conference:

20. Instrumentation: Dubna - September 8-12
For inf.: Prof. V.P. DZHELEPOV, Joint Institute for Nuclear Research, Head Post Office No. 79, Moscow, USSR.

APPLICATION ORIENTATED BASIC RESEARCH

As the International Union for Pure and Applied Physics, IUPAP is giving consideration to further activities in the applied fields.
Of particular interest is the recent creation by the Austrian Physics Society of a working committee "Grundlagen-forschung-Industrie".
The Austrian National Committee for IUPAP is considering proposing some steps to be taken by IUPAP in this field at the next General Assembly.

SURVEY of ICSU ACTIVITIES

Scientists wishing to be briefed on the work of the International Unions in the field of information will be well served by the "Survey of the Activities of the ICSU Scientific Unions, Special and Scientific Committees and Commissions of ICSU in the Field of Scientific Information during the Year 1969" just published.

(ICSU AB Secretariat, 17, rue Mirabeau, Paris 16e, France; 365 pp., May 1970, $12.U.S. plus mailing).

This is the fifth such annual report which summarizes the publishing and conference activities of over 170 Commissions, about which general information is also given.

IUPAP's tri-annual REPORT for 1970

The General Report of IUPAP for 1967-1970 has just been published, and has been distributed to all Union National Committees, Commissions, etc.
The Report contains a complete list of Officers, National Committees, Commissions and Committees members (including many addresses come by with much difficulty), the Union Statutes, financial report, minutes of the General Assembly at Dubrovnik, lists of International Conferences and of recent Union resolutions.
The Document also contains the reports submitted by the Union's 16 Commissions.

EXECUTIVE MEETING

The 1970 meeting will take place at Copenhagen, October 2-3rd. Commission and National Committee Secretaries should by now be sending itemsffor this meeting to the Secretary-General, Professor C.C. Butler, Imperial College, London.

INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS

IUPAP

News-Bulletin No. 16 April 1970

INTERNATIONAL CONFERENCES

The complete list waspublished in News-Bulletin No. 13 (October 1969). Readers are reminded of the following meetings:

12. Radiation Research: Evian, June 28-July 4
6. History of Physics: Boston, July 13-17
8. High Energy Physics: USSR, Summer
19. Holography: Besançon, July

For further details, see Bulletin No. 13.

The following additional information has been received concerning conferences. Please correct your Bulletin No. 13:

5a. The Conference on the Density of Electronic Charge Spin and Momenta will be held in Aussois September 9-12.

8. The XVth Int. Conf. on High Energy Physics will be held from August 26 to September 4 in Kiev, USSR, and is organized by Prof. N.N. Bogolubov (same address).

13a. The Organizing Secretary of the Conference on Radiation Effects in Semiconductors is Prof. James W. CORBETT, Dept. of Physics, State University of New York at Albany, Albany, New York 12203, U.S.A.

16. The Organizer of the Conference on the Physics of Metastable Alloys is Prof. M. PAIC, Institute of Physics, University of Zagreb, P.O. Box 02-816, Zagreb, YUGOSLAVIA.

EXECUTIVE MEETING

The Fall meeting of the Executive Committee has been set for October 2nd-3rd at Copenhagen. It is at this meeting that Union patronage and grants will be decided for the 1971 international Conferences.
International Commissions and National Committees are urged to send their recommendations concerning such conferences as soon as possible to the Secretary-General.

PROFESSOR PALACIOS

Physicists learned with regret of the recent death of Professor Julio PALACIOS who was Chairman of the Spanish National Committee some years ago. Professor Palacios rendered many services to the Union, and this with great enthusiasm.

I.C.S.U. NEWS

The International Council of Scientific Unions held an Executive meeting at Erevan, USSR, in October 1969. Dr. Walter BOAS, IUPAP Vice-President, represented the Union.
Among other things:

: The Council set up a study committee on the social implications of science;

: Union dues to I.C.S.U. were increased from 2% to 2.5% of National subscriptions;

: A Scientific Committee of Problems of Human Environment (SCOPE) was set up. IUPAP is to be represented;

: The Joint Commission on Applied Radioactivity was dissolved (at IUPAP's suggestion);

: Discussion took place concerning the possibility of a single, inter-union S.U.N. Commission instead of the several now existing (IUPAP, IUPAC, IUA, etc.);

: The ICSU-UNESCO feasibility study of a World Science Information System was reported near completion;

: Several cases of impeded circulation of scientists for political reasons were aired.

The next Executive meeting and General Assembly of I.C.S.U. will take place in Madrid, September 23-29. IUPAP will be represented by President Robert BACHER.

I.C.O. HISTORY

The International Commission for Optics has published a booklet (No. ICO-4) dealing with the 20-year history of the Commission. Included are the Commission Constitution and Statutes. Copies are available from the Commission.

INTERNATIONAL COMMISSIONS - Errata

The name of Professor R.S. PEASE (U.K.) was inadvertently omitted from the list of Members of the Plasma Commission (Bulletin No. 14).

NEWS-BULLETIN

Did you send the questionnaire concerning News-Bulletin back to Prof. Kerwin in Quebec???

INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS

News-Bulletin No. 15 January 1970

CRITERIA for INTERNATIONAL CONFERENCES

The September 1969 General Assembly of IUPAP approved the general tenure of the Criteria for International Conferences as proposed by the Executive Committee, following consultation of the International Commissions (see News-Bulletin No. 11).
Before Union sponsorship will be extended to conferences, they will be examined from the point of view of their quality and usefulness to physics, their international character, and their organizational strength.
Included in the criteria is the assurance that physicists invited by the Conference Committee be issued visas by the host country.

The Assembly also decided to place the various meetings in three categories, to assist member countries in deciding the size of delegations to be sent to them.
These are:

Category A : Large (500-2000) full-fledged meetings where all or most aspects of a Commission's field are examined and reviewed. Most Commissions will only sponsor one such major meeting every 3 years.

Category B : Medium (100-500) sized conferences at which a particular aspect of a Commission's area of responsibility is examined in detail. A Commission might sponsor one such meeting a year.

Category C : Small (40-100) sized meetings, often by invitation only, where specialists gather to assess progress in a very limited field. Such meetings might be satellite conferences, preceeding or following a Category A meeting.

IUPAP and EPS

The Union has accepted the invitation of the European Physical Society to designate a member to EPS' Executive Committee.
Professor Clifford BUTLER, Secretary-General, will so act.

ERRATA

The name of the first Vice-President of the Union should read Prof. MAIER-LEIBNITZ.

UNION DUES INCREASED

A cost-of-living increase to Union dues was voted by a 60 to 8 margin at the September General Assembly. Set at $250. U.S. by the Basel 1966 meeting, the dues will be increased to $300. U.S. per share beginning in 1971.

The delay in implementing the increase will give the national committees time for the sometimes lengthy negotiations with their source of funds.

The 20% increase will not enable the Union to undertake any major new activities, but will rather be used to enable Conference organizers to keep pace with increasing costs.

The 37 members of the Union held a total of 92 shares. The increase in the Union's annual budget will thus be $4,600.

UNION ENDORSES TEACHING-RESEARCH LIEN

Delegates to the General Assembly unanimously endorsed a resolution presented by the International Commission on Physics Education seeking to strengthen the liaison between teaching and research in Physics. Deploring a tendency to divorce the two, the resolution calls for greater care in recruiting teachers to ensure that they are researchers, and insists on the principle that research personnel should engage in undergraduate teaching. The resolution also calls for greater recognition of the work of those who review, summarize and abstract the contributions of others so as to make them more easily accessible to the Physics community.

THE FRITZ-LONDON AWARD

IUPAP has endorsed the Fritz-London Award, bestowed yearly by the International Commission on Magnetism for outstanding contributions in its field. The award is currently supported by the International Business Machines Company.

PLEASE!

Those who have not yet returned the questionnaire concerning News-Bulletin sent in November are urgently requested to do so.

IUPAP

CALIFORNIA INSTITUTE OF TECHNOLOGY

CHARLES C. LAURITSEN LABORATORY OF HIGH ENERGY PHYSICS
PASADENA, CALIFORNIA 91109

January 23, 1970

Professor N. N. Bogolubov, Chairman
Organizing Committee of the XVth International
Conference on High Energy Physics
Joint Institute for Nuclear Research
Head Post Office, Box 79
Moscow, USSR

Dear Professor Bogolubov:

After receiving your letter of October 30, 1969 kindly inviting me to coordinate the job connected with participation of the U. S. delegation in the KIEV Conference next summer, I obtained help from three regional committees in preparing a list of suggested U. S. participants.

The enclosed list gives the names and addresses of those whom we suggest for your consideration.

I hope that as soon as the rapporteurs, chairmen, and discussion leaders have been selected you will inform me who they are. Since these people are not counted in the official quotas, I hope to be able to suggest additional participants in place of any rapporteurs, etc., who are on the enclosed list. We are also very much interested, of course, in your plans for the organization of the Conference.

With best regards,

Sincerely yours,

Robert L. Walker

Robert L. Walker

RLW:jc

cc: Professor A. N. Tavkhelidze

CALIFORNIA INSTITUTE OF TECHNOLOGY

PASADENA, CALIFORNIA 91109

OFFICE OF THE PROVOST

CONFIDENTIAL

January 15, 1970

Dear Phil:

Last fall, at the General Assembly of the International Union of Pure and Applied Physics in Dubrovnik, the question of the location of the Assembly meeting in 1972 was discussed in the Executive Committee. An invitation from our Academy was before the committee, and I made it clear that we hoped very much that this invitation would be accepted. Invitations were also received from East Germany (Leipzig), Spain (Madrid), and Sweden (Stockholm). The Union has never held an Assembly in the United States.

The Soviet delegation urged that this be postponed. Their reasons were largely unstated in the meeting except that they argued that other invitations might be received and they saw no reason for deciding at this time. I pointed out that we hoped to arrange some meetings of Commissions in connection with such an Assembly and that it would be helpful to decide early.

Others were reluctant to force the issue, since Blokhintsev was just retiring as President, and in the past the location of the Assembly had often not been decided until two years before it took place.

I discovered from conversations that an argument was being advanced privately by the Soviets that Washington was not a safe place in which to hold a meeting. Since this was not brought out in the open it was rather difficult to counter. As you know, it is true that the meeting of the ICSU Executive Committee, which took place in Washington, came at a very unpropitious time.

My query to you and to Harrison Brown, to whom I am sending a copy of this letter, is, "What do we do?" We can just let it drift until the next Executive Committee meeting in Copenhagen in September, 1970. Another possibility is to offer another location in the United States in addition to or in place of Washington.

Another possibility is to point out to Clifford Butler, the Secretary General, that Washington is not all that dangerous, and try to have him get some opinion privately from various members of the present Executive Committee. At the moment I favor this course. Your advice and counsel on this subject is needed. The invitation, of course, came from the Academy and was first made in 1966 if my memory serves me correctly.

In addition to Harrison Brown, I am sending copies of this letter to Viki Weisskopf as Vice President of IUPAP and member of the Executive Committee, and to Bill Havens as Secretary of the U. S. National Committee. I think we need their views.

My very best wishes to you for the New Year.

Sincerely,

Boc

Robert F. Bacher

Dr. Philip Handler
President
National Academy of Sciences
2101 Constitution Avenue
Washington, D. C. 20418

cc: Harrison Brown
V. F. Weisskopf
W. W. Havens

Prof. V. Weisskopf

INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS

To Vice-Presidents, IUPAP 20.7.70.

Dear Weisskopf,

The President, Professor Bacher, has asked me to seek your views informally on the venue for the 1972 General Assembly. We shall have to discuss this issue at our Copenhagen meeting in October. Meanwhile, it would be most helpful to me and to the President to have a letter from you expressing your present opinion.

The 1972 Assembly will be an important one - we shall be celebrating the 50th anniversary of the foundation of IUPAP.

On this occasion there are strong arguments for holding the Assembly in a centre with strong local administrative support to ensure a very efficient and successful meeting.

You will know from the minutes of the General Assembly at Dubrovnik that we have received invitations from the USA (Washington, D. C.), Spain (Madrid), Sweden (Stockholm) and East Germany for the 1972 meeting.

The USA Academy of Sciences is very anxious to have an IUPAP General Assembly in the USA soon - there has not been one in 50 years. Thus they are bidding very strongly for the meeting to be in their new accommodation in Washington. Possibly the Executive Committee beforehand could be arranged in a small town - perhaps Stonybrook on Long Island or somewhere in New England.

Recent General Assemblies, have been 1969 Yugoslavia, 1966 Switzerland, 1963 Poland, 1960 Canada, 1957 Rome, 1954 London, 1951 Denmark, 1948 Holland.

I would be most grateful if you could let me have your provisional opinion by return of post.

Yours sincerely,

C. C. Butler

C. C. Butler
Secretary-General, IUPAP
Physics Department
Imperial College
London, S. W. 7., England

FORTIER, LANGEVIN, PELLERIN, MORIN & MONTREUIL

COMPTABLES AGRÉÉS / CHARTERED ACCOUNTANTS

TROIS-RIVIÈRES
1350, RUE ROYALE - TÉL. 376-4477

CAP-DE-LA-MADELEINE
399-A, BOUL. STE-MADELEINE - TÉL. 375-8996

PIERRE FORTIER, C.A.
GABRIEL PELLERIN, C.A.
RENÉ MONTREUIL, C.A.

JACQUES R. LANGEVIN, C.A.
GILLES MORIN, C.A.
LÉON CADIEUX, C.A.

UNION INTERNATIONALE de PHYSIQUE PURE et APPLIQUEE

ETATS FINANCIERS

AU 31 DECEMBRE 1970

INTERNATIONAL UNION of PURE and APPLIED PHYSICS

FINANCIAL STATEMENTS

AS AT DECEMBER 31, 1970

FORTIER, LANGEVIN, PELLERIN, MORIN & MONTREUIL
COMPTABLES AGRÉÉS / CHARTERED ACCOUNTANTS

TROIS-RIVIÈRES
1350, RUE ROYALE - TÉL. 376-4477

CAP-DE-LA-MADELEINE
399-A, BOUL. STE-MADELEINE - TÉL. 375-6996

PIERRE FORTIER, C.A.
GABRIEL PELLERIN, C.A.
RENÉ MONTREUIL, C.A.
JACQUES R. LANGEVIN, C.A.
GILLES MORIN, C.A.
LÉON CADIEUX, C.A.

UNION INTERNATIONALE de PHYSIQUE PURE et APPLIQUEE
INTERNATIONAL UNION of PURE and APPLIED PHYSICS

Nous avons examiné le bilan de l'Union Internationale de Physique Pure et Appliquée au 31 décembre 1970, et l'état des revenus et dépenses pour l'année terminée à cette date. Notre examen a comporté une revue générale des procédés comptables et tels sondages des livres, pièces et autres documents à l'appui que nous avons considérés nécessaires dans les circonstances.

A notre avis, le bilan et l'état des revenus et dépenses ci-annexés présentent équitablement la situation financière de l'Union Internationale de Physique Pure et Appliquée au 31 décembre 1970 ainsi que les résultats de ses opérations pour l'année terminée à cette date, conformément aux principes comptables généralement reconnus, appliqués de la même manière qu'au cours de l'année précédente.

Fortier Langevin Pellerin Morin & Montreuil
Comptables agréés

Trois-Rivières, Qué.
le 3 mars 1971.

We have examined the balance sheet of International Union of Pure and Applied Physics as at December 31st 1970, and the statement of income and expenses for the year ended on that date. Our examination included a general review of the accounting procedures and such tests of accounting records and other supporting evidence as we considered necessary in the circumstances.

In our opinion the accompanying balance sheet and statement of income and expenses present fairly the financial position of the International Union of Pure and Applied Physics as at December 31st 1970, and the results of its operations for the year ended on that date, in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Fortier, Langevin, Pellerin, Morin & Montreuil
Chartered accountants

Trois-Rivières, Qué.
March 3rd, 1971.

UNION INTERNATIONALE de PHYSIQUE PURE et APPLIQUEE
INTERNATIONAL UNION of PURE and APPLIED PHYSICS

Bilan au 31 décembre 1970
Balance sheet as at December 31, 1970

ACTIF
ASSETS

	Taux rate	U.S. Dollars	
ENCAISSE ET CERTIFICAT DE DEPOT CASH AND DEPOSIT CERTIFICATE			
3,649.08 dollars canadiens	$ 1.01 1/8	$ 3,608.48	
52,584.09 dollars américains		52,584.09	
			$ 56,192.57
COTISATIONS A RECEVOIR DUES RECEIVABLE			7,450.00
FRAIS PAYES D'AVANCE PREPAID EXPENSES			300.00
INTERETS COURUS ACCRUED INTEREST			300.00
			$ 64,242.57

PASSIF
LIABILITIES

COMPTES A PAYER ET DEPENSES ENGAGEES ACCOUNTS PAYABLE AND ENCUMBRANCES		$ 8,383.00
REVENU DIFFERE DIFFERED INCOME		900.00
AVOIRS SURPLUS		
Solde au 31 décembre 1969 Balance as at December 31, 1969	$ 52,886.33	
Ajouter: Revenu net de l'année Add: Net income for the year	2,073.24	
Solde au 31 décembre 1970 Balance as at December 31, 1970		54,959.57
		$ 64,242.57

UNION INTERNATIONALE de PHYSIQUE PURE et APPLIQUEE
INTERNATIONAL UNION of PURE and APPLIED PHYSICS

ETAT DES REVENUS ET DEPENSES
STATEMENT OF INCOME AND EXPENSES

pour l'année terminée le 31 décembre 1970
for the year ended December 31, 1970

REVENUS **INCOME**		
Subventions de l'I.C.S.U. Grants from U.N.E.S.C.O.	$ 16,000.00	
Cotisations des pays membres Dues from member countries	42,250.00	
Intérêt gagné Interest earned	1,040.00	
Revenu divers Miscellaneous income	840.00	
		$ 60,130.00
DEPENSES **EXPENSES**		
Conférences subventionnées par l'I.C.S.U. Conferences subsidized by U.N.E.S.C.O.	16,000.00	
Conférences subventionnées par l'U.I.P.P.A. Conferences subsidized by I.U.P.A.P.	18,600.00	
Frais de déplacement - commissions Travelling expenses - commissions	9,278.00	
Frais de déplacement - comité exécutif Travelling expenses - executive committee	7,375.46	
Secrétariat et comptabilité Secretariat and accounting	2,897.55	
Cotisations Subscriptions	1,140.00	
Impression Printing	2,018.00	
Buste - Professeur Bohr Bust - Professor Bohr	420.00	
Vérification Auditing	214.25	
Télécommunications Telephone, telegrams	50.35	
Fournitures de bureau Stationery	48.85	
Frais bancaires et échange Bank charges and exchange	14.30	
		58,056.76
REVENU NET DE L'ANNEE **NET INCOME FOR THE YEAR**		$ 2,073.24

FORTIER, LANGEVIN, PELLERIN, MORIN & MONTREUIL

UNION INTERNATIONALE de PHYSIQUE PURE et APPLIQUEE

COTISATIONS DES PAYS MEMBRES

	Unités 1970	Solde à recevoir 31-12-69	Cotisations 1970	Montants reçus	Solde à recevoir 31-12-70
Afrique du Sud	1	$	$ 250	$ 250	$
Allemagne Est	4		1,000	1,000	
Allemagne Ouest	12		3,000	3,000	
Argentine	2		500	500	
Australie	6		1,500	1,500	
Autriche	1		250	250	
Belgique	4		1,000	-	1,000
Bolivie	1	250	250	500	
Brésil	2		500	500	
Bulgarie	1		250	-	250
Canada	8		2,000	2,000	
Chine-Formose	1		250	250	
Corée	1		250	250	
Cuba	1		250	250	
Dannemark	3		750	750	
Espagne	4		1,000	1,000	
Etats-Unis	18	1,020	4,500	4,320	1,200
Finlande	1		250	250	
France	12		3,000	3,000	
Grande-Bretagne	15		3,750	3,750	
Hollande	4		1,000	1,000	
Hongrie	2		500	500	
Indes	4	800	1,000	1,800	
Irlande	1		250	250	
Israel	2		500	-	500
Italie	12	3,000	3,000	3,000	3,000
Japon	8		2,000	2,000	
Mexique	2		500	500	
Norvège	1		250	250	
Pakistan	1	250	250	-	500
Pologne	4		1,000	1,000	
République Arabe Unie	1	250	250	250	250
Roumanie	3		750	750	
Suède	8		2,000	2,000	
Suisse	2		500	500	
Tchécoslovaquie	3		750	750	
U.R.S.S.	12		3,000	3,000	
Yougoslavie	1	500	250	-	750
	169	$ 6,070	$ 42,250	$ 40,870	$ 7,450

INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS

I.U.P.A.P. Bulletin No 19 — Octobre 1970 October

3

At the meeting of the Executive Committee of I.U.P.A.P. held in Copenhagen in October 1970, the patronage of the Union was extended to the following international conferences to be held in 1971.

Where no source of information is listed, inquiries should be directed to the Secretary of the appropriate International Commission.

PLEASE KEEP THIS ISSUE OF THE NEWS-BULLETIN FOR REFERENCE

Lors de la réunion du Comité exécutif de l'U.I.P.P.A. tenue récemment à Copenhague, on a accordé l'appui de l'Union aux congrès internationaux dont la liste apparaît ci-après.

Dans le cas où aucune source particulière d'information n'est mentionnée, les intéressés sont priés de s'adresser directement au Secrétaire de la Commission internationale appropriée pour obtenir des renseignements supplémentaires.

VEUILLEZ CONSERVER CE NUMÉRO DU BULLETIN DE NOUVELLES POUR FINS D'INFORMATION ET DE RÉFÉRENCE

I.U.P.A.P.

Categories for International Conferences

A - Large (500-2000) full-fledged meetings where all or most aspects of a Commission's field are examined and reviewed. Most Commissions will only sponsor one such major meeting every three years.

B - Medium (100-500) sized conferences at which a particular aspect of a Commission's area of responsibility is examined in detail. A Commission might sponsor one such meeting a year.

C - Small (40-100) sized meetings, often by invitation only, where specialists gather to assess progress in a very limited field. Such meetings might be satellite conferences, preceeding or following a Category A meeting.

U.I.P.P.A.

Catégories des congrès internationaux

A - Grandes conférences plénières (500-2000) touchant tous les aspects du champ d'intérêt d'une Commission. En général, une Commission en organisera une à tous les trois ans.

B - Congrès moyens (100-500) alors qu'on étudiera un aspect particulier du champ d'intérêt et de responsabilité d'une Commission. Il peut y avoir un tel congrès à chaque année.

C - Petites réunions (40-100), souvent sur invitation, alors que des spécialistes examineront une question limitée. De tels congrès seront souvent organisés à l'occasion d'un congrès de la Catégorie A .

INTERNATIONAL UNION of PURE and APPLIED PHYSICS

UNION INTERNATIONALE de PHYSIQUE PURE et APPLIQUÉE

Liste des congrès approuvés en 1971

Conferences approved for 1971

Commission on Thermodynamics and Statistical Mechanics

1. Int. Conf. on Statistical Mechanics Organizer: Prof. Stuart A. RICE, University of Chicago, The James Franck Institute, 5640, Ellis Avenue, Chicago, Illinois 60637, U.S.A.	'A'	Chicago U.S.A.	29 March- 2 April
2. Conf. on Theoretical Physics and Biology Org.: Prof. M. MAROIS, Institut de la Vie, 89, boulevard St-Michel, Paris Ve, FRANCE.	'C'	Versailles FRANCE	21-26 June

Commission on Cosmic Rays

3. 12th Int. Conf. on Cosmic Rays Org.: Drs. K.B. and A.G. FENTON, University of Tasmania, Department of Physics, Box 252 C, GPO Hobart, Tasmania 7001, AUSTRALIA.	'A'	Hobart TASMANIA	16-25 August

Commission on Acoustics

4. 7th Int. Conf. on Acoustics Org.: Prof. T. TARNOCZY, Acoustical Research Group, Puskin u. 5-7, Budapest VIII, HUNGARY.	'A'	Budapest HUNGARY	18-26 August

Commission on Semiconductors

5. Int. Conf. on Amorphous and Liquid Semiconductors Org.: Prof. Morrel H. COHEN, The James Franck Institute, 5640, Ellis Avenue South, Chicago, Illinois 60637, U.S.A.	'B'	Ann Arbor U.S.A.	8-13 August

Commission on Solid State

6. Int. Conf. on Crystal Growth Org.: Dr. MUFTACHIEV, University of Marseille, Marseille, FRANCE.	'B'	Marseille FRANCE	5-9 July
7. Int. Conf. for Solid Surfaces Org.: Prof. C.B. DUKE, Department of Physics, University of Illinois, Urbana, Illinois 61801, U.S.A.	'B'	Boston U.S.A.	11-18 October
8. Conf. on Colour Centres in Ionic Crystals Org.: Prof. E.W.J. MITCHELL, J.J. Thomson Physical Laboratory, Whiteknights Park, Reading, Berks., ENGLAND.	'B'	Reading ENGLAND	13-17 September
9. Int. Conf. on Light Scattering in Solids Org.: Prof. M. BALKANSKI, Laboratoire de Physique des Solides, Tour 13, 2ième étage, Faculté des Sciences, 9, Quai St-Bernard, Paris Ve, FRANCE.	'B'	Paris FRANCE	19-23 July

Commission on Particles and Fields

10. VIIIth Int. Conf. on High Energy Accelerators Org.: Dr. K. JOHNSON, CERN, 1211 Geneva 23, SWITZERLAND.	'B'	CERN SWITZERLAND	20-24 September

11.	Int. Conf. on Electron and Photon Interactions at High Energies Org.: Prof. B.D. McDANIEL, Laboratory of Nuclear Studies, Cornell University, Ithaca, N.Y. 14850, U.S.A.	'B'	Ithaca U.S.A.	23-28 August
12.	Int. Conf. on Duality and Symmetry in Hadron Physics Org.: Prof. Y. NE'EMAN, Dept. of Physics and Astronomy, Tel-Aviv University, Ramat-Aviv, Tel-Aviv, ISRAEL.	'B'	Tel-Aviv ISRAEL	5-7 April
13.	Int. Conf. on High Energy Physics and Nuclear Structure Org.: Prof. V.P. DZHELEPOV, Lab. of Nuclear Problems, Joint Institute for Nuclear Research, Head Post Office Box 79, Moscow, U.S.S.R.	'B'	Dubna U.S.S.R.	7-12 September

Commission on Nuclear Physics

14.	Conf. on Statistical Properties of Nuclei Org.: Dr. Jagadish B. GARG, Physics Department, SUNY at Albany, 1400 Washington Avenue, Albany, N.Y. 12203, U.S.A.	'B'	Albany U.S.A.	23-27 August

Commission on Atomic Masses and Related Constants

15.	IVth Int. Conf. on Atomic Masses and Related Fundamental Physical Constants Org.: Prof. E. Richard COHEN, Science Center, North American Rockwell Corporation, 1049, Camino Dos Rios, Thousand Oaks, California 91360, U.S.A.	'B'	Teddington ENGLAND	6-10 September

Commission on Atomic and Molecular Physics and Spectroscopy

16. 3rd Int. Conf. on Vacuum UV Radiation Physics 'B' Tokyo JAPAN 30 August-2 September

Org.: Prof. Kozo ISHIGURO,
University of Tokyo,
College of General Education,
Komaba, Tokyo 113, JAPAN.

17. VIIth Int. Conf. on the Physics of Electronic and Atomic Collisions 'A' Amsterdam NETHERLANDS 26-31 July

Org.: Prof. Dr. J. KISTEMAKER,
FOM-Instituut voor Atoom- en Molecuulfysica,
Kruislaan 407,
Amsterdam-Watergraafsmeer, NETHERLANDS.

Co Commission on Plasma Physics

18. Xth Int. Conf. on Phenomena in Ionized Gases 'B' Oxford ENGLAND 13-18 September

Org.: Dr. R.N. FRANKLIN,
Keble College,
Oxford, ENGLAND.

19. Int. Symposium on Plasma Physics 'C' ? Est. CANADA ? July

Org.: Dr. M.P. BACHYNSKI,
RCA Laboratories,
1001, Lenoir,
Montréal, P.Q. CANADA.

Relativity

20. 7th Int. Conf. on General Relativity and Gravitation 'A' Copenhagen DENMARK ? July

Org.: Proc. C. MØLLER,
NORDITA,
Blegdamsvej 17,
DK-2100, Copenhagen Ø, DENMARK.

PHYSIQUE INTERNATIONALE

Bulletin de Nouvelles de l'U.I.P.P.A. no 20 - décembre 1970

CONGRÈS INTERNATIONAUX en 1971

Lors de sa réunion d'octobre, le Comité exécutif, faisant suite aux recommandations des diverses Commissions internationales, a accordé le patronage de l'Union à 20 congrès internationaux, organisés dans 12 pays membres (Australie, Canada, Danemark, États-Unis, France, Hongrie, Israël, Japon, Pays-Bas, U.R.S.S.). La liste complète en a été publiée dans le Bulletin no 19 (octobre '70). Le congrès le plus prochain est celui de Tel-Aviv, Israël, du 5 au 7 avril, organisé par le professeur Y. NE'EMAN et traitant de la dualité et la symétrie dans la Physique des Hadrons.

HONNEUR à des MEMBRES de l'UNION

Tous les membres de l'Union se sont réjouis d'apprendre que le Prix Nobel de Physique pour l'année 1970 a été décerné au Professeur Louis NÉEL de France et au Professeur H.O.G. ALFVEN de Suède. Le professeur Néel fut président de l'Union de 1963 à 1969, et le professeur Alfven est un des membres fondateurs de la Commission internationale de la Physique des Plasmas.

ASSEMBLÉE GÉNÉRALE de 1972 à WASHINGTON

La prochaine Assemblée générale de l'Union aura lieu à Washington, U.S.A. en 1972. L'Union célébrera en même temps son 50ième anniversaire. Les dates précises ne sont pas encore déterminées étant donné que la Société européenne de Physique se réunira vers la même période. Il est probable que cette Assemblée générale ait lieu dans la deuxième moitié de septembre 1972.

NOUVEAU SECRÉTAIRE du C.I.U.S.

Le professeur F.A. STAFLEU des Pays-Bas a été élu Secrétaire-général du Conseil international des Unions scientifiques lors de l'Assemblée générale de Madrid. Il succède au professeur K. Chandrasekharan de l'Inde.

UNISIST : réalisable

Le Comité conjoint UNESCO-CIUS sur l'établissement d'un système mondial de renseignements scientifiques ("UNISIST") signale que le système est tout à fait réalisable. Par conséquent, une conférence intergouvernementale sera tenue en 1971 en vue de mettre sur pied les mécanismes nécessaires.

ARCHIVES de PHYSIQUE

Les participants au Séminaire sur le Rôle de l'Histoire de la Physique dans l'Education des Physiciens (M.I.T., juillet 1970) ont attiré l'attention de la Commission sur l'Education sur l'importance de conserver les documents pour les archives. Le Séminaire recommande que "les physiciens et les organisations en Physique de toutes nations, y compris les comités nationaux de l'Union, doivent se rappeler le besoin urgent de préserver leurs documents personnels de même que .... les comptes-rendus de leurs institutions scientifiques, journaux et sociétés".

La Commission sur l'Education nous avise de ce qui suit:

: le docteur Charles Weiner, du Centre pour l'Histoire et la Philosophie en Physique de l'American Institute of Physics, a offert les services de son Centre pour aider les sociétés ou autres organismes à établir un système d'archives en Physique;

: le professeur Stephen Brush, de l'Université du Maryland, organise un Comité en vue de la traduction des documents historiques.

Le C.I.U.S. et la POLLUTION : le bruit

Lors de l'Assemblée générale du Conseil international des Unions scientifiques tenue à Madrid, on a considéré les projets du Comité spécial sur les problèmes de l'environnement (SCOPE). La possibilité d'une duplication d'efforts avec le programme de l'UNESCO sur l'Homme et la Biosphère (MAB) a été signalée, et une liaison a été établie entre les deux organisations. La contribution de l'UIPPA au projet du CIUS traitera largement de la pollution acoustique. C'est le docteur Andres LARA, du Centro de Investigaciones Fisicas de l'Espagne, qui a été nommé par l'Union auprès du Comité de SCOPE à la suite de la recommandation de la Commission internationale sur l'Acoustique.

CRITÈRES pour les COMMUNICATIONS aux CONGRÈS

Lors de sa dernière réunion, le Comité exécutif de l'Union a décidé qu'en plus des exigences habituelles (Bulletin no 15, janvier 1970), l'Union n'accordera son appui qu'à condition que seuls des critères scientifiques soient utilisés pour le tamisage des communications. Les considérations politiques ou institutionnelles ne peuvent entrer en ligne de compte.

INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS

I.U.P.A.P. News-Bulletin No. 20 December 1970

INTERNATIONAL CONFERENCES in 1971

At its October meeting, the Executive Committee, acting on the recommendation of the various International Commission, extended the sponsorship of the Union to 20 international conferences, being organized in 12 member countries (Australia, Canada, Denmark, France, Hungary, Israel, Japan, Netherlands, U.S.A., U.S.S.R.). The complete list was published as issue No. 19 of this News-Bulletin (October 1970). The first of these conferences is scheduled for April 5-7th at Tel-Aviv Israel, when the conference on Duality and Symmetry in Hadron Physics will be organized by Prof. Y. NE'EMAN.

IUPAP MEMBERS HONORED

All IUPAP members rejoiced to learn of the awarding of the Nobel Prize in Physics for 1970 to Prof. Louis NÉEL of France and Prof. H.O.G. ALFVEN of Sweden. Prof. Néel was resident of the Union from 1963 to 1969. Prof. Alfven is one of the founding members of the International Commission on Plasma Physics.

1972 GENERAL ASSEMBLY at WASHINGTON

Lieu of the 1972 IUPAP General Assembly, which will correspond with the 50th anniversary of the Union, has been fixed in Washington, U.S.A. The dates have not been fixed, pending liaison with the E.P.S. to avoid a conflict, but will probably be in the second half of September.

NEW SECRETARY-GENERAL at I.C.S.U.

Professor F.A. STAFLEU of the Netherlands was elected as Secretary-General of ICSU at its Madrid General Assembly. He succeeds Prof. K. Chandrasekharan of India.

UNISIST : "feasible"

The UNESCO-ICSU Committee on the establishment of a World Science Information System has reported that it is feasible. An intergovernmental conference will be held in 1971 to establish mechanisms.

PHYSICS ARCHIVES

Participants in the Seminar on the Role of the History of Physics in Physics Education (at M.I.T., July 1970) called the attention of the Education Commission to the importance of preserving archival material. It was urged to alert "physicists and physics organizations of all nations, including the National Committees of the Union to the need of preserving their own personal papers, and .... similar records of their scientific institutions, journals, and societies".

The Commission on Physics Education advises:

: that Dr. Charles Weiner of the American Institute of Physics' Center for the History and Philosophy of Physics has offered the Center's services to aid societies or countries in setting up Physics archives;

: Prof. Stephen Brush of the University of Maryland is organizing a committee on the translation of Historical Materials.

ICSU and POLLUTION : Noise

The General Assembly of ICSU, held at Madrid in September 1970, reviewed plans for its Special Committee on the Problems of the Environment (SCOPE). A possible duplication of effort with UNESCO's Man and the Biosphere (MAB) programme was noted, and liaison established between the two groups. IUPAP's contribution to the ICSU project will concern itself largely with pollution by noise. Dr. Andres LARA of Spain's Centro de Investigaciones Fisicas has been named by the Union to the SCOPE Committee, on the recommendation of the Commission on Acoustics.

CRITERIA for CONFERENCE PAPERS

At the October 1970 Union Executive meeting, it was agreed that, in addition to the other criteria (News-Bulletin No. 15, January 1970) IUPAP would only sponsor conferences where papers were accepted and refereed as to their scientific content and relevance to the conference. Political or institutional criteria may not be used.

PHYSIQUE INTERNATIONALE

Bulletin de Nouvelles publié par l'U.I.P.P.A. no 21 - février 1971

CONGRÈS INTERNATIONAUX

La liste complète des congrès internationaux auxquels l'Union a accordé son appui en 1971 a été publiée dans le Bulletin no 19 (octobre). On est prié de noter la date prochaine des congrès suivants:

1. Mécanique statistique	29 mars - 2 avril Chicago, U.S.A.
2. Physique théorique et Biologie	21-26 juin Versaille, France
12. Physique des Hadrons	5-7 avril Tel-Aviv, Israël

ADDITIONS au SYSTÈME des UNITÉS "SI"

La Commission S.U.N. signale des additions à la première liste des unités à être employées avec les unités "SI". Ce sont: l'unité de masse atomique (u); le parsec (pe), et l'unité astronomique (A.u.). On attribue un statut analogue temporaire au rad (10^{-12} J/kg).

CONSERVATION de l'HÉLIUM : difficultés

La Commission internationale sur les très basses Températures vient de faire un plaidoyer urgent touchant la conservation de l'hélium. Le programme des États-Unis, débuté en 1958 et visant à accumuler 10^{11} pi.c (tpn), a maintenant atteint 25% de son objectif, mais étant donné le coût du programme, il est question de l'abandonner. La Commission fait remarquer qu'à moins que les sous-produits de la fusion ou de la séparation atmosphérique ne deviennent pratiques (ce qui semble improbable à court terme), les réserves mondiales d'hélium diminueront de façon alarmante. Aucun autre effort national analogue à celui des États-Unis n'a encore été rapporté. La Commission insiste donc afin que les organisations scientifiques et les gouvernements considèrent cette conservation de l'hélium comme une question de toute urgence.

RENSEIGNEMENTS sur l'ACOUSTIQUE

La Commission internationale sur l'Acoustique a établi un Centre d'information et de coordination sous la direction du docteur Kolmer de la Tchécoslovaquie. Ce Centre a déjà émis un bulletin concernant les assemblées internationales d'intérêt possible pour les spécialistes en acoustique.

NOUVELLES TABLES des MASSES ATOMIQUES

La Commission internationales des Masses atomiques et des Constantes associées signale des progrès dans la compilation des nouvelles tables de masses atomiques et des énergies des réactions nucléaires. La nouvelle édition contiendra aussi des graphiques de masses nucléaires ainsi que des énergies de réaction pour les cibles stables

2 LIVRES de l'UNION sous forme de MANUSCRITS

La Commission internationale sur l'Education en Physique signale que deux volumes écrits en collaboration avec l'UNESCO sont maintenant sous forme de manuscrits. Ce sont:

"Source Book for Teaching of Physics in Secondary Schools"
Éditeur: J.L. Lewis, du Royaume-Uni;

"New Trends in the Teaching of Physics"
Éditeur: E. Nagy, de la Hongrie.

DICTIONNAIRE d'OPTIQUE

Les physiciens intéressés doivent noter que la Commission internationale d'Optique prépare actuellement un dictionnaire multilingue des termes utilisés en Optique.

CONGRÈS de la SOCIÉTÉ ÉGYPTIENNE de PHYSIQUE

La Société de Physique de l'Égypte nous informe que son deuxième congrès sur la Physique aura lieu au Caire du 17 au 21 avril prochains.

L'ANNÉE de COPERNIC

Il a été décidé lors de la récente assemblée générale du Conseil International des Unions Scientifiques d'organiser différentes manifestations pour marquer le 500ième anniversaire de la naissance de Nicolas Copernic en 1973. On prévoit, entre autres, une "journée du CIUS".

BULLETIN du CODATA

Le Comité du CIUS sur les données pour la Science et la Technologie (le délégué de l'Union est le professeur B. Vodar) distribue deux fois par an un Bulletin de 16 pages. On peut en obtenir des copies au Bureau central de CODATA:

Westendstrasse 19,
6 Frankfort/Main,
GERMANY BRD.

INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS

News-Bulletin No. 21 February 1971

INTERNATIONAL CONFERENCES

The complete list was published in News-Bulletin No. 19 (October). Readers are reminded of the coming Spring meetings:

1.	Statistical Mechanics	Mar.29-April 2 Chicago, U.S.A.
12.	Hadron Physics	April 5-7 Tel-Aviv, Israel
2.	Theoretical Physics and Biology	June 21-26 Versailles, France.

ADDITIONS to the SI SYSTEM

The SUN Commission reports additions to the first list of units to be used with SI units. They are: the atomic mass unit (u); the parsec (pc), and the astronomical unit (A.u.). The rad (10^{-12}J/kg) is given temporary status.

HELIUM CONSERVATION : Difficulties

The International Commission on Very Low Temperatures has made an urgent plea for action on helium conservation. The USA program, begun in 1958, to accumulate 10^{11} c.f. (ntp) has now achieved 25% of its objective, but the costly program may have to be abandoned. The Commission points out that unless fusion by-products or atmospheric separation become feasible (an unlikely short-term prospect) world helium supplies will run low. No other national efforts similer to that of the USA have been reported. The Commission therefore makes the urgent plea that helium conservation be considered a matter of grave importance by scientific organizations and national governments.

ACOUSTICS INFORMATION

The International Commission on Acoustics has set up an Information and Coordinating Center organized by Dr. Kolmer of Czechoslovakia. It has already distributed one bulletin concerning international meetings of possible interest to specialists in acoustics.

COMMISSION on LUNAR STUDIES

An inter-union Commission on Lunar Studies is being set up by ICSU. Interested IUPAP Commissions or National Committees should communicate with the Secretary-General of ICSU, 7, via Cornelio Celso, Rome 00161, ITALY.

NEW TABLE of ATOMIC MASSES

The Commission on Atomic Masses and Related Constants reports progress on its new tables of atomic masses and nuclear reaction energies. The new edition will contain, as well, graphs of nuclear mass systematics and reaction energies for stable nuclide targets.

TWO IUPAP BOOKS in MANUSCRIPT FORM

The International Commission on Physics Education reports that two of its books written in collaboration with UNESCO are now in manuscript form. They are:

"Source Book for Teaching of Physics in Secondary Schools"
J.L. Lewis of the U.K. is editor;

"New Trends in the Teaching of Physics"
E. Nagy of Hungary is editor.

OPTICS GLOSSARY

Interested physicists should note that the International Commission for Optics is preparing a multi-lingual glossary of optical terms.

EGYPTIAN PHYSICAL SOCIETY CONGRESS

IUPAP Secretariat has been informed that the Egyptian Physical Society is organizing its 2nd Congress on Physics to be held in Cairo from 17-21 April 1971.

The YEAR of COPERNICUS

General agreement was noted at the recent ICSU General Assembly to have 1973 marked by special events to commemorate the 500th anniversary of the birth of Nicolai Copernik. Suggestions have been made concerning the organization of an "ICSU day" and other special events. National Committees are invited to consider the manner in which this important scientific anniversary might be noted in their countries.

CODATA NEWSLETTER

ICSU's Committee on Data for Science and Technology (IUPAP's delegate is Prof. B. Vodar) issues a twice-yearly 16-page Newsletter. Copies may be obtained from the Codata Central Office: Westendstrasse 19, 6 Frankfort/Main, Germany-BRD.

PHYSIQUE INTERNATIONALE

I.U.P.A.P. Special Bulletin — Bulletin spécial de l'U.I.P.P.A.

On est prié de noter les changements d'adresses suivants et, au besoin, de les inscrire dans la brochure UIPPA-16 - Rapport général 1970.

page 101: Prof. H. MAIER-LEIBNITZ,
Institut Max von Laue-Paul Langevin,
Cedex 156,
38 Grenoble-Gare, FRANCE.

Dr. S. BHAGAVANTAM,
525, Rajamahal Extensions,
Bangalore 6, INDIA.

Dr. Walter BOAS,
Department of Metallurgy,
University of Melbourne,
Parkville,
Victoria 3052, AUSTRALIA.

pe 102: Dr. C.C. BUTLER, F.R.S.,
Secretary-General of I.U.P.A.P.,
Nuffield Lodge,
Regents Park,
London NW1 4RS, ENGLAND.
Tél.: (01) 722-8871

page 103: Argentina:
Dr. Santos MAYO, Presidente,
Asociacion Fisica Argentina,
Casilla de Correo No. 17,
Victoria B,
Buenos Aires, ARGENTINA.

Bolivia:
Ing. Gaston MEJIA, Director,
Laboratorio de Fisica Cosmica,
Universidad Mayor de San Andrés,
La Paz, BOLIVIA.

Bulgaria:
Dr. Emil NADJAKOV,
The Academy of Sciences of Bulgaria,
1, Street of 7 November,
Sofia 13, BULGARIA.

page 104: France:
Prof. R. LENNUIER,
Comité français de Physique,
33, rue Croulebarbe,
75 Paris 13e, FRANCE.

Please note the following changes to be made in IUPAP-16 - 1970 General Report.

page 105: Holland:
Mrs. C.F. BRESSER,
Bureau Nederlandse Natuurkundige Vereniging,
Van der Waalslaboratorium,
Valckenierstraat 67,
Amsterdam, THE NETHERLANDS.

Inde:
Dr. S. BHAGAVANTAM,
525, Rajamahal Extensions,
Bangalore 6, INDIA.

Italy:
Prof. Bruno BRUNELLI, Segretario,
Commissione Italiana di Fisica pura ed applicata,
Consiglio Nazionale delle Ricerche,
Piazzale delle Scienze 7,
Rome 00100, ITALIA.

page 106: South Africa:
Dr. P. van der WESTHUIZEN,
South African Council for Scientific and Industrial Research,
Science Co-operation Division,
P.O. Box 395,
Pretoria, SOUTH AFRICA.

South Korea:
Dr. Tae-Soon YIM,
Public Relation Secretary,
Korean Physical Society,
c/o Department of Physics,
College of Liberal Arts & Sciences
Seoul National University,
Seoul, SOUTH KOREA.

Secrétariat de Québec de l'U.I.P.P.A.,
Bureau du Prof. L. Kerwin,
Université Laval,
Québec 10, P.Q., CANADA.

PHYSIQUE INTERNATIONALE

Bulletin de Nouvelles publiés par l'U.I.P.P.A. no 22 - avril 1971

CONGRÈS INTERNATIONAUX

Depuis la parution de la liste des congrès 1971, (bulletin no 19), l'Union a accordé son patronage à deux congrès supplémentaires (de classe 'C'):

21. Physique des lasers — Sept. 1-7
inf.: Prof. S.C. Brown — Isfahan, IRAN
Res. Lab. of Electronics
Mass. Inst. of Technology
Cambridge, Mass. 02139, USA.

22. Solides quantiques — Sept. 5-10
inf.: Prof. J. Bardeen — Banff, CANADA
Dept. of Physics
University of Illinois
Urbana, Ill. 61801, USA.

Nous vous rappelons également les congrès prochains (plus de détails dans le Bulletin no 19):

6. Croissance cristalline (B) — Juillet 5-9 Marseille

5 Diffusion de la lumière dans les solides (B) — Juillet 19-23 Paris

17. Collisions électroniques et atomiques (A) — Juillet 26-31 Amsterdam

19. Physique des plasmas (C) — Juillet 6-7 TerreNeuve

SECRÉTAIRE-GÉNÉRAL

Nous vous rappelons la nouvelle adresse:
Dr C.C. BUTLER, F.R.S.,
Nuffield Lodge,
Regents Park,
London NW1 4RS, ENGLAND.

SCOPE - 1ière assemblée

Le Comité spécial sur les problèmes de l'environnement ('SCOPE') organisé par le CIUS en 1970 a tenu sa première réunion. Trois groupes de travail ont présenté des rapports sur:
: les matériaux qui changent la biosphère de façon significative; leur détermination et leur évaluation biologique;
: étude sur la toxicologie des composés chlorinés aromatiques;
: les bases scientifiques pour la gérance des écho-systèmes modifiés par l'homme.
Pour obtenir plus de détails, on peut s'adresser au secrétariat du CIUS à Rome. La question de la pollution par le bruit n'a pas encore été soulevée. C'est le docteur A. Lara qui représente l'Union auprès de SCOPE qui en est chargé.

COMMISSION sur les ÉTUDES LUNAIRES

Une commission inter-unions sur les études lunaires sera mise sur pied par le Conseil international des Unions scientifiques. Les Commissions ou Comités nationaux de l'Union intéressés à cette Commission sont priés de communiquer avec le Secrétaire-général de CIUS, à Rome.

NOUVELLES NOMINATIONS

Au Comité national d'Israël:
: Prof. W. LOW, président
: Dr N. KAPLAN, secrétaire
(University Hébraïque de Jérusalem).
Au Comité national de l'Italie:
: Prof. Edoardo AMALDI, président
: Prof. Bruno BRUNELLI, secrétaire
(Consiglio Nazionale delle Ricerche, Piazzale delle Scienze, Rome 7).
Veuillez corriger le document IUPAP-16.

PROCÉDURE ÉLECTORALE

Par suite de certaines difficultés techniques survenues pendant les élections des membres des Commissions internationales lors de l'Assemblée générale de l'Union à Dubrovnik en 1969, et à la suite de commentaires reçus de quelques délégués nationaux, le Comité exécutif a récemment fait parvenir à toutes les Commissions et à tous les Comités nationaux des suggestions en vue de la revision de la procédure électorale. IL EST URGENT que les commentaires sur ces suggestions soient retournés au Secrétaire-général, si possible avant l'été, afin que le Comité exécutif puisse prendre les décisions qui s'imposent à sa réunion de septembre.

La FORMATION des PROFESSEURS de PHYSIQUE au SECONDAIRE

Les Comités nationaux doivent prendre note de la publication prochaine du Compte-rendu du Congrès sur la formation des professeurs de Physique au cours secondaire qui s'est tenu à Eger, Hongrie, sous la direction du Prof. Nagy. La Commission internationale sur l'Éducation signale que les éditeurs Brown, Kedves et Wenham devraient recevoir le volume ce printemps. Ce rapport est de grande importance, et les Comités nationaux sont priés de faire le nécessaire pour qu'une publicité convenable lui soit faite dans les institutions de formation des professeurs de même qu'à la communauté des physiciens en général.

INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS

News-Bulletin No. 22 April 1971

INTERNATIONAL CONFERENCES

Since the publication of the list for 1971 (see Bulletin No. 19, October 1970), two further Class 'C' Conferences have been sponsored by the Union:

21. Fundamental and Applied Laser Physics — Sept. 1-7, Isfahan, IRAN
    contact: Prof.S.C. Brown
    Research Lab. of Electronics
    Massachusetts Inst. of Technology
    Cambridge, Mass. 02139, USA.

22. Quantum Solids — Sept. 5-10, Banff, CANADA
    contact: Prof. J. Bardeen
    Dept. of Physics
    University of Illinois
    Urbana, Ill. 61801, USA.

Readers are reminded of the coming July meetings (see Bulletin No. 19 for details):

	Crystal Growth (B)	July 5-9, Marseille
9.	Light Scattering in Solids (B)	July 19-23, Paris
17.	Electronic and Atomic Collisions (A)	July 26-31, Amsterdam
19.	Plasma Physics (C)	July 6-7, Newfoundland

The SECRETARY-GENERAL

Change of address to:

Dr. C.C. BUTLER, F.R.S.,
Nuffield Lodge,
Regents Park,
London NW1 4RS, ENGLAND.

ELECTORAL PROCEDURE

Following technical difficulties during elections to International Commissions at the IUPAP General Assembly at Dubrovnik (1969) and comments received from some national representatives, the Executive has recently circulated to all Commissions and National Committees proposals for revision of procedure. IT IS URGENT that replies to these proposals be returned to the Secretary-General by summer, for action by the Executive Committee in September.

NEW APPOINTMENTS

IUPAP National Committee for Israel:
: Prof. W. LOW, President
: Dr. N. KAPLAN, Secretary
(The Hebrew University of Jerusalem).

IUPAP National Committee for Italy:
: Prof. Edoardo AMALDI, Chairman
: Prof. Bruno BRUNELLI, Secretary
(Consiglio Nazionale della Ricerche, Piazzale delle Scienze, Roma 7).

Please amend Document IUPAP-16.

SCOPE FIRST MEETING

The Special Committee on the Problems of the Environment set up by ICSU in 1970 has held its first meeting. Three working parties reported on:

: materials which significantly alter the biosphere; their determination and biological assessment;
: case studies of toxicology of chlorinated aromatic compounds;
: scientific basis for management of man-modified ecosystems.

Further details may be obtained from the ICSU Secretariat (Rome). The matter of noise pollution, for which IUPAP's representative, Dr. A. Lara, was appointed, has not yet been raised

TRAINING of SECONDARY SCHOOL PHYSICS TEACHERS

National Committees are alerted to the publishing of the Proceedings of the Conference on the training of teachers of Physics for Secondary Schools, held at Eger, Hungary, under the direction of Professor Nagy. The International Commission on Physics Education reports that editors Sanborn Brown, F.J. Kedves, and Edward Wenham expect the MIT Press to deliver the volume this Spring. This report is considered important, and National Committees should arrange for publicity to be given it in Institutions for teacher training, as well as generally.

IUPAP

38 countries, 17 International Commissions, 12 Inter-union Commissions, 20-25 International Conferences per year, 250 physicists serving on Commissions, member of ICSU.

PHYSIQUE INTERNATIONALE

Bulletin de Nouvelles publié par l'U.I.P.P.A. no 23 - juin 1971

CONGRÈS INTERNATIONAUX

Les lecteurs doivent consulter la liste publiée dans le Bulletin no 19 et l'addenda du Bulletin no 22 pour la liste complète. Nous leur rappelons les congrès prochains:

3. Rayons cosmiques (A)	Août 16-25 Hobart
4. Acoustique (A)	Août 18-26 Budapest
5. Semiconducteurs amorphes et liquides (B)	Août 8-13 Ann Arbor USA
11. Interactions des électrons et des photons	Août 23-28 Ithaca USA
14. Propriétés statistiques des noyaux (B)	Août 23-27 Albany USA
16. Physique des radiations UV dans le vide	Août-30-Sep.2 Tokyo

La RECHERCHE SPATIALE

Le vice-président Bhagavantam, délégué de l'Union auprès de COSPAR, nous signale que l'on élabore des plans pour la 14ième Assemblée qui aura lieu du 21 juin au 2 juillet 1971 à Seattle, USA. Plusieurs groupes de travail se réuniront pour discuter divers aspects de la recherche spatiale. Il est à noter cependant que les sujets qui pourraient être traités par d'autres groupes internationaux ne seront pas inclus au programme. L'assemblée sera précédée et suivie de 8 séminaires spéciaux, dont 5 à Seattle.

Le secrétaire exécutif de COSPAR, monsieur Z. Niemirowisz, note que le programme devrait attirer beaucoup de physiciens qui aimeraient assister aux séances ouvertes des groupes de travail (exemple des sujets: interférométrie à grande échelle; le laser lunaire; les mesures astronomiques galactiques et extra-galactiques; l'étude théorique de la poussière interplanétaire; les phénomènes de la haute atmosphère; les effets chroniques de la radiation ionisante; les plus récentes mesures effectuées sur la Lune, Mars, Vénus).

Adresse du Comité local:
a/s Dr Harold B. LIEMOHN,
COSPAR,
P.O.Box 24165,
Seattle, Washington 98124, USA.
Téléphone: (206) 655-0695
Câble: COSPAR, Seattle.

ABRÉVIATIONS des MOTS utilisés dans les TITRES

Le Bureau des Résumés scientifiques du CIUS s'est donné la peine de composer une liste de 7,000 mots ou racines de mots fréquemment utilisés dans les titres des communications scientifiques, et il a recommandé des abréviations pour ces mots. Ce document sera donc utile pour le codage, la mise en mémoire, etc., des documents. Il est basé sur les listes publiées depuis 1966 par le Comité Z39 de l'American National Standards Institute. On peut se procurer des copies ($4.50) du Secrétariat du Bureau des Résumés scientifiques à Paris ou encore du Chemical Abstracts Service à Columbus.

BULLETIN en AMÉRIQUE LATINE

Les membres de l'Union parlant l'espagnol ou le protuguais seront intéressés d'apprendre l'existence du Bulletin "NOTICIA: Centro Latino Americano de Fisica" publié à l'adresse suivante: Avenida Wenceslau Braz,
71-ZC-82 Rio de Janeiro, BRASIL.

AVIS de l'INDE

On demande au Secrétariat d'informer les membres de l'Union que le groupe en Inde responsable pour le CIUS, l'UIPPA, et les unions scientifiques, a changé de nom. Au lieu de: The National Institute of Sciences of India, il portera celui de: The Indian National Science Academy.

HISTOIRE de la PHYSIQUE

À la suite du succès du Séminaire sur le rôle et l'histoire de la Physique en éducation (MIT, juillet 1970), la Commission internationale sur l'Éducation en Physique désire ardemment faire écrire une Histoire de la Physique. Même si le besoin d'une telle Histoire est établi, de nombreuses difficultés sont inévitables. Le sujet sera discuté à nouveau lors de la prochaine réunion de la Commission, et les Comités nationaux sont invités à envoyer des commentaires sur la question à cette Commission.

VEUILLEZ NOTER: Congrès international

Depuis la publication de la liste complète et de l'addendum, l'Union a accordé son patronage à un autre congrès de classe 'C':

23. Symposium sur la Résonance magnétique
24-31 août 1971 - Rehovot, ISRAËL
inf.: Dr. D. Fiat, Weizmann Institute of Sciences, Rehovot, ISRAEL.

INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS

News-Bulletin No. 23 June 1971

INTERNATIONAL CONFERENCES

Readers should consult the list published in News-Bulletin No. 19 and the addendum in No. 22. They are reminded of the coming August meetings:

3.	12th Int. Conf. on Cosmic Rays (A)	August 16-25 Hobart
4.	7th Int. Conf. on Acoustics (A)	August 18-26 Budapest
5.	Int. Conf. on Amorphous and Liquid Semiconductors (B)	August 8-13 Ann Arbor
11.	Int. Conf. on Electron and Photon Interactions at High Energies (B)	August 23-28 Ithaca
14.	Conf. on Statistical Properties of Nuclei (B)	August 23-27 Albany
16.	3rd Int. Conf. on Vacuum UV Radiation Physics (B)	August 30-Sept.2 Tokyo

SPACE RESEARCH

Vice-President Bhagavantam, IUPAP's representative on COSPAR, reports that elaborate plans have been made for the XIVth meeting, to take place in Seattle, USA, from June 21-July 2, 1971. Many working groups will hold meetings on various aspects of space research. Care has been taken to exclude topics covered by other International groups. The meeting will be preceeded and followed by eight special Symposia, five in Seattle alone.

COSPAR's Executive Secretary, Mr. Z. Niemirowisz, notes that the programme should hold special interest for physicists who might care to attend the open working groups (samples of topics: Long baseline interferometry; Lunar laser; Galactic and extra-galactic astronomical measurements; the theoretical study of interplanetary dust; Upper atmosphere phenomena; chronic effects of ionizing radiation; latest investigations of Moon, Mars, Venus).

Local Committee is:
c/o Dr. Harold B. Liemohn,
COSPAR,
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Tel.: (206)655-0695 Cable: COSPAR, Seattle.

PERIODICAL TITLE WORD ABBREVIATIONS

The Abstract Bureau of ICSU has gone to the trouble of compiling a list of 7000 words or wor roots frequently used in titles of papers and has recommended abbreviations for them. This material will be useful for coding, memory storage, etc. It is based on the lists published since 1966 by the Standards Ctee Z39 of the American Nat. Standards Int. Copies ($4.50) may be obtained from the AB Secretariat (Paris) or the Chemical Abstracts Service (Columbus).

LATIN AMERICAN BULLETIN

The attention of Spanish and Portuguese speaking members is draws to the "NOTICIA; Centro Latino Americano de Fisica" published at Av. Wenceslau Braz, 71-ZC-82 Rio de Janeiro, Brasil.

THE HISTORY OF PHYSICS

Following the successful International Seminar on the Role of History of Physics in Physics Education (MIT, July, 1970), the International Commission on Physics Education is wrestling wit the problem of how to go about having written a History of Physics. The need for such a documen appears to be established, but numerous difficulties are obvious. Further discussions are planned, and the matter will be taken up again at the next meeting of the Commission. National Committees are invited to send comments to the Commission.

NOTICE from INDIA

The Secretariat has been requested to inform Union members that the adhering body in India for ICSU, IUPAP and other Unions has changed its name from "The National Institute of Science of India" to "THE INDIAN NATIONAL SCIENCE ACADEMY.

PLEASE NOTE

Since the publication of the list of International Conferences for 1971 and the addendum to this list, another Conference has been sponsored by the Union:

23. Int. Symposium on Magnetic Resonance - 'C'
August 24-31 - Rehovot, ISRAEL
inf.: Dr. D. Fiat,
Weizmann Institute of Sciences,
Rehovot, ISRAEL.

PHYSIQUE INTERNATIONALE

Bulletin de Nouvelles publié par l'U.I.P.P.A. no 24 - août 1971

SYMPOSIUM GÉNÉRAL sur la PHYSIQUE ⊙ - ⊕ ?

Le secrétaire E.R. Dyer de la Commission inter-union sur la Physique solaire-terrestre enquête sur le bien-fondé d'avoir un symposium général sur le sujet semblable aux symposia si bien réussis de Belgrade (1966) et Leningrad (1970). La ville proposée est Tokyo en vue de coïncider avec l'assemblée scientifique de l'IAGA. Il y aurait une revue générale des activités PST. Les Commissions et Comités nationaux de l'UIPPA sont invités à se prononcer sur ce projet dont l'Union pourrait être co-répondant.

CONGRÈS de l'UNION pour l'AUTOMNE

La liste complète des congrès internationaux de 1971 sous le patronage de l'UIPPA se retrouve dans le numéro 19 de ce Bulletin et l'addendum du numéro 22. Nous rappelons les congrès suivants

7.	Surfaces solides (B)	11-18 oct. Boston, E.-U.
	Centres colorés dans les cristaux ioniques (B)	13-17 sept. Reading, R.-U.
10.	8e Conf. sur les Accélérateurs de Haute énergie (B)	20-24 sept. CERN, GENÈVE
13.	Physique des hautes énergies & structure nucléaire (B)	7-12 sept. Dubna, URSS
15.	4e Conf. sur les Masses atom. et constantes ass. (B)	6-10 sept. Teddington, RU
18.	10e Conf. sur les Phénomènes dans les gaz ionisés (B)	13-18 sept. Oxford, R.-U.
21.	Physique des lasers (C)	1-7 sept. Isfahan, IRAN
22.	Solides quantiques (C)	5-10 sept. Banff, CANADA

L'ENSEIGNEMENT de la PHYSIQUE

La Commission internationale sur l'Enseignement de la Physique propose une conférence sur l'enseignement de la Physique aux non-physiciens en 1972. Il est question d'un congrès "B" qui se tiendrait peut-être en République Fédérale Allemande.

[ITÉ NATIONAL de l'UNION en FRANCE

Le secrétaire est maintenant monsieur J. BADOZ,
Laboratoire d'Optique physique,
École sup. de Physique et de Chimie industrielles,
10, rue Vauquelin,
75 Paris 5e, FRANCE.

Veuillez corriger le document UIPPA-16, page 104.

ASSEMBLÉE GÉNÉRALE de 1972

On a déjà annoncé que la quatorzième Assemblée Générale de l'Union et le cinquantième anniversaire de l'Union auraient lieu à Washington en 1972. Les dates sont maintenant fixées: du jeudi 21 septembre au mardi 26 septembre inclusivement.

Le C.I.U.S. ORGANISE le P.R.A.G.

Le programme conjoint CIUS-OMM sur la recherche atmosphérique globale exécutera l'expérience de l'Atlantique tropicale en 1974 et la première expérience globale en 1976.
Le but éventuel est d'augmenter le temps des prévisions météorologiques de deux jours à sept jours.

Le C.I.U.S. a récemment demandé à ses membres nationaux de répondre à un appel spécial pour le financement du projet à long terme.

L'UIPPA participe au PRAG.

STATUTS de la C.I.O.

Les statuts de la Commission internationale d'Optique datent de 1956.
Il est question de les reviser, et un texte préliminaire a été publié par le Secrétaire de la Commission, le professeur Viénot.

ERRATA : SUN

Nous désirons corriger deux erreurs qui se sont glissées dans notre Bulletin no 21.

Dans la version anglaise, il y a eu référence au "SI System" d'unités. Il s'agissait du SYSTÈME INTERNATIONAL d'UNITÉS ou tout simplement "SI". L'expression utilisée était donc une tautologie.

Nous avons aussi fait une erreur typographique. Le rad est 10^{-2} J/kg et non pas 10^{-12} J/kg.

RÉUNION de l'EXÉCUTIF

Le Comité exécutif de l'Union se réunira à la fin de septembre à Dublin.
Les communications des Commissions devraient donc avoir été expédiées au Secrétaire de l'Union, le docteur Butler.

INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS

News-Bulletin No. 24 August 1971

ICSU PROMOTING GARP

The ICSU-WMO joint programme for global atmospheric research is organizing its "pilot" tropical Atlantic experiment for 1974. This will be followed by the first global experiment in 1976.
The eventual aim of the programme is to provide sufficient new knowledge of meteorological conditions to extend accurate forecasting time from about two to about seven days.
ICSU has recently requested its national committees to respond to a special appeal for long-term financing.

INTERNATIONAL CONFERENCES : AUTUMN 1971

Readers should consult the list published in News-Bulletin No. 19 and the addendum in No. 22. They are reminded of the coming Autumn Conferences:

7.	Solid Surfaces (B)	Oct. 11-18 Boston, USA
8.	Color Centers in Ionic Crystals (B)	Sept. 13-17 Reading, UK
10.	8th Conf. on High Energy Accelerators (B)	Sept. 20-24 CERN, Geneva
13.	High Energy Physics and Nuclear Structure (B)	Sept. 7-12 Dubna, USSR
15.	4th Conf. Atomic Masses & Related Constants (B)	Sept. 6-10 Teddington, UK
18.	10th Conf. Phenemona in Ionized Gases (B)	Sept. 13-18 Oxford, UK
21.	Laser Physics (C)	Sept. 1-7 Isfahan, IRAN
22.	Quantum Solids (C)	Sept. 5-10 Banff, CANADA

ERRATA : SUN

We wish to correct two errors which appeared in News-Bulletin No. 21 concerning recommendations of the SUN Commission. The phrase "SI SYSTEM" appeared in a heading. This is a tautology, reference being to the "International System of Units" or "SI" (from "Système International").

There was also a typographical error: the rad is 10^{-2} J/kg and not 10^{-12} J/Kg .

GENERAL SYMPOSIUM on ☉ - ⊕ PHYSICS ?

Secretary E.R. Dyer of the Inter-Union Commission on Solar-Terrestrial Physics is inquiring into the feasibility of organizing a general symposium on the subject after the fashion of the Belgrade (1966) and Leningrad (1970).
Place and time suggested are Tokyo 1973, to coincide with the General Assembly of IAGA.
The symposium would present a general review of topics of interest to the Commission.
IUPAP Commissions and National Committees are invited to give their views on the proposal.

1972 GENERAL ASSEMBLY

It was previously announced that the 14th General Assembly and 50th Anniversary of the Union would be held in Washington in 1972.
The dates have now been fixed: Thursday, Sept. 21st to Tuesday, Sept. 26th inclusively.

ICO STATUTES

The present statutes of the International Commission for Optics date back to about 1956. They are now being reviewed, and a preliminary revised text is being circulated to interested parties by the Commission Secretary, Prof. J.C. Viénot.

TEACHING PHYSICS to NON-PHYSICISTS

The International Commission on the Teaching of Physics is planning an International Conference on the problems of teaching non-physics students (engineers, physicians, etc.). This would be a "B" Conference, possibly in West Germany. Proposed date is 1972.

EXECUTIVE MEETING

The Executive is meeting in Dublin in late September.
All communications from Commissions should now be to hand.

IUPAP NATIONAL COMMITTEE in FRANCE

The Secretary is now: Monsieur J. BADOZ,
Laboratoire d'Optique physique,
École Supérieure de Physique et Chimie indust.
10, rue Vauquelin, 75 Paris 5e, FRANCE.

Please correct IUPAP-16, page 104.

(1)

I.U.P.A.P.
Executive Committee
Minutes of the meeting of October 2nd-3rd, 1970
Copenhagen, DENMARK.

The Executive convened at 14:00 in the Niels Bohr Institute, where excellent arrangements had been made by Dr. S. Rozental.

President Bacher presided.

Were also present: Dr. S. Bhagavantam, Prof. W. Boas, Prof. W. Dekeyser, Prof. C.C. Butler, Prof. A. Kastler, Prof. L. Kerwin, Prof. V. Maier-Leibnitz, Prof. L. Pal, Prof. S. Rozental, Prof. V. Weisskopf.

During the meeting, Mr. Eisenstern, artist, assisted, making sketches of the committee members.

Sent apologies for their absence: Prof. D.I. Blokhintsev, Prof. G. Bernardini.

-.-

1. Introduction

The President welcomed the members to the meeting, and expressed the pleasure of the Executive at finding itself in the Niels Bohr Institute. Dr. Rozental welcomed the meeting to Copenhagen and expressed the hope that the members might find some time to savor the historical and either attractions of the City.

2. Agenda

Professor Butler reviewed the proposed agenda briefly, indicating that the jurisdiction over thin films (item 6), election methods (item 13), and ICSU business (item 9) might be the most time-consuming matters. It was agreed to leave item 12 over until the next day.

Thus presented, the agenda was adopted unanimously.

3. Minutes

Those of the pre-XIIIth General Assembly (September 10, 1969) and post-XIIIth General Assembly (September 13, 1969) meetings of the Executive Committee both held at Dubrovnik were presented and adopted unanimously on motion by Prof. Boas seconded by Dr. Bhagavantam.

4. Matters arising from (3)

These were referred to item 16.

5. Reports from Secretariat

a) Secretary-General Butler reviewed the routine but important business concerning international conferences and liaison with Commissions and National Committees.

He reported progress in obtaining information concerning conferences, but continued difficulties in the matter of some nominations (e.g. to the Magnetism Commission).

b) Professor Kerwin commented on the secretariat services at Quebec (the availability of Mme Balaux for half-time had been of great assistance), the distribution of the News-Bulletin, the publishing of IUPAP-16, the setting up of the Union fichier, the evolution of the conference check-list.

The reports were received, and the continuing of the half-time position at Quebec approved.

6. Commission Reports

The Secretary-General tabled the reports received thus far (copies to members of the Executive) and submitted several particular points for discussion:

a) No. 4: Cosmic Rays — President Bacher reviewed the several inter-union bodies dealing in particular with cosmic rays (IUPAP - COSPAR - IAU - IUCSTP) and the apparent lack of dialogue between them. It was decided to request the Union Commission to comment on this problem.

b) No. 5: Low Temperature — A problem had arisen with respect to the International Conference held in Japan in that the Japanese Physical Society which co-sponsored the meeting did not wish to accept papers from laboratories sponsored by armed services (e.g. the US Naval Research Laboratory). Discussion revealed unanimity on the point that scientific criteria only might be used in IUPAP-sponsored meetings.

It was agreed to modify the conference check-list to ensure this policy being carried out and the secretariat was instructed to do everything possible to enforce it.

It was then proposed by Dr. Bhagavantam and seconded by Prof. Dekeyser and unanimously adopted that:

Page 82 of IUPAP-16 be modified by adding (2.A(c))

"The accepting of papers must not be based on any but criteria of scientific merit".

A preliminary report had been submitted on the problem of helium stockage. The U.S. program aiming at storing 10^{11} c.f. had been stopped at about 2.5×10^{10} c.f. This was considered an insufficient reserve for world purposes. The Commission suggested that the Union might advise governments of the importance of this programme and possibly take action through ICSU.

President Bacher undertook to obtain information on the U.S. position and to report to the 1971 Executive meeting.

At. Prof. Weisskopf's suggestion, the Secretary-General undertook to obtain information on any comparable U.S.S.R. programme.

Prof. Boas reported that the Sydney Conference had had over 50% of its papers from outside the country.

c) No. 6: Publications — President Bacher undertook to find out why no report had been submitted.

d) No. 9: Magnetism — No replacement for the U.S.S.R. member had yet been suggested. The Secretary-General would follow this up.

e) No. 12: Nuclear Physics — It was noted that the Commission did not plan any major conference for the next four years, although several small conferences were scheduled. Professor Kerwin would contact Professor Bell and see if one might not be considered timely for 1972.

f) No. 14: Education — The Secretary-General reported that the Commission had been very active. Professor Kerwin noted that the Commission had reported two visa problems in connection with its Conference in Hungary. Dr. Kelly, Prof. Nagy, Prof. Pal, Prof. Kastler (then in Budapest) and Prof. Kerwin had intervened and the visas had finally been granted, although tardily. Professor Kastler expressed the opinion that the matter had been essentially technical (e.g. in the case of a South African delegate, the lack of diplomatic relations between Hungary and South Africa made visas complicated). A note would be sent to ICSU.

The Commission proposed to collaborate with I.U.H.P.S. on a "History of Physics". Professor Weisskopf expressed reserves about a book written by committee, and doubts about the availability of first-class physicists really cognizant on such history.

7. COSPAR

Dr. Bhagavantam reported the highlights of the Leningrad meeting. The main problem seemed to be to get the various components of COSPAR to work together. An example was the fact that the physicists on the various National Committees for COSPAR did not work through IUPAP, which had no official representatives on working groups or committees - although there were physicists present on them. He suggested that the Secretary-General write to the National Committees for COSPAR for suggestions of names of physicists which IUPAP might name to COSPAR committees.

The Secretary-General and Prof. Maier-Leibnitz pointed out that this situation was difficult to change. COSPAR already had national committees in all but four IUPAP countries. There was even a COSPAR country that was not in IUPAP.

It was decided that Prof. Kerwin should write to National Committees urging them to dialogue with COSPAR national committees and to submit names of members to the COSPAR working groups.

8. Thin Films

The International Committee on Thin Films had forwarded a proposal through Dr. Boas that an International Commission on the subject be set up. This area of Physics clearly had ramifications in Solid State, Semiconductors, and Magnetism, already the subject of three Commissions. One of the Executive's specific responsibilities being to delineate the fields for Commissions, the subject was the object of the lengthy detailed discussion.

No formal action was taken for the moment.

13. Commission elections

a) The difficulties attendant on elections to Commissions at General Assemblies were reviewed by the Secretary-General. The present system resulted in too many members (particularly corresponding members) named hastily, some of which were poorly identified and difficult to locate. The role of corresponding member had become ambiguous.

b) These comments and suggested remedies were discussed at length by all members.

It was agreed to consider the matter in depth at the morning meeting.

The session then adjourned.

-.-.-.

The Executive re-convened at 9:00 on October 3rd, 1970.

Just previous to the meeting, the members had the pleasure of seeing the bust of Niels Bohr, cast for the Union with the permission and generous cooperation of Mr. Eisenstern, the artist. This bust would be unveiled at the 50th anniversary meeting of the Union.

Busts of other prominent scientists had been collected in an exhibit, and were viewed by the members with much satisfaction.

13. Commission elections (cont'd)

c) The Secretary-General submitted a number of proposals:

: that the class of corresponding members be abolished;

: that the number of Vice-Presidents be fixed formally at 8;

: that Commissions consists of a President, Secretary, and ten members from ten different countries;

: that a procedure for election include nominations by National Committees and Commissions; circulation of their nominees, preparation of a slate by the Executive; circulation of the slate at the beginning of the Assembly; further proposals to be made by two countries of which the nominee was not a national; addition of such nominees to the slate; secret ballot.

d) These proposals initiated much discussion, including comments by Prof. Butler on limiting the length of the Secretary-General's mandate, by Prof. Maier-Leibnitz on the need for regular rotation of Commission members and the difficulty of getting National Committees to name young and active members, and by several concerning the need for certain changes in the Statutes (a preliminary list of possible changes had been circulated as a working document).

It was decided to adopt Prof. Butler's suggestions except for the number of Commission members, which was set as possibly varying between 7 and 10, and in addition it was agreed that it was difficult for Commissions to be given votes in the Assembly and that the Associate Secretary-General should be officially included in the Executive.

It was agreed that the Financial Commission did not come under the discussion, and should henceforth be named the Financial Committee.

9. ICSU Affairs

Dr. Bhagavantam commented briefly on the ICSU General Assembly held in Madrid the week previously. He noted that scientists were probably more likely than others to speak of cooperation between nations without acrimony. Prof. Bacher noted the need for a bolstered ICSU, and the difficulty of finding practical ways to do this.

Prof. Kerwin reported his opinion of the ICSU budget as being unsatisfactory. In spite of a 20% increase in national fees and an increase in the (minor) Union contributions, a $200,000 deficit over the next two years was forcast. An "appeal" to alleviate this was being considered. One factor for this situation was the GARP project, budgeted at $70,000. a year, with no assured revenues.

10. Financial Reports

a) The audited financial report for 1969 corresponded well with the preliminary report examined by the Executive in September 1969. It was adopted. The surplus of $10,000 brought the capital account to $53,000, close to the goal of one year's operating budget as capital reserve.

b) The state of the 1970 budget as of September 1st was examined. No exceptional items presented themselves, and the probable deficit of $500 corresponded with a budgeted surplus of $600. This was received.

11. Conferences for 1971

The Secretary-General reviewed the submitted proposals. The use of a check-list had improved the information available, but much remained to be done in this way. The Executive approved a number of proposals for Union sponsorship and requested Professors Butler and Kerwin to present a preliminary Conference budget for the next day (see item 12).

14. 1972 General Assembly

a) It was agreed that Washington, U.S.A., should be the locale of the Assembly.

b) The meeting coinciding with the 50th Anniversary of the Union, it was felt that a special budget should be provided (possibly $10,000., to be discussed in 1971), and that a large local committee would have more than the usual arrangements to make.

c) It was noted that there might be conflict with a EPS meeting and with the ICSU Assembly in Helsinki. Prof. Weisskopf agreed to write EPS concerning the dates of their 1972 meeting. The precise dates for the Washington meeting would then be set at the Executive meeting in September 1971.

d) It was noted that a special General Assembly would be held just previous to the regular General Assembly to make the changes in Statutes necessary for new-type elections at the regular General Assembly.

12. Financial Allocations for 1971

The Secretariat presented a proposed list of grants for international Conferences in 1971. Following some modifications, the list was approved. In Appendix I will be found the complete list of sponsored conferences, with pertinent grants.

In Appendix II is to be found the resultant budget which was adopted.

15. 1971 Executive Meeting

An invitation had been received from the Royal Irish Academy inviting the Executive to Dublin for its 1971 meeting.

Professor Pal also extended a warm invitation from the Hungarian National Committee to meet in Budapest. It was decided to accept the prior Irish invitation, and to hope that the Hungarian invitation would be partie remise.

It was noted that the ICSU Executive meeting in Ottawa on September 29-30, 1971, might make the Dublin meeting take place on (Sunday) 26th and 27th. Prof. Kerwin would stop in Dublin to see if these arrangements were convenient.

16. Other Business

a) Professor Butler commented on the evolution of the European Physical Society. It had a very large permanent secretariat and 7 commissions, most of which corresponded to IUPAP Commissions. It also had a number of working groups. A document existed describing its work. About 25,000 physicists belonged to the adhering groups and there were 840 individual members. Three meetings were held a year, there were 20 conferences yearly, and the operating budget was 300,000 Swiss Francs.

No difficulties were envisaged for IUPAP.

b) The matter of extending grants to conferences imposing a conference fee was discussed. The practice seemed rather generalized. Meetings also raised funds by renting exhibit space. It was agreed that such income should be mentioned in proposals.

17. Adjournment

Unanimous.

On the evening of October 2nd, the members of the Executive Committee and their wives were received to dinner by the Members of the Danish National Committee for IUPAP at the Lorelei Pavillon overlooking the Copenhagen Harbour.

This most delightful evening was greatly appreciated by the delegates, and warmly mentioned by President Bacher in thanking Dr. Rozental for the many courtesies extended by himself and his colleagues during the meeting.

The Executive also expressed its gratitude to Mr. Eisenstern, artist, who had contributed so much to the procuring for the Union of the bust of Niels Bohr which he had created. His generous donation of both honorarium and much time was greatly appreciated.

Appendix II

1971 Budget

INCOME

Member countries (169 x $300.)	$50,700.	
UNESCO	16,000.	
Interest	1,000.	
		$67,700.

EXPENDITURES

Conferences	$47,500.	
Commissions	8,000.	
Secretariat	4,000.	
Banking and Accounting	500.	
Publications	1,000.	
Subscriptions (ICSU, CIES, etc.)	1,500.	
Executive Committee	5,000.	
Contingencies	1,000.	
		$68,500.

PROPOSED DEFICIT ..... $ 800.

International Union of Pure and Applied Physics

TO Members of the IUPAP Executive Committee

FROM the Secretary-General

Proposed election procedure for use at 1972 and subsequent General Assemblies

(1) An outline scheme for IUPAP election procedures was considered at the 1970 Copenhagen meeting. I am now enclosing a draft paper which already incorporates comments by the President and Associate Secretary-General.

(2) Before sending this paper to National Committees and to Commissions for their comments, I would be grateful for suggestions for amendments.

(3) Your views on the size of commissions in 5(a) would be appreciated. At the Executive we decided to leave the number of commission members variable as between commissions. Possibly it would be simpler and would tend to avoid changes if all were agreed to have the same maximum size - perhaps 10 ordinary members. Of course, at the end of the day the Assembly has the power to add to the membership by vote. If the maximum size of each commission was laid down in the Statutes, I am inclined to the view that the Assembly would not capriciously add names.

(4) I should be most grateful for your comments very soon, preferably by return of post. I intend to send out the paper to National Committees and Commissions at the beginning of 1971 and to ask for their comments by the end of May, 1971.

C. C. Butler
1 December,
1970

International Union of Pure and Applied Physics

New arrangements for the appointment of Executive Committee and Commission Members at General Assemblies

1. Introduction

At its 1970 meeting in Copenhagen the IUPAP Executive Committee reviewed the arrangements adopted at recent General Assemblies for the appointment of Executive Committee and Commission Members. They noted that some physicists at the 1969 General Assembly in Dubrovnik were somewhat concerned when a number of additions to commissions were proposed from the floor but no formal elections were held. The Executive considered a new election scheme suggested by the Secretary-General and, after agreeing a number of modifications, they decided to seek opinions from National Committees and Commissions.

The Executive hope that IUPAP Members and Commissions will consider the proposed scheme during the first half of 1971 and submit written comments and amendments. The Executive plan to meet in Dublin in September, 1971, when they will reconsider their proposals in the light of the comments available. If they receive sufficient encouragement, the Executive will formally propose new election procedures for use at the 1972 Assembly. In this event, an Extraordinary General Assembly will be held immediately before the normal 1972 Assembly in order to consider the new scheme and, if it is adopted, to amend the Statutes accordingly. It should then be possible to use the new scheme at the 1972 Assembly.

In order to set the scene, the present procedure is described briefly in paragraphs 2 and 3, and the new scheme is outlined in paragraphs 4 and 5.

2. The present procedure - Executive Committee

The Statutes provide for a President, the Immediate Past-President, a First Vice-President (who acts for the President in his absence), an unspecified number of Vice-Presidents and a Secretary-General. The Executive is appointed by the General Assembly and serves for 3 years. The President serves for a maximum of 3 years and Vice-Presidents for a maximum of 6 years. By custom the First Vice-President succeeds the President; he may be chosen from among the Vice-Presidents or appointed directly to the office of First Vice-President.

In 1963 the Executive appointed Professor Kerwin as Associate Secretary-General.

Approximately 9 months before a General Assembly, National Committees are asked for nominations for the office of First Vice-President and for Vice-Presidents. Proposals must be sent to the Secretary-General 3 months before the Assembly. A list of all proposals is published at the beginning of the Assembly.

The outgoing Executive meets just before the Assembly and prepares its list of candidates for vacancies on the Executive, taking account of all the proposals received, the needs of the Union and the necessary world-wide distribution of the Executive membership. The Executive list is published at the beginning of the Assembly and, in practice, is usually confirmed at the last session of the Assembly. In recent years formal elections have not been necessary as no additional or alternative names have been proposed from the floor of the Assembly. Perhaps the major difficulty is that the number of Vice-Presidents is not fixed, which would make formal voting on any proposals difficult.

3. The present procedure - Commissions

Commissions consist of a Chairman, a Secretary, a number of members and provision is made for corresponding members. The Statutes do not fix the sizes of commissions. The 1960 General Assembly, however, decided that the membership should be limited to 6 or 7, together with a small number of corresponding members. The corresponding members were envisaged as advisers to the commission to which they were attached. They were not entitled to attend commission meetings except as alternates for full members.

Commissions are appointed for 3 years but there are no strict rules about the total length of service of commission members - 6 years is regarded as the normal period but some members aserve for very much longer.

The method of appointment at General Assemblies is as follows:-

(a) Nine months before the General Assembly the Secretary-General calls for nominations from National Committees and from the retiring Commissions.

(b) The full list of nominations is published at the beginning of the Assembly.

(c) The retiring Executive draws up its recommended list of commission members which is also published at the beginning of the Assembly. The appointment of commission members takes place during the last session of the Assembly. In practice, the Assembly accepts the Executive list but often adds names, particularly as corresponding members. Thus the number of corresponding members has grown considerably since 1960, i. e. from 1 or 2 to 6 or 7 per commission.

Nominations from the floor of the Assembly are valuable but cause considerable administrative problems. Firstly, the names proposed may not be generally known to the Assembly and consequently it is difficult tfor members to make significant judgments. Furthermore, the secretariat often have considerable difficulty in obtaining the addresses of the physicists added to the Executive List by the Assembly.

The main difficulty with the present procedure is that the number of commission members is not fixed in the Union Statutes; thus it is difficult to hold formal ballots for vacancies.

4. A suggested procedure for the future - Executive Committee

At its 1970 meeting in Copenhagen the Executive decided to re commend for discussion the following proposals:-

(a) The composition of the Executive should be President, Immediate Past-President, First Vice-President, 8 Vice-Presidents, Secretary-General and Associate Secretary-General. (This is the present size of the Executive.)

(b) The length of service of the President, Immediate Past-President and First Vice-President to be 3 years - as at present. Vice-Presidents to serve for 3 years with the possibility of one further term of 3 years - i.e. a maximum of 6 years. The Executive did not decide on fixed terms of service for the Secretary-General and the Associate Secretary-General.

Nominations would be called for as at present. The retiring Executive would publish its list, bearing in mind all the nominations received and the need to have an Executive composed of distinguished physicists expert in a wide variety of specialitite within physics and also reasonably representative of physicists throughout the world. The Executive list would be published on the first day of the Assembly. Additional names can be added to the Executive List after being proposed and seconded by National delegations. Both proposer and seconder must come from different countries and neither may belong to the candidate's country. If additional names are duly proposed and seconded, a secret ballot would be held, following the voting procedures established in the existing Union Statutes, i.e. voting by national delegations according to the numbers of votes prescribed for each delegation.

5. A suggested procedure for the future - Commission Members

The Executive recommends the following arrangements:-

(a) Each Commission should consist of a Chairman and Secretary together with 7 to 10 ordinary members (perhaps exceptionally 12 members). It would probably be preferable, however, if all commissions could be fixed at the same size, say, 10 members.

(b) The appointment of corresponding members would be discontinued.

(c) Normally, not more than one ordinary member of a Commission to come from any one country.

(d) The actual number of ordinary members to be fixed for each commission by the General Assembly, after receiving the advice of the Commission and the Executive Committee.

(e) Ordinary members would serve for 3 years and may be appointed for one further period of 3 years. Exceptionally, and for certain commissions only, e. g. SUN and Atomic Masses and Related Constants, a longer period of service may be permitted.

(f) The Chairman and Secretary would normally serve for 3 years (usually after 3 years as an ordinary member or exceptionally after 6 years).

The Election procedure would follow the one proposed for the appointment of the Executive Committee. The essential steps would be the following:-

(i) First-round nominations would be requested by the Secretary-General from Commissions and National Committees, with a deadline of 3 months before the General Assembly. All nominations would be published at the beginning of the Assembly. Names and full addresses, together with a brief statement on the candidate's professional experience and position, will be required on a special form.

(ii) The Executive Committee would publish its list of commission members early in the Assembly.

(iii) Additions to the Executive List can then be proposed - both proposer and seconder must come from two different countries, other than that of the nominee.

(iv) If additions to the Executive list for a commission are duly proposed and seconded, a ballot for the agreed number of places on that particular commission will be held and the results announced at the last session of the Assembly.

6. Summary of Proposals

The recommendations made in this paper can be summarized as follows:-

(i) The size of the Executive is fixed and terms of office are fixed for all the members, other than the Secretary-General and Associate Secretary-General.

(ii) The size of each Commission would be fixed and terms of office of the members are fixed.

(iii) The grade of corresponding member of commissions is abolished.

(iv) Formal elections will be held, if required, according to the rules established in the Union Statutes.

Department of Physics
Imperial College
London, S.W.7.

Professor C. C. Butler, FRS
Secretary-General, IUPAP

November, 1970

INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS

Executive Committee Meeting 2 - 3 October 1970

Report of Commission 15 : ATOMIC AND MOLECULAR PHYSICS AND SPECTROSCOPY AND PLASMA PHYSICS

A) REPORT ON THE CONFERENCES HELD IN 1970 AND APPROVED BY IUPAP

Three international conferences held in 1970 are on subjects in the field of commission 15. They are scheduled in the IUPAP General Report 1970 as conference N° 1, N°14 and N° 19 :

1) Conference N° 1 was the Second International Conference on Atomic Physics held in Oxford, United Kingdom, on 21-24 July 1970 and organized by Dr. G.K. Woodgate. The report of Dr. Woodgate on this conference is joined to the present report (Annexe I).

201 participants from 17 countries took part in this conference held at St Catherine's College, a modern Oxford College where most of the foreign participants had their residence at a moderate rate. 24 invited papers and 48 contributed papers were presented.

A volume comprising the invited papers is to be published by the Plenum Publishing C° in 1971.

All aspects of atomic physics have been discussed on this conference which represents a historical event in the development of atomic physics. The organizing Committee decided that the third conference on atomic physics will be held at Boulder, Colorado, 7-11 August 1972.

A total expenditure of £ 3,000 was met for the receipt of fees and of gifts from British industry, the Royal Society and from IUPAP. The IUPAP subvention amounted to $ 3,000. An equal amount has to be foreseen for the Boulder Conference in 1972.

2) Conference N° 14 was the International Conference on Precision Measurements and Fundamental Constants held at Gaithersburg, Maryland, U.S.A., on 3-7 August 1970, organized by Dr. L.M. Branscomb, the actual scientific director of National Bureau of Standards. A report on this conference is joined (Annexe II).

This was the first conference devoted to the field of fundamental constants as a whole. It achieved broad representation of most of the current work and except for the regrettable absence of contributions from the USSR, achieved good international participation.

193 participants took part in the conference, 154 from USA and 39 from other countries. 20 invited papers and 68 contributed papers were presented and discussed. The Proceedings will be published in a book edited by U.S. Government Printing Office. The issue is expected for April 1971.

.../...

The total costs of the meeting, including the publishing of the proceedings (the latter of the order of $ 25,000) amount to $ 80,000, with the following sources :

N.B.S.	$ 57,800
National Science Foundation	7,500
American Industry	5,800
Registration Fees	8,300
IUPAP	600
	$ 80,000

The IUPAP support was used for the trip fair of a European participant and for lunches costs of foreign invited speakers.

3) Conference N° 19 was the international conference on "Applications of Holography" held at Besançon, France, 6-11 July 1970 and organized by Professor J. Viénot, who is the actual secretary-treasurer of the International Commission of Optics. This meeting was financially sponsored by I.C.O. The support of IUPAP was a moral one without financial contribution.

A report on this conference is joined (Annexe III).

According to the title of the conference, most of the communications dealt with the applications of holography, but some of the lectures were on the fundamentals of holography in relation with the structure of light waves.

More than 400 participants attended this conference from 24 countries. U.S.A. (31 participants) and the communist countries (10 participants) were represented. 140 contributed papers were read and discussed. The summary of the communications has been published by "Nouvelle Revue d'Optique Appliquée" in its March-April 1970 issue and was available at the date of the conference.

B) PLANS FOR THE CONFERENCES TO BE HELD IN 1971

The Chairman of the Commission had proposed a commission meeting during the Atomic Physics Conference in Oxford. This meeting was held on 23 July 1970, but only a few members of the commission could be present. The minutes of this meeting have been sent end of July to the members of commission 15 and to the President and Secretary General of IUPAP, they are reproduced in Annexe IV :

After the lecture of the letter of the Secretary of the Commission, Professor Fite, dated May 29, 1970 and the answer given by the chairman to this letter (June 25), the members present at the meeting made proposals for Conferences to be held in 1971 having asked for sponsorship from IUPAP. Have been retained proposals for sponsorship the following conferences : (for)

.../...

1) The Seventh Atomic Collision Conference to be held in Amsterdam, 24-29 July 1971 organized by Professor J. Kistemaker where 600 participants are expected.

2) The Third International Conference on Vacuum UV Radiation Physics to be held in Tokyo, Japan, on August 30 to September 2, 1971. This conference will be organized by Professor Y. FUJIOKA and Professor K. Ishiguro, both of Tokyo University. 200 to 300 participants, including 50 to 100 from abroad, are expected to attend this conference.

3) The Second International Conference on Light Scattering in Solids to be held in Paris, 19-23 July 1971, organized by Professor M. Balkanski, where 200 participants are expected.

The Commission proposes to the Executive Committee to approve these conferences and to consider the possibility of sponsorship for them.

The financial situation is the following :

For the triennum 1970 to 1972 the Commission had a total of $ 15.000 at its disposal from which $ 4.500 have been engaged for 1970. So for the two years 1971 and 1972 we have $ 10.500 at our disposal. In his letter of May 29 to the chairman, Professor Fite argued that "we do have more business in odd numbered years than even" and proposed to take $ 6.500 for 1971 and to let only $ 4.000 for 1972. In his answer to the secretary, the chairman of the commission stated that $ 4.500 had been used for 1970 and that an equal amount should be reserved for 1972. This view is now supported by the fact that we will have in 1972 the third international conference on atomic physics for which a prevision of support of at least $ 3.000 is necessary.

In front of all these considerations, the members of the commission present in Oxford approved the proposals of the chairman for the following repartition :

For conferences in 1971 :	$ 6.000
For conferences in 1972 :	$ 4.500

The organizers of the 1971 conferences have applied to IUPAP for the following financial supports :

Amsterdam :	$ 4.500
Tokyo :	$ 2.500
Paris :	$ 3.000

(the prevision of the total budget is for the Tokyo conference : $ 20.000, for the Paris conference : $ 34.000).

.../...

Considering the money available for 1971, the commission, during its Oxford meeting, made the following proposals :

Reserve firmly for the Amsterdam conference $ 3.000 -
" " Tokyo " $ 2.000 -
Ask Commission 10 (Solid State Physics) to give financial support to the Paris conference.

If such a support is not possible, reserve the remaining $ 1.000 to the Paris meeting.

If such a support by commission 10 is possible, give $ 500 more to each of the two other conferences. The IUPAP support given to the Tokyo meeting will serve essentially to permit attendance of participants from abroad.

The Chairman of the Commission
responsable for this report :

A. Kastler

A. KASTLER

ANNEXE I

SECOND INTERNATIONAL CONFERENCE ON ATOMIC PHYSICS

July 21 - 24, 1970 at St. Catherine's College, Oxford

REPORT ON THE SECOND INTERNATIONAL CONFERENCE ON ATOMIC PHYSICS FOR THE COMMISSION OF ATOMIC AND MOLECULAR PHYSICS OF I.U.P.A.P.

Two hundred and twenty-one participants from seventeen countries took part in the Second International Conference on Atomic Physics at St. Catherine's College, Oxford, from July 21 to July 24, 1970.

A total expenditure of about £3,000, excluding residence charges at St. Catherine's College, was met from the receipt of fees and of gifts from Mullard Ltd., Imperial Chemical Industries Ltd., the Royal Society and from I.U.P.A.P. This last subvention amounted to $3,000. The cost of overheads in the organization of the conference was met by Oxford University.

The purpose of this conference, the second in a series, was to bring together physicists working in the various sub-fields of atomic physics and to review the status of fundamental research in the entire field of atomic physics with emphasis on current advances and future possibilities. The scope of the subject matter was therefore wide, and it was notable that attendance at any particular session was not confined only to specialists in the topic being presented.

Twenty-four invited papers and forty-eight contributed papers were presented, and these were mixed together according to subject matter. The sessions covered quantum electrodynamics and other fundamental problems; free-ion experiments; spectroscopic instrumentation; scattering; spin-polarization; beam-foil spectroscopy; applications of lasers; isotope shift; optical pumping; theoretical problems in many-body perturbation theory, complex spectra and collisions; applications of atomic beams. In addition there was one pair of parallel sessions in which contributed papers on (a) atomic collisions and (b) atomic structure were presented, and there was a panel discussion on interatomic potentials.

A volume comprising the invited papers is to be published by the Plenum Publishing Company early in 1971.

During the conference the organizing committee resolved that a third conference in the series is to be held at Boulder, Colorado, from August 7 to August 11, 1972.

G.K. Woodgate,
Clarendon Laboratory,
Oxford.

August 19, 1970.

hairman of the Organising Committee:
.K. Woodgate
arendon Laboratory,
xford OX1 3PU.
lephone: Oxford 59291

INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS

Executive Committee Meeting

Copenhagen, Denmark. 2nd/3rd October, 1970

The meetings will start after lunch on Friday, October 2nd, and should conclude at lunchtime on Saturday, October 3rd. It is possible, however, that it will be necessary to hold an afternoon session on October 3rd. Further details will be sent out in September.

Provisional Agenda

(1) Introduction
(2) Adoption of the Agenda
(3) Minutes of Executive Committee, 1969, and of the XIIIth General Assembly, Dubrovnik, Yugoslavia.(Please bring IUPAP 16 and Executive Minutes already circulated.)
(4) Matters arising from the minutes.
(5) Reports by the Secretary-General and the Associate Secretary-General
(6) Commission Reports
(7) COSPAR - Report by Dr. Bhagavantam.
(8) A possible Commission or Sub-Commission on Thin Films. A proposal from the International Committee on Thin Films has been sent to Dr. Boas.
(9) ICSU affairs - reports by the President, by Dr. Boas and by Professor Kerwin.
(10) Financial Report for 1969 and Budget for 1971.
(11) Conferences for 1971 and later years.
(12) Financial allocations for 1971.
(13) Possible new scheme for appointing commission members in 1972 - see attached paper.
(14) Arrangements for the 1972 General Assembly.
(15) Arrangements for 1971 General Assembly. (as yet no invitations have been received).
(16) Other business
(17) Conclusion

C. C. Butler
Secretary-General

August 1970

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Telex: Impcol, London - 261503.

INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS

Copenhagen, Denmark 2/3 October 1970

Elections to Commissions at General Assemblies

(1) At Dubrovnik it became clear that many physicists were unhappy about the procedure adopted for the appointment of commission members. The purpose of this paper is to review the existing procedure and to suggest possible changes.

(2) The present situation

Each commission has a Chairman, Secretary and several full members. In addition, there are corresponding members. The numbers of full members and corresponding members are not prescribed by statute. The 1960 General Assembly made some decisions about commission membership: "The membership of each specialist commission is limited to 6 or 7. The Commission have the right to nominate, with the approval of the Executive Committee, some corresponding (i. e. associate) members. These may also be nominated by the General Assembly. They will be regarded as advisers by the Commission to which they are attached. They will receive the documents relating to the work of the Commission, may be consulted on special points, and may volunteer information. This co-operation will be maintained by correspondence, except in cases where they are asked to replace an absentee member at a meeting."

Since 1960 the number of corresponding members has grown to 5 or 6 per commission and they are almost always appointed by the General Assembly.

There are no strict rules about the length of service in Commissions. It is generally accepted that six years is an appropriate period. Should this include time as a corresponding member? Should the Chairman and Secretary serve for three or more years after a period as ordinary member? In practice some people serve in various capacities for very long periods.

The method of appointment at General Assemblies is as follows:

(a) The Secretary-General calls for nominations from member countries and from the retiring commission. In practice, all commission members must be appointed or reappointed at each General Assembly.

(b) The full list of suggestions is published at the beginning of the Assembly.

(c) The Executive draws up its recommended list which is published.

(d) The "elections" take place during the last session of the Assembly.

In practice, the Assembly accepts the Executive list but tends to add names. Some countries, notably the USSR, sometimes request changes in the names of their nationals listed by the Executive. New names are often added from the floor of the Assembly, usually as Corresponding Members. Hence the number of Corresponding Members has grown considerably since 1960, i. e. from 1 or 2 to 6 or 7 per commission. Nevertheless in no strict sense does an election take place. Indeed, it can hardly do so as long as there are no basic ground rules.

(3) A possible procedure for 1972

It is suggested that the Executive Committee should consider a new procedure for 1972 at its 1970 meeting. It would then be possible to consult member countries and commissions by correspondence during the first half of 1971 and to reconsider the proposals at the 1971 Executive in the light of comments received. With this time scale it might be possible to use a new system in 1972.

The following changes are suggested to tighten up procedures:-

(a) The numerical membership of each commission should be fixed. Each will require a Chairman and Secretary plus up to, say, ten full members. Individual commissions might conceivably vary somewhat in size, but the size of each should be fixed.

(b) Corresponding members should be abandoned.

(c) Save in very exceptional circumstances, the period of service should be fixed at six years with half the members changing at each Assembly. Possibly a period of nine years should be possible if, during the last three, the member is either Chairman or Secretary.

(d) A suggested election procedure would be as follows:-

(i) the Secretary-General would call for nominations for vacancies from member countries and commissions and publish all nominations - perhaps before the Assembly meets.

(ii) The Executive would choose its list.

(iii) Member countries could propose additions to the Executive List by the end of the first day of the Assembly. Perhaps proposers and seconders from different countries should be required.

(iv) Where necessary, a final election would be held. Heads of delegations would vote on ballot papers according to the voting rules in the Statutes.

(4) Comments

The new procedure is more formal than the present one. The voting might be fairly complex and the Secretariat would need assistance.

I suggest abandoning the distinction of Corresponding Members because I don't think it is a very real one. Much Commission business is conducted by correspondence anyway and under the present system corresponding members frequently attend meetings. There is a possibility, however, that enlarged commissions of full members only will expect proportionally increased travel grants.

The Executive would have the responsibility of ensuring a wide spread of national representation in their proposals. It is possible, however, that a strict election procedure might reduce the number of commission members from small countries. At present, the corresponding members include a number from small and developing countries.

C. C. Butler
August, 1970.

INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS

COMMISSION REPORTS

Copenhagen, October 2/3, 1970

1. Financial Commission
2. SUN
3. Thermodynamics & Statistical Mechanics
4. Cosmic Rays
5. Very Low Temperatures
6. Publications
7. Acoustics
8. Semiconductors
9. Magnetism
10. Solid State Commission
11. Particles & Fields
12. Nuclear Physics
13. Atomic Masses & Related Constants
14. Physics Education
15. AMPS
16. Plasma Physics
17. ~~100~~

sehr geehrt

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940

247 x 36
741
1482
8892

INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS

Commission Reports 1969-70 Commission No. 2

S. U. N.

The Secretary, Professor Stille, writes:-

"There is no conference which is supported by the SUN Commission in 1970. The SUN Commission takes some interest in conferences like the International Conference on Precision Measurements and Fundamental Constants to be held 3/7 August 1970 at NBS, Gaithersburg, Maryland, USA, or the next International Conference on Atomic Masses and Related Constants to be held from 6/10 September 1971 at NPL, Teddington, Middlesex, England; but these have not been supported by the SUN Commission in an official form.

Up to now, I cannot see any reason for the SUN Commission proposing a special conference on a subject of its scope to be held in 1972 or in later years.

The SUN Commission normally has two meetings during our 3-year period, one connected with the General Assembly and another one year or one year and a half before the General Assembly. For the year 1971 the SUN Commission got an invitation by its member Professor Djakov to meet in Bulgaria; besides that, there is the idea to have the 1971 meeting before or after the next International Conference on Atomic Masses and Related Constants, either at NPL or, once more, at Imperial College, if you kindly can provide us with a meeting room. Which of these two places will be chosen by the members of our commission is in some way depending on the date of the next General Assembly in 1972, which we do not yet know. Therefore, I should be very grateful to you for a short information after this date has been fixed.

Work on corrections and amendments to document IUPAP 11(1965) is continuing. Some minor additions have been made to the SUN report to IUPAP which is reproduced in IUPAP 16, pages 35-40. In particular some additions have been made to the last paragraph of the SUN report (page 40).
The atomic mass unit (u), the parsec (pe)and the astronomical unit (A. u) have been added to the first list of units which should be used together with SI units.
Furthermore, the rad(10^{-12} J/kg) is recommended for temporary use with SI units.

THERMODYNAMICS AND STATISTICAL MECHANICS

1. Conferences sponsored in 1970.

International Conference on Thermodynamics, Cardiff, 1 - 4 April 1970.

The above conference received sponsorship but no financial support from IUPAP. The conference was in addition sponsored by IUPAC.
The organizing committee consisted of seven British physicists and/or chemists, the chairman was Professor P.T. Landsberg, Cardiff. The conference was attended by about 180 scientists.
There were seven conference sections devoted to the following topics : 1. Phases, Surfaces and Thermodynamic Limit, 2. Foundations, 3. Irreversibility and Quantum Mechanics, 4. Thermo-mechanics, 5. Statistical Thermodynamics in Astrophysics and Relativity, 6. Late Papers, 7. Pedagogical Papers.
The papers presented were on the whole of a good standard and lively discussions developed at the moeeting. The conference was thought to be very successful.

2. Proposed 1971 meetings.

a. The commission on Thermodynamics and Statistical Mechanics requests sponsorship for the international conference on Statistical Mechanics to be held in Chicago 29 March - 2 April 1971. The organizer of this conference is Dr. Stuart A. Rice, The James Franck Institute, The University of Chicago. The conference has also the full approval of the University of Chicago itself. Financial support is recommended in the amount of $ 5.000,- . It should be stressed also that this meeting replaces the previously proposed meeting to be held in Mexico City, October 1970, which had already received IUPAP sponsorship and which had to be cancelled.

b. Conference on theoretical physics and biology.
In 1967 and 1969 IUPAP sponsored on the suggestion of the Thermodynamics and Statistical Mechanics Commission a Conference on Theoretical Physics and Biology organized by l'Institut de la Vie. These conferences were so highly successful that it has been decided to have another such conference in 1971. The commission of Thermodynamics and Statistical Mechanics proposes to sponsor again this meeting which will be held 21-26 June, 1971, at Versailles.

The organizer is : Prof. M. Marois, Institut de la Vie, 89 Bd Saint-Michel, Paris 5. No financial support is requested. Admission by invitation only. Organizing committee :

P.Auger, Paris; S. Bennett,Chapel Hill; S.E.Bresler, Leningrad; G.Careri,Rome; E.G.D.Cohen,New York; A.Cournand,New York; M.Eigen,Göttingen; W.Fairbank,Stanford; A.Fessard,Paris; H.Fröhlich,Liverpool; D.Glaser,Berkeley; D.Hodgkin,Oxford; F.Jacob,Paris; M.Kac,New York; A.Katchalsky,Rehovoth; J.C.Kendrew,Cambridge(G.B.); M.Kotani,Tokyo; R.Kubo,Tokyo; A.Lichnerowicz,Paris; P.O.Löwdin,Uppsala; F.Lynen, Munich; O.Maaløe,Copenhagen; K.Mendelssohn,Oxford; R.S. Mulliken, Chicago; M.F.Perutz,Cambridge(G.B.); I.Prigogine,Brussels; I.Rabi,New York; L.Rosenfeld, Copenhagen; E.E.Salpeter,Ithaca; S.L.Sobolev,Novosibirsk; A.Szent-Györgyi,WoodsHole; H.Theorell,Stockholm; A.Tiselius,Uppsala; V.F.Weisskopf,Cambridge(USA); E.P.Wigner, Princeton; C.N.Yang,Stony-Brook.

The composition of the organizing committee ensures that the meeting will be truly international and on the highest possible level.

3. Proposed conferences to be held in 1972 or later.

The commission of Thermodynamics and Statistical Mechanics proposes to sponsor an international conference on Statistical Mechanics in spring 1973. No decision has been taken as yet as to the location. A decision will be made at the next commission meeting either at or before the Chicago conference.

(4) COSMIC RAYS COMMISSION

Professor Wilson writes to explain that the Commission has not been active in 1970. The full report of the 1969 meeting in Budapest should be available soon; the responsibility for publication rests with the Hungarian Academy of Sciences.

The Commission expects its next meeting to be in Hobart, Tasmania, in 1971. Professor Wilson is anxious to have a minimum grant of $6,000 but perhaps really $8,000 for the Australian Organising Committee in addition to the Commission's allowance for travel.

The Cosmic Ray Commission meets bi-annually. The 1973 meeting will be in the USA. The Commission prefers the bi-annual arrangement but are willing to consider moving to a triennial system after 1973.

Türkenschanze

VERY LOW TEMPERATURES Commission No.5.

5

6

1. Membership on the Commission with dates of initial appointment is as follows:

J. Bardeen, University of Illinois (1963)

T. Sugawara, University of Tokyo (1966)

N. E. Alekseevskii, Institute for Physical Problems, Academy of Sciences of the USSR (1966)

W. Buckel, Physikalisches Inst. der Tech. Hochshule (1966)

A. H. Cooke, Clarendon Laboratory (1969)

B. Dreyfus, University of Grenoble (1969)

O. V. Lounasmaa, Technical University of Helsinki (1969)

J. L. Olsen, Laboratorium für Festkörperphysik (1966)

Ylem S. Safrata, Nuclear Research Institute, Czechoslovak Acadmey of Sciences (1966)

A. K. Sreedhar, Solid State Physics Laboratory, Delhi (1969)

Ylem K. W. Takonis, Kamerlingh Onnes Laboratory, University of Leiden (1966).

2. The Twelfth International Conference on Low Temperature Physics, LT12, will be held in Kyoto, Japan, 4 September - 10 September, 1970. Information in regard to this conference is attached as Appendix A.

3. A conference satellite to LT12 on Transport Properties of Solids will be held at Sydney, Australia, 27-29 August, 1970. Information in regard to this conference is attached as Appendix B.

4. No plans are being made to sponsor conferences in 1971.

5. Preliminary plans are being made to have the next International Conference on Low Temperature Physics, LT13, in late August, 1972, and to have such conferences every three years thereafter. This will put the low temperature conferences in different years than the magnetism conferences, which are now on a three year cycle with a meeting scheduled for 1973. While a final site has not been chosen, it will most likely be in the western part of the U.S.A. or of Canada. Invitations have been received from La Jolla, California, Simon Fraser University in British Columbia, and Boulder, Colorado.

6. The next meeting of the Commission will be held in Kyoto in September, 1970.

John Bardeen

John Bardeen, Chairman

7

The 12th International Conference on Low Temperature Physics

Place: Kyoto, Japan

Time: Sept. 4-10, 1970

Language: English

Organized by:
Science Council of Japan

Organizing Committee:
Chairman Prof. E. Kanda
Secretary Prof. T. Sugawara

Sponsorship:
International Union of Pure and Applied Physics
The Physical Society of Japan

Supported by:

International Union of Pure and Applied Physics (Category A)	US $ 5,000
Industries in Japan	US $ 40,000
Japanese Government	US $ 30,000

Total Budget:
about $ 80,000

Participants: 800 (350 from abroad)

Paper: invited 25
contributed about 300

Proceedings:
published by Gakujutsusho Shuppankai (Tokyo)
about 800 pages
price 7,000 Yen (US $ 20 approximate)

Registration Fee:
5,000 Yen (US $ 14 approximate)

International Conference on
Transport Properties of Solids

Place: Sydney, Australia

Time: August 27 to 29, 1970

Organized by:
Australian Institute of Physics

Organizing Committee:
Chairman Dr. G.K. White
Secretary Mr. J.A. Birch

Steering Committee:
Prof. J. Friedel (France), Prof. P.G. Klemens (U.S.A.)
Prof. S. Nakajima (Japan), Prof. A.B. Pippard (England)
Dr. G.K. White (Australia)

Supported by:
International Union of Pure and Applied Physics
(Category C)
Australian Academy of Science
Commonwealth Scientific and Industrial Research Organization
Industry

Total Budget:
US $ 10,000

Participants:
about 150

Paper: invited: about 8
contributed: about 30

Proceedings:
No special report will not be published. Contributed papers will be published in a special issue of the Australian Journal of Physics.

Registration Fee:
$ A 15

ACOUSTICS Commission No.7

1. Collaboration with other international bodies concerned with Acoustics. The Commission, in agreement with the permission grated by IUPAP general Assembly, has asked to IUTAM, IUPS, IUBS and the Biophysics Union to nominate official observers who could establish liaison between ICA and each of these International Bodies which are interested in some aspects of Acoustics. The collaboration has been started efficiently by such a procedure with IUTAM, IUBS and IUPS; the nominations by the other two bodies are still to be made. The Commission is trying to create links with many more other international organizations which are interest in the progress of Acoustics.

2. Information and Coordination Center. Following a decision taken by the preceeding Commission in its last Meeting (Rome, May 1969), an Information and Coordination Center has been established, whose services consist in collecting information on meetings on acoustic subjects open to international participation and in diffusing periodically the information to national Societies, Commissions and Journals. The service has up to know produced a first list of events, and has in preparation a second one. The service is organized by dr. Kolmer of Czechoslovakia (corresponding member in the Commission).

3. 1970 Meeting of the Commission. The Commission has held its 1970 Meeting on May 5th and 6th in Budapest. The main issues which have been treated are those concerned the 7th ICA Congress which will be held in Budapest in August 1971 and the preliminary plans for the 8th ICA Congress to be held in London during 1974. The 7th Congress constitutes the most important activity of the Commission since the 6th Congress in Tokio in 1968. It in planned for all branches of Acoustics and for a participation of over one thousand scientists..The Commission has chosen the subjects of invited papers in order to underline the importance of some problems of modern acoustics from one side and biology and physiology from the other. Connected with the Congress, two satellite symposia on "industrial noise" and "speach" will be organized by Hungarian scientists During the Congress a few round table discussions on problems of acoustic research which are at the present receiving relevant attention will be organized.

   The Congress will have a particular importance because it is the first ICA Congress in an European Eastern Country.

   The budget which is envisaged is of about 65.000 USA dollars.

4. Financial matters. The financial operation of the Commission is very difficult. The annual meeting are possible only because members agree to seek elsewhere the largest part of the money necessary for their travel. In 1970 it was possible to distribute about 100 USA dollars to each participant from Countries different from the host Country.

5. Activity of the Commission in 1971. The entire activity of the Commission will be concentrated on and during the 7 Congress in Budapest. Two Commission meeting during that period are planned. Acconding to the Commission practise the Budapest Congress will be the only activity for a three years period and for this exercise the Commission ask for 5000 Dollars support from IUPAP.

SEMICONDUCTORS Commission No.8.

1. The 10th International Conference on the Physics of Semiconductors is being held at Cambridge, Mass., U.S.A. in August, 1970 and the Commission will be meeting on August 18th in Cambridge, Mass.

2. The Commission will be considering the future sequence of Conferences. It is almost certain that we shall recommend the 11th Conference be held in Warsaw in July or September, 1972. The officers will be:

   Chairman of Organizing Committee : Prof. dr. L. Sosnowski

   Vice-Chairman : Prof. dr. J. Kolodziejczak

   Address: Institute of Physics of Polish Academy of Sciences,
   Warsaw,
   Poland.

3. We shall be recommending a "B" Conference on Amorphous Semiconductors. It will be in the U.S.A. probably at Michigan, with Professor M. Cohen as Organizer. It will be held in September, 1971.

4. I am confident that the Commission, having satisfied itself of the criteria, will be recommending I.U.P.A.P. recognition of both these meetings.

5. Owing to the fact that the Commission will be meeting so soon, this report is brief and a more detailed report will be submitted after the Commission meeting.

E.W.J. Mitchell
Chairman.

MAGNETISM Commission No. 9

In writing on behalf of the Magnetism Commission, I wish to let you know that there has been no change in the 1970 conferences which come under the jurisdiction of the Magnetism Commission and which were given the sponsorship of I.U.P.A.P. Although the essential information on these conferences has already appeared in some lists distributed by I.U.P.A.P., it is reproduced below for your convenience. The category (A,B or C) assigned to each conference is also stated.

Magnetism Category A
Grenoble, France - September 14-19, 1970
Organizer: Prof. L. Neel
Lab. d'Electrostatique et de Physique du Metal
Cedex No. 166
Grenoble-Gare 38, FRANCE

Density of Electronic Charge and Spin Category C
Aussois, France - September 7-12, 1970
Organizer: Dr. E. F. Bertaut
Lab. d'Electrostatique et de Physique du Metal
Cedex No. 166
Grenoble-Gare 38, FRANCE

Magnetic Thin Films Category C
Prague, Czechoslovakia - September 21-23, 1970
Organizer: Prof. L. Valenta
Dept. of Theoretical Physics
Charles University
Ke-Karlovu 3, Prague 2, CZECHOSLOVAKIA

As to conferences in 1971 or 1972, the present situation is that the Magnetism Commission does not have any plans for these years. For 1973, however, the Magnetism Commission is planning an International Conference on Magnetism (Category A). While previous deliberations of the Magnetism Commission suggest that Moscow has the first priority for hosting the 1973 Conference, a formal decision on this matter will not be made until the Commission meets in Grenoble during September, 1970.

Listed below are the present Members and Corresponding Members of the Magnetism Commission:

Chairman: W. C. MARSHALL, United Kingdom
Secretary: G. T. Rado, U.S.A.

Members: A. Blandin, France
? , U. S. S. R.
S. Chikazumi, Japan
E. Kneller, West Germany
C. J. Gorter, Holland

Corresponding Members:

L. Valenta, Czechoslovakia
R. Kubo, Japan
W. Andra, East Germany
R. Pauthenet, France
C. Herring, U. S. A.

Member from the U.S.S.R. is denoted by a question mark because the U.S.S.R. Academy of Sciences has not yet nominated a replacement for the late Academician L. V. Kirenski.

G. T. Rado

G. T. Rado, Secretary
Commission on Magnetism
International Union of
Pure and Applied Physics

I.U.P.A.P. - COMMISSION N° 10

COMMISSION ON SOLID STATE PHYSICS

Chairman : Professor W. BOAS, Department of Metallurgy, University of MELBOURNE, Parkville, Victoria 3052, Australia

Secretary: Professor E.F. BERTAUT, Centre National de la Recherche Scientifique, Cédex 166, Grenoble
Centre d'Etudes Nucléaires, Cédex 85, Grenoble, France

COMMISSION MEETINGS

The chairman and secretary met in February 1970 at Paris in order to discuss pending matters, past and future conferences. A full meeting of the Commission was not planned in 1970 where the chairman and/or the Secretary have met occasionnally with at least five members of the Commission.

INTERNATIONAL CONFERENCES

1970

The 1970 Conferences were already approved at the General Assembly (Dubrovnik 1969).

1°) Sagamore III - "Electronic Charge, Spin and Momentum Densities" Aussois (France), September 9-12 (satellite conference to the International Conference on Magnetism, Grenoble, September 14-19)

Organizers are Dr. R.J. WEISS, Watertown Arsenal, Watertown, (USA)

and Dr. E.F. BERTAUT, CNRS, Cédex 166, Grenoble (France).

Expected are about 40 USA and 80 European participants. Official grants are 500 $ from the International Union of Crystallography (IUCr), travel grants from American industrial and universitary laboratories for American participants, 4 000 French francs from CNRS for European participants.

Moral sponsorship from IUPAP.

2°) "Metastable Alloys"
Brela (Yougoslavia), September 28-30

Organizer Professor M. PAIC
Institut Za Fisiku Svencilista
P.O. B. 816, Zagreb, (Yougoslavia)

Expected are about 100 participants ~1000 $

Sponsorship from IUPAP.

.../...

1971

1°) "3rd International Conference on Crystal Growth"
Marseille (France), July 5-9

Organizers : Professor W. DEKEYSER, Gent, Belgium
Professor KERN, Marseille, France

Secretary : Dr. MUFTACHIEV (University of) Marseille, France

Grant asked to IUPAP of 1000 $ was unanimously approved by all regular and corresponding members of the Solid State Commission.

Other sponsors are I.C.C.G. (International Committee on Crystal Growth) providing 24.000 french francs and probably IUCr and IUPAP (amounts unknown). Total budget is about 45.000 $.

2°) "Colour Centers in Ionic Crystals"
Reading, U.K., September 13-17

Organizer : Professor E.W.J. MITCHELL, J.J. Thomson Physical Laboratory, University of Reading, Whiteknights, Reading

Previous conferences : Roma, Stuttgart, Illinois, Oregon

Number of participants expected is about 300

The organizer asks for a IUPAP grant of 5 000 $. The Commission* would agree on 3 000 $ at max. Two corresponding members of the Commission are actively participating. Professor CHIARROTTI (Italy) belongs to the International Advisory Board and Dr. S.C. JAIN (India) is invited speaker.

3°) "International Conference for Solid Surfaces" = I.C.S.S.
Boston (USA), October 11-15

Organizer : Professor C.B. DUKE, University of Illinois, Urbana 61801, USA.

This conference is organized on a financially self-supporting basis.

The Commission warmly agrees* with the moral sponsorship, asked by Professor DUKE. An answer to another question of Professor DUKE for a three or four years periodicity of such Solid Surface Conferences and corresponding sponsorship is postponed by the Commission members after the experience of this first Conference.

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* answers of some members are still out

4°) "2nd International Conference on Light Scattering in Solids"
Paris, France, July 19-23

Organizer : Professor M. BALKANSKI, Faculté des Sciences,
9, Quai Saint-Bernard, Paris, 5ème

Previous Conferences : New York (1968)

Number of expected participants is about 200 with a total budget of 34.000 $. The organizer asks the Commission 3.000 $.

The Commission* 10 proposes 1.500-2.000 $

This symposium is also recommended by Commission 15.

1972

"7th International Symposium on the Reactivity of Solids"
Bristol, U.K., July, 17-21.

Organizer : Professor J.S. ANDERSON, Inorganic Chemistry
Laboratory, University of Oxford, OX 1 3QR

Number of expected participants is about 350. Previous Conferences were sponsored by IUPAC as will be also this one. Only moral sponsorship from IUPAP is required.

The Commission 10 agrees*on moral sponsorship in view of the high Solid State Content of the symposium. The Secretary of the commission wants to see IUPAP-representatives in the organizational scheme.

Other topics will be suggested in due course.

For information :

1973

"3d International Meeting on Ferroelectricity"

Organizer : Professor W. COCHRAN, Edinburgh,U.K.

After the first meeting (Prague 1966) and second meeting (Tokyo 1969) a four years interval has been proposed in order to avoid the coincidence with the General Assembly of the International Union of Crystallography (Tokyo 1972). Thus the third meeting on ferroelectricity is postponed to 1973 and application for IUPAP-grants will be received and studied in due time.

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* answers of some members are still out

BUDGET

The financial situation of the Commission is rather sound

1970	Metastable Alloys.	1 000 $
	Sagamore III	-
1971	Crystal Growth	1 000 $
	Colour Centers	3 000 $
	Scattering of Light	~ 2 000 $
	Solid Surfaces	-
	TOTAL . .	7 000 $

There is place in 1972 for the organization of 3 to 4 Conferences with an average grant of 2 000 to 2 500 $.

The Chairman

W. Boas

W. BOAS

The Secretary

E.F. Bertaut

E.F. BERTAUT

(A) Conferences Supported in 1970

(1) XV International Conference on High Energy Physics (Category A) to be held in Kiev, U.S.S.R. Dates: 26 August to 4 September, 1970.
Chairman of Organizing Committee: N.N. Bogolubov, Joint Institute for Nuclear Research, Head Post Office, P.O. Box 79, Moscow, U.S.S.R.
Financial support: U.S. $4,000.

(2) International Conference on Instrumentation for High Energy Physics (Category B) to be held at Dubna, U.S.S.R. Dates: September 8-12, 1970.
Chairman of Organizing Committee: V.P. Dzhelepov, Joint Institute for Nuclear Research, Head Post Office, P.O. Box 79, Moscow, U.S.S.R.
Financial support: U.S. $1,000.

(B) Conferences Planned for 1971

(1) VIII International Conference on High Energy Accelerators (Category B) to be held at CERN, 1211 Geneva 23, Switzerland. Dates: not yet determined, - Summer, 1971.
Organizer: not yet named. Person to contact: Bernard P. Gregory, Director General, CERN, 1211 Geneva 23, Switzerland.
Financial support recommended: U.S. $2,000.

(2) International Conference on Electron and Photon Interactions at High Energies (Category B) to be held at Cornell University, Ithaca, New York 14850. Dates: August 23-28, 1971.
Organizer: not yet named. Person to contact: Boyce D. McDaniel, Laboratory of Nuclear Studies, Cornell University, Ithaca, New York 14850.
Financial support recommended: U.S. $1,000.

(3) Topical Conference on High Energy Interactions of Hadrons (Category B) to be held at Oxford, U.K. Dates: not yet determined; late 1971 or early 1972.
Organizer: G. Manning, High Energy Physics Division, Rutherford High Energy Laboratory, Chilton, Didcot, Berkshire, England.
Financial support recommended: not yet discussed by the Commission. I would anticipate U.S. $1,000.

(C) Preliminary Plans for Conferences in 1972

(1) XVI International Conference on High Energy Physics (Category A).
Two proposals for the location of this conference have been considered: one is McGill University, Montreal, Canada; the other is a joint proposal of the National Accelerator Laboratory, Batavia, Illinois, and the University of Chicago, to hold the conference in the Chicago area, splitting the time between NAL and the University of Chicago. I had hoped that the Commission could reach a decision on this question by mail before now, but I have not yet received replies from a number of members, so that the likelihood of our reaching the decision before our next meeting in Kiev in late August is small.
This conference will undoubtedly be held in the Summer of 1972.

(2) By historical precedent, an International Conference on Instrumentation will be held in conjunction with the XVI International Conference on High Energy Physics. However, this question will be discussed during the next meeting of the Commission.

As indicated above, the next meeting of the Commission will be held during the XV International Conference on High Energy Physics at Kiev in late August, 1970. After the meeting I shall communicate to you whatever recommendations the Commission wishes to make at that time.

Robert L. Walker
Secretary, IUPAP Commission on
Particles and Fields

NUCLEAR PHYSICS

Commission No. 12

Membership

The membership of the Commission has remained as set by the General Assembly, Dubrovnik, September 1969.

Chairman	R.E. Bell	(Canada)
Secretary	J. Teillac	(France)
Members	G.R. Bishop	(U.K.)
	S.G. Cohen	(Israel)
	I.M. Frank	(U.S.S.R.)
	T. Lauristen	(U.S.A.)
	R. Ramanna	(India)
	H. Schopper	(W. Germany)
Corresponding members	E. Baumgartner	(Switzerland)
	J. Fowler	(U.S.A.)
	R. Ricci	(Italy)
	M. Sakai	(Japan)
	I. Slaus	(Yugoslavia)
	S. Szaly	(Hungary)

Wien

Conferences (General)

The members of the Commission voted by mail on the new guidelines for conferences. The recommendation to sponsor one category-A conference every three years, approximately, was approved unanimously. The recommendation to sponsor one category-B conference per year was approved by some members, but the majority thought that more than one could be sponsored with due attention to spacing in location and topic.

In connection with the three conferences sponsored by this Commission in 1970 (see below), we become aware that we had not paid sufficient attention to possible overlaps in time and topic. The Commission welcomes the guidelines for conferences (see above) and also the conference checklist proposed by the Associate Secretary-General. A conference should clearly satisfy these requirements before IUPAP sponsorship is recommended.

Conferences for 1970

Before September 1969, this Commission had already recommended three category-B conferences (as they would be known now) for IUPAP support in 1970, as follows:

Polarization Phenomena in Nuclear Reactions
Madison, Wisconsin (August 31 - Sept. 4) ($ 1,000)

Angular Correlation in Nuclear Physics
Delft, the Netherlands (August 17-21) ($ 1,000)

Hyperfine Interactions Detected by Nuclear Radiation
Rehovoth, Israel (Sept. 6-11) ($ 500)

These conferences are being held as planned.

Conferences for 1971

The Commission voted by mail ballot to recommend the following category-B conference for 1971.

Statistical Properties of Nuclei
Albany, New York (August 23-27, 1971)

The chairman suggests that the amount of support for this conference should be $1,500.00. Fuller details are being sent to the Associate Secretary-General.

Category-A Conference

The preceding Commission had hoped to arrange a category-A conference for Munich in 1971, but we were informed at the end of February 1970 by Professors de Boer and Kienle that this conference could not be held before 1973. The members of the Commission voted in a mail ballot to accept this date for the next category-A conference in nuclear physics, giving an interval of four years between large conferences. On May 28, Dr. Wapstra wrote to ask whether we would be interested in a 1972 category-A conference in Amsterdam, with the Munich conference presumably coming later than 1973. A mail ballot is in progress on this question; the partial results favor retaining the 1973 Munich conference. The decision on this question must wait.

R. E. Bell
Chairman

Commission
No. 13

ATOMIC MASSES AND RELATED CONSTANTS

1. General Review

The commission held an informal meeting on August 30, 1969, attended by those members who were present at the International Conference on Properties of Nuclear States (Montreal). Beyond this, the work of the Commission has been carried out by correspondence. The commission is planning a topical conference on Atomic Masses and Related Fundamental Physical Constants which is now scheduled for September 1971 at the National Physical Laboratory, Teddington, England. Members of the commission are participating in the International Conference on Precision Measurement and Fundamental Constants to be held at Gaithersburg, Maryland, USA (National Bureau of Standards) August 3-7, 1970.

2. Conference on Atomic Masses and Related Fundamental Physical Constants

The Fourth International Conference sponsored by the commission had originally been planned for Summer 1971 in London. However, Dr. P. Dean, Superintendent of the Division of Quantum Metrology of the National Physical Laboratory, Teddington, suggested that the conference could be more conveniently held at NPL with housing of the conference delegates at St. Mary's College, Twickenham. The commission members having endorsed this suggestion, the conference is now scheduled for September 6-10, 1971 at NPL. Local arrangements for this conference, and probably a large portion of the conference organizational details, will be in the hands of the staff of the National Physical Laboratory and the Commission wishes to express its sincere appreciation for this contribution.

This conference is a continuation of a series which developed as the result of a small symposium on atomic masses at the Max Planck Institut für Chemie in Mainz in 1956 (which has been referred to as the zeroth conference) which was not sponsored by IUPAP and could not therefore be properly called an "International Conference." Attendance at these conferences has grown slowly but regularly, and the scope has broadened with increasing emphasis on nuclear systematics and on the "Related Constants" portion of the Commission's title.

Date	Location	Host	Attendance
1960	Hamilton, Canada	McMaster Univ.	60
1963	Vienna, Austria	IAEA	70
1967	Winnipeg, Canada	Univ. of Manitoba	78
1971	Teddington, England	NPL	90-100 (estimated)

In view of the fact that it has no intention to sponsor any other conferences during the 1970-72 period, the Commission would plan on utilizing the conference support allocation of $3000 (indicated in the letter from Prof. Kerwin of 15 April 1970) entirely for this Conference.

3. Table of Atomic Masses and Nuclear Reaction Energies

The present President of the Commission is preparing a revision of the Table of Atomic Masses [Nucl. Physics 67, 1-120 (1965)] based on a complete readjustment of the data on mass doublets and reaction energies. This work has proceeded more slowly than desirable because of difficulties of geographic separation. The calculations are being carried out at Oak Ridge National Laboratory where they were begun during Professor Wapstra's association with the Oak Ridge Nuclear Data Project but must now be monitored from Amsterdam. It is expected however that the work will be completed soon. It will consist of

1. The new mass table.
2. The new reaction and binding energy tables
3. A description of policies, procedures, and input data
4. Graphs of nuclear mass systematics
5. Reaction energies for stable nuclide targets

4. Future Meetings of the Commission

A meeting of the Commission is planned during the International Conference on Precision Measurement and Fundamental Constants August 3-7, 1970. The major topic on the agenda will be the planning for the 1971 conference (paragraph 2 above) and will be attended also by representatives from NPL Teddington. Some support to defray travel costs will be necessary; of the $1500 available for the 1970-72 triennium (letter, Kerwin to Wapstra, 4 November 1969) the Commission would plan to use $500-$600 in conjunction with this meeting. The remainder would be allocated to the Commission meeting to be held in September 1971.

1. Commission Membership

Members: H. H. Staub (Switzerland), Chairman; William C. Kelly (U.S.A.), Secretary; A. S. Akhmatov (U.S.S.R.); M. Y. Bernard (France); L. S. Kothari (India); W. Kroebel (West Germany); J. L. Lewis (U.K.); W. Schaffer (South Africa); J. Werle (Poland).

Corresponding Members: H. B. G. Casimir (Netherlands); P. Fleury (France); A. Harashima (Japan); E. Nagy (Hungary); D. Sette (Italy); M. Valouch (Czechoslovakia).

2. Meeting of the Commission

The Commission met in Rome on July 11-12, 1969. The minutes of the meeting have been circulated.

3. International Seminar on the Role of the History of Physics in Physics Education. The Seminar will be held on July 13-17, 1970 at the Massachusetts Institute of Technology. The purpose of the Seminar is to stimulate and extend cooperation among physicists, historians of science, and others interested in the humanistic teaching of physics. The working sessions will include discussion and the preparation of pedagogical materials that illustrate the use of historical content. Some thirty persons, representing 14 countries, have accepted invitations to take part. Funds totaling $23,600 have been provided for the Seminar by the Sloan Foundation, IUPAP, and the National Science Foundation. The chairman of the Organizing Committee is Allen King (Dartmouth College). Copies of the circular to participants have been circulated to the IUPAP Secretariat and the Commission.

4. International Congress on the Education of Teachers of Physics in Secondary Schools. The Congress will be held in Eger, Hungary on 11-17 September 1970 under the joint sponsorship of IUPAP and the Hungarian National Committee on Physics Teaching. The purpose of the Congress is to review problems connected with the education of secondary-school physics teachers and to develop recommendations to governmental groups and universities for improved pre-service education, motivation, and continuing education of teachers. E. Nagy (Hungary) is the chairman of the Organizing Committee, and D. Sette (Italy) is the chairman of the Program Committee. Sanborn C. Brown (U.S.A.) will be the editor-in-chief of the proceedings. About 150 persons, representing some 30 countries, will take part in the Congress. Funds at the disposition of the Organizing Committee for supporting travel and preparing the manuscript for the proceedings were provided by IUPAP and UNESCO and amount to $4,500. It has therefore been necessary, with a few exceptions, to ask each country sending representatives to pay for their travel expenses. Copies of the circulars for the Congress have been circulated to the IUPAP Secretariat, to National Committees of IUPAP, and to the Commission.

5. Conferences Scheduled for 1971

The Commission has no plans for conferences in 1971. A meeting of the Commission itself, however, will be held---probably in the spring of 1971 ---to discuss the feasibility and desirability of holding further international educational meetings in 1972. One of the possibilities to be considered is a congress on the teaching of physics to students in related fields (engineering, life sciences, etc.).

6. Cooperation with UNESCO

The Commission is collaborating with UNESCO on two writing projects. One is to prepare a "UNESCO Source Book for the Teaching of Physics in Secondary Schools". John L. Lewis (U.K.) is the editor-in-chief. A detailed outline of the book has been prepared, and a large number of papers already received from contributors. The Editorial Board is at work on these materials and hopes to have a preliminary manuscript by this fall. The Commission will review the manuscript before it is transmitted to UNESCO for publication.

The second writing project with UNESCO is the preparation of a college-level "New Trends in the Teaching of Physics". E. Nagy (Hungary) is the editor-in-chief. The manuscript for the book, now being prepared, will be reviewed by the Commission, probably at the time of the Eger Congress in September.

7. Other Activities

Professors Staub and Fleury took part in the meeting of the ICSU Committee on Science Teaching, held in London on 20-21 April 1970. Professor Staub was appointed a member of the Sub-committee on Symposia, and Professor Fleury a member of the Sub-committee on Organizing Conferences.

8. Requests to IUPAP

Of the $6,000 allotted by the Union for international congresses and seminars sponsored by the Commission in the triennium 1969-72, $3,000 has been provided for the two meetings in 1970. It is suggested that the remaining $3,000 be reserved for a congress to be held in 1972. More specific proposals will be forthcoming next spring. The $1,500 assigned to meetings of the Commission itself will be drawn on for travel of Commission members to a meeting next spring. Thus no additional requests to the Union will be made at this time.

William C. Kelly
Secretary

Commission No. 16

THE INTERNATIONAL COMMISSION ON PLASMA PHYSICS

PRESIDENT:
PROFESSOR L. A. ARTSIMOVICH
I.V. KURCHATOV INSTITUTE OF ATOMIC ENERGY
MOSCOW, U.S.S.R.

SECRETARY:
PROFESSOR SANBORN C. BROWN
MASSACHUSETTS INSTITUTE OF TECHNOLOGY
CAMBRIDGE, MASS. 02139, U.S.A.

REPORT ON THE WORK OF THE PLASMA PHYSICS COMMISSION

OF THE INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS

This Commission was formed by the 13th General Assembly of IUPAP in September 1969. Unfortunately because of the large number of verbal nominations given to the General Assembly for membership on this Commission, it was not until late March that the Secretary had a validated list of members and corresponding members of this Commission. This seven-month delay in determining who the members of the Commission were essentially prevented the Commission from doing any work before June 1970.

It is our very strong recommendation to the Executive that some much more formal method of nomination be required of the General Assembly, so that Commissions which are eager to work are not seriously hamstrung by the inability to find out who the nominees to a Commission actually are. When initials are not given, everybody is called Monsieur, and even the nominator may not know what the spelling of the candidate's name is; such a tremendous confusion is created that the paper work involved in trying to discover the facts of the case is a most inhibiting burden on any Commission trying to get something done. Very definite steps should be taken by the Executive to avoid this kind of confusion in future General Assemblies of the Union.

Sanborn C. Brown
Secretary

International Commission for Optics
Commission Internationale d'Optique

REPORT FOR THE YEAR ENDED JUNE 1970

The 8th Congress of the Commission was held in July 1969 at Reading, England. Details of delegations and decisions taken are given in the attached Minutes.

The 8th Congress was held in conjunction with an International Conference on 'Optical Instruments and Techniques'. This was attended by delegates from 23 countries.

Meetings to be held during 1970 which are sponsored, either wholly or in part, by I.C.O. are :

(1) June, 1970 : Marseille, France, Summer School, 'Optics in Space'
(2) July, 1970 : Besançon, France, 'Applications of Holography'.

The following meetings are envisaged for the year 1971 :

(3) 1971 : Budapest, Hungary, 'Thin Films'
(4) Sept. (or Oct.) 1971 : Tokyo (or Kyoto) Japan, '3rd International Conference on Vacuum Ultraviolet Radiation Physics'
(5) Autumn, 1971 : Munich, Germany, 'Visual Performance when using Optical Instruments'
(6) April, 1971 : London, England, 'The Perception and Application of Flashing Lights'.

The financial support granted by the Optical Commission to the above activities is :

(1) 2.000 $us
(2) 1.500 $us
(3) 1.500 $us
(4) None requested
(5) 1.500 $us
(6) not yet discussed by the ICO Bureau.

For 1972, the only meeting so far arranged is the 9th Congress of the Commission, which will be held at Santa Monica, California, U.S.A. This will be accompanied by a Conference on "Space Optics'. The local Organising Committee is already well advanced with arrangements for this meeting, and the Commission has reserved $ 5.000 to provide a grant.

Since the election of the new Officers and Bureau in July, 1969, the Secretary and President of the Commission have had contact and discussions with five new countries who are now considering applying for membership of the Commission. Preliminary work has also been undertaken for the preparation of a multi-lingual glossary of optical terms.

PHYSIQUE INTERNATIONALE

Envoi du Bulletin de Nouvelles au 1er septembre 1970. (* = comité national)

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I.U.P.A.P.
U.I.P.P.A.

Member countries' dues as of Sept. 1, 1970

ARGENTINA	$ 500.
BELGIUM	1,000.
BOLIVIA (1969 and 1970)	500.
BULGARIA	250.
DENMARK	750.
INDIA	1,000.
IRELAND	250.
ISRAEL	500.
ITALY	3,000.
JAPAN	2,000.
KOREA	250.
PAKISTAN (1969 and 1970)	500.
UNITED ARAB REPUBLIC	250.
UNITED STATES of AMERICA	2,400.
YUGOSLAVIA (1968, 1969 and 1970)	750.
	$ 13,900.

Québec, September 1st, 1970.

I.U.P.A.P.

State of the 1970 budget, as of September 1st

INCOME	to date	expected	total	1970 (prediction)
Member countries.	$29,350.	$12,900.	$42,250.	($42,000.)
UNESCO.	16,000.	-	16,000.	($16,100.)
Interest.	-	1,240.	1,240.	($ 500.)
	$45,350.	$14,140.	$59,490.	($58,600.)

EXPENDITURES				
Conferences	$32,600.	$ 8,000.	$40,600.	($40,000.)
Commissions	6,545.	1,455.	8,000.	($ 8,000.)
Secretariat	1,730.	1,000.	2,730.	($ 2,000.)
Banking & Accounting. . .	225.	175.	400.	($ 500.)
Publications.	2,025.	-	2,025.	($ 2,000.)
Subscriptions	1,140.	-	1,140.	($ 1,000.)
Executive Committee . . .	2,485.	2,515.	5,000.	($ 5,000.)
Contingencies	135.	-	135.	($ 500.)
	$46,885.	$13,145.	$60,030.	($59,000.)

SURPLUS (Deficit).	($ 540.)	$ 600.

Québec, September 1st, 1970.

ANNEXE II

International Conference on Precision Measurement
and Fundamental Constants

August 3-7, 1970

National Bureau of Standards
Gaithersburg, Maryland

This was the first conference devoted to the field of fundamental constants as a whole and to address their relationships to precision measurement and the basic standards. It achieved broad representation of most of the current work and except for the regrettable absence of contributions from the USSR, achieved good international participation.

The objective of the conference was to discuss modern techniques of precision physical measurement and their application, along with modern theoretical developments, to the determination of the fundamental constants. It was not the purpose of the meeting to arrive at new adjusted values of the constants, but it is expected that the substantive discussions that took place will help provide a basis for future adjustments. The topics covered were: Frequency and Time Standards, Length Standards and the Velocity of Light, The Rydberg Constant, Electrical Standards, Proton Gyromagnetic Ratio; Atomic Masses, The Faraday and the Proton Magnetic Moment, Josephson Effect, X-Rays, Fine and Hyperfine Structure in Simple Atoms, Lepton f-Factor Anomalies, The Gravitational Constants, Adjustments of the Fundamental Constants.

Each topic session was introduced by one or more invited presentations of a review and/or tutorial character. These were followed by contributed papers on current work which in some sessions were quite numerous. Discussions were often lively and attendance maintained remarkably well even through the last session on the last day.

Publications:

Title: Proceeding of the International Conference on Precision Measurement and Fundamental Constants

Format: Hard cover book by the U.S. Government Printing Office

Publication Date: March or April, 1971

Method of Financing: The approximate $25,000 cost will be funded by $2500 conference industrial support funds, and $22,500 by National Bureau of Standards funds.

Meeting Finances:

Costs (approximate until after the Proceedings are published)	$80,000

Income:

IUPAP	$ 600
American Industry (10 Companies)	5,800
National Science Foundation (restricted to foreign travel support)	7,500
Registration fees	8,300
National Bureau of Standards (approximate until after the Proceedings are published)	57,800
Total	$80,000

IUPAP Support:

Round trip air fare for Prof. G.W. Series, England	$ 497
Lunches and banquet costs for the following invited speakers: C. Audoin, France; A.E. Cook, England; G. Graff, Germany; A. Sakuma, France; and A.H. Wapstra, Netherlands	$ 103

(The $50 registration fee which included lunches, banquet, etc. was waived for invited speakers.)

Conference Participants:

Foreign		39
U.S.	(NBS, Gaithersburg)	70
	(NBS, Boulder)	13
	(Other U.S.)	71
	Total	193

Papers:

Invited		20	
Contributed		72	(4 by title only)
	Total	92	(4 by title only)

Countries Represented:

Australia	France	Japan	Switzerland
Belgium	Germany	Mexico	United States
Canada	Great Britain	Netherlands	
Denmark	Hungary	Sweden	

ANNEXE III

UNIVERSITÉ DE BESANÇON
FACULTÉ DES SCIENCES

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PROFESSEUR J.-CH. VIÉNOT

ELEMENTS POUR LE RAPPORT GENERAL
DESTINE A L'UNION INTERNATIONALE DE PHYSIQUE PURE ET APPLIQUEE (I.U.P.A.P.)
ET DEMANDE PAR MONSIEUR LE PROFESSEUR KASTLER

SYMPOSIUM INTERNATIONAL SUR LES APPLICATIONS DE L'HOLOGRAPHIE

Besançon, 6 - 11 Juillet 1970

A. GENERALITES

En introduction à cette analyse il paraît nécessaire de reprendre la liste des rubriques dans lesquelles ont été classées près de 140 communications venant de 24 pays (le nombre total de participants dépassant 400) :

1. Propriétés générales - Méthodes,
2. Effets de cohérence,
3. Interférométrie et techniques associées,
4. Interférométrie : mesure des déplacements et des déformations de surface,
5. Interférométrie : déformation et effet des contraintes,
6. Interférométrie, étude des vibrations,
7. Interférométrie, étude des milieux fluides,
8. Interférométrie, étude des plasmas,
9. Techniques d'enregistrement,
10. Microscopie, moirés, techniques diverses,
11. Propriétés des matériaux sensibles ; émulsions photographiques,
12. Mémoires,
13. Filtres-hologrammes, calculs analogiques et digitaux, réseaux,
14. Transmission de l'information holographique,
15. Acoustique et microondes,
16. Applications biologiques et médicales,
17. Métrologie industrielle
18. Divers

..../....

B - ANALYSE SUCCINCTE DU CONTENU SCIENTIFIQUE

Bien que l'ensemble des recherches exposées au cours du congrès soit orienté vers les applications à plus ou moins long terme des techniques holographiques, une partie des communications porte sur l'aspect fondamental des relations entre les propriétés générales de l'hologramme et la structure de l'onde,

- structure géométrique (correspondance entre la répartition tridimensionnelle de l'énergie dans l'émulsion photosensible et la répartition d'amplitude et de phase dans l'onde objet ; problèmes de diffraction et d'aberration),

- ou structure physique du rayonnement véhiculant l'information (hologrammes d'ondes évanescentes, holographie en lumière partiellement cohérente et problèmes liés à l'emploi de lumière diffuse). En holographie, les questions de cohérence spatiale et temporelle interviennnent pour limiter l'étendue (largeur et profondeur) des volumes tridimensionnels enregistrables ; des méthodes de mesure simples et rapides de la cohérence des ondes lumineuses peuvent donc être tirées directement de mesures de luminance dans le volume image.

Le domaine où le développement des recherches atteint l'ampleur la plus spectaculaire est celui de l'interférométrie holographique. Le tiers des communications est en effet classé sous ce titre.

La plupart des méthodes de l'interférométrie classique ont été maintenant reprises (interférométrie à dédoublement transversal - [redacted] -, à plusieurs passages, méthode des trois faisceaux de Zernike, interférométrie en ondes multiples. On tire parti du fait que l'influence des imperfections des éléments optiques reste faible en interférométrie holographique, au bénéfice de la simplicité et des possibilités des montages (sensibilité, champ ...). Il s'agit alors d'expériences en "lumière dirigée" sur des objets transparents, isotropes ou non, dont on mesure les gradients d'indice (étude des milieux fluides et des plasmas) ou les biréfringences locales (études de maquettes photoélastiques).

L'interprétation des interférogrammes obtenus en lumière diffuse posait encore, ces dernières années, des problèmes sans équivalent en interférométrie classique. La connaissance des propriétés statistiques des rayonnements cohérents diffusés a permis d'aboutir très récemment à des solutions définitives, de type analytique ou géométrique (méthode des rayons homologues, "holodiagrammes") dans la mesure des déplacements et déformations de la surface d'objets opaques, immobiles ou en oscillation périodique.

La recherche de nouvelles techniques d'enregistrement se poursuit dans plusieurs voies, notamment : extension du champ angulaire,

..../...

utilisation de sources de référence non ponctuelles, obtention d'hologrammes en temps réel grâce à l'emploi de verres non-linéaires en tant que récepteurs actifs.

De même que l'interférométrie, l'ensemble des techniques de l'optique classique (strioscopie, contraste de phase, moirés, microscopie) est adaptable en holographie ; un certain nombre de difficultés proviennent des effets de granulation en lumière cohérente, que l'on s'attache à réduire ; on peut noter la réalisation d'un microscope de faible puissance dont l'objectif est corrigé à l'aide d'un hologramme.

La plupart des limitations technologiques proviennent des imperfections de l'émulsion photographique (non-linéarités, granulation, instabilité mécanique de l'émulsion gélatineuse, et handicap du développement) ; une grande variété de matériaux est examinée de manière systématique (photorésists, photopolymères, photolaques., centres colorés, cristaux liquides, semi-conducteurs photosensibles). Leurs qualités ne sont pas encore telles qu'ils puissent remplacer l'émulsion photographique dont la sensibilité reste beaucoup plus élevée, mais ils présentent le grand intérêt de constituer d'excellentes mémoires optiques à grande capacité, offrant parfois la possibilité d'un effacement rapide. Le problème est donc reporté actuellement à celui de l'accès aléatoire et rapide à l'information emmagasinée sous forme optique.

Les méthodes du traitement de l'information par filtres-hologrammes, et plus généralement de calcul analogique de transformées de Fourier par diffraction à l'infini, sont suffisamment puissantes et élaborées pour offrir un champ d'applications qui s'étend du contrôle de surfaces optiques à l'analyse de coupes sismiques en passant par le codage de signaux bi et tridimensionnels, la reconnaissance de trajectoires de particules dans les chambres à bulles, la lecture automatique de caractères, l'enregistrement de répartitions spectrales spatiales (pupilles synthétiques, simulations d'antennes), ou temporelles (spectroscopie par transformation de Fourier).

Inversement, l'introduction du calcul digital dans les techniques de Fourier est sur le point de généraliser l'utilisation des hologrammes synthétiques, en particulier lorsqu'il s'agit de réaliser des surfaces d'ondes destinées à servir ultérieurement de référence.

Notons également l'obtention de réseaux holographiques de qualité exceptionnelle (exempts d'aberrations et de ghosts, et de grande luminosité).

La transmission d'hologrammes par voie électronique (télévision) souffre des difficultés inhérentes à la conversion d'un signal tridimensionnel en un message unidimensionnel (problèmes de débit de la chaîne électronique, apparition de moirés). Des résultats encourageants sont obtenus dans la transmission d'hologrammes de Fourier.

Les possibilités de transposition d'un certain nombre de ces nouvelles méthodes dans le domaine des microondes et de l'acoustique sont limitées par les procédés de détection quadratique bidimensionnelle actuellement disponibles. L'ensemble des communications relate les

efforts poursuivis en ce sens.

Les applications médicales, quoique prometteuses, sont encore peu nombreuses (reconnaissance de cellules, enregistrement tridimensionnel d'organismes vivants transparents, microscopie microholographique) ; différents secteurs industriels commencent au contraire à faire usage de l'holographie dans les contrôles de vibrations (turbines par exemple), de résistance à la fatigue, de tolérances en mécanique de précision, et même de pièces ou de fluides en mouvement (holographie impulsionnelle).

ANNEXE IV

I.U.P.A.P. Commission N°15

COMMISSION ON ATOMIC AND MOLECULAR PHYSICS AND SPECTROSCOPY AND PLASMAS PHYSICS.

Chairman : Prof. A. KASTLER, Laboratoire de Physique, Ecole Normale Supérieure, 24, rue Lhomond, Paris 5ème, France.

Secretary: Prof. W.L. FITE, Department of Physics, University of Pittsburgh PITTSBURGH, Pennsylvania 15213, U.S.A.

Report on the Commission Meeting, St Catherine's College, OXFORD, 23 July 1970.

On the occasion of the 2nd International Conference on Atomic Physics held in OXFORD, 21 - 24 July 1970, the Chairman of the Commission expected that several members of the Commission would be present at the Conference, and proposed to hold a meeting of the Commission during the Conference to discuss the proposals for conferences to be held in 1971 for which the support of I.U.P.A.P. is desirable. Unfortunately the only members of our Commission present in OXFORD were, among ordinary members : Prof. M.J. SEATON (LONDON) Prof. I. KOVACS (BUDAPEST), T. SKALINSKI (WARSAW) and H. VAN REGEMORTER (MEUDON, France).

Under these conditions the meeting held in OXFORD must be considered as informal, and the decision made as provisional proposals. The Chairman asked the following colleagues present in OXFORD to join the members of the Commission : Prof. H. BUCKA (BERLIN), Prof. L.A. BUREYEVA (MOSCOW), Prof. J. KISTEMAKER (AMSTERDAM), Prof. P.F.A. KLINKENBERG (AMSTERDAM), Prof. L. KRAUSE (Canada) and a Japanese Physicist present at the Conference.

In his letter of May 29, 1970 to the Chairman, the Secretary, Prof. FITE gave the following indications on the financial situation :

For the triennium 1970-72 our Commission had a total of $ 15.000 at its disposal, from which $ 4.500 have been used for the 1970 meetings. — The Commission proposes to reserve $ 4.500 for the year 1972. In this year the third International Conference on Atomic Physics will be held, probably in BOULDER, and we must reserve for this meeting a sum of $ 3000 - (which was the sum given for each of the two past meetings). There remains for possible other meetings to be held in 1972 only the sum of $ 1.500.

So we have at our disposal for the year 1971 the sum of $ 6.000.- Three applications for meetings to be held in 1971 have been submitted to the Commission :

1) The "VIIth Atomic Collisions Conference " to be held in AMSTERDAM 24-28 July where 600 participants are expected. Organizer : Prof. J. KISTEMAKER (Amsterdam)

2) The „Third International Conference on Vacuum UV Radiation Physics" to be held in Tokyo, 20-24 September. 200 to 300 participants (including 50 to 100 from abroad) are expected. Organisers : Prof. Y. FUJIOKA and Prof. K. ISHIGURO (Tokyo.).

3) The „Second International Conference on Light Scattering in Solids" to be held in Paris, 19-23 July, where 200 participants are expected. Organiser : Prof. M. BALKANSKI (Paris).

Concerning these Conferences, the following proposals made in Oxford met with general agreement :

1) The Commission proposes the support of I.U.P.A.P. for the Amsterdam Conference. For this Conference a minimum of $ 3000 should be reserved. It would be desirable to give more.

2) The Commission proposes the support of I.U.P.A.P. for the Tokyo Conference. A minimum of $ 2.000 should be reserved for this Conference, especially for financing the journey expenses of participants coming from abroad.

3) The Commission proposes the support of I.U.P.A.P. for the Paris Conference. As the subject of this Conference is in the field of " Solid State Physics", the members of our Commission estimate that the financial support for this Conference should be given by Commission 10 (Chairman : Dr. BOAS, Victoria, Australia, ; Secretary : Dr. E.F. BERTAUT, Grenoble, France).

For the case that Commission 10 could not be able to give financial help to this Conference, a sum of $ 1000- would be reserved. But it would be preferable to have this sum at the disposal of the two other Conferences whose subject is in the field of Commission 15.

The Chairman of Commission 15

A. Kastler

A. KASTLER

IUPAP

NATIONAL RESEARCH COUNCIL

NATIONAL ACADEMY OF SCIENCES NATIONAL ACADEMY OF ENGINEERING

2101 CONSTITUTION AVENUE WASHINGTON, D.C. 20418

DIVISION OF PHYSICAL SCIENCES

July 9, 1970

MEMORANDUM

TO: USNC-IUPAP Members
U.S. Members of IUPAP Commissions
Invited Participants

FROM: Hugh Odishaw

Attached are the draft minutes of the Committee's April 27, 1970 meeting. Comments and corrections are invited, if possible by September 1, 1970.

MINUTES OF THE MEETING
U.S. NATIONAL COMMITTEE
FOR THE
UNION OF PURE AND APPLIED PHYSICS

April 27, 1970
Sheraton Park Hotel
Washington, D. C.

ATTENDANCE

R. F. Bacher	M. Greenspan	G. T. Rado
S. Ballard	W. W. Havens	E. C. Rowan
W. Brattain	W. C. Kelly	F. Seitz
S. Brown	T. Malone	D. Smith
E. R. Cohen	P. Meyer	R. Smoluchowski
M. D. Fiske	E. Montroll	W. H. Taft
J. Fowler	H. Odishaw	H. Wolfe
M. L. Goldberger	V. E. Parker	G. W. Wood

Professor R. F. Bacher opened the luncheon session by introducing those present (see above). The discussion followed the agenda items.

1. 1969 General Assembly of IUPAP

Bacher summarized the activities of the Assembly. With Havens as chairman of the NAS delegation, the latter took an active part in the business of the Assembly. Thus several resolutions were put forward by our group (see the report by Havens enclosed with agenda material on this and other Assembly matters). The delegation's efforts also led, for the first time, to membership of at least one U.S. scientist on each Commission.

Bacher commented on the number of coming scientific meetings, noted at the Assembly. He observed that from time to time concern has been expressed on the number of such meetings, speculating that shortages of travel funds may temper the situation.

2. NAS Invitation for the 1972 General Assembly

Bacher noted that, on recommendation of the Committee, the President of the Academy invited, in August 1968, IUPAP to hold its 1972 General Assembly in Washington. Although IUPAP tends to

make such decisions two years prior to an Assembly, we had hoped for a favorable decision three years in advance (at the 1969 General Assembly) in the expectation that we could arrange a scientific program, supplementing the customary IUPAP business sessions, and that adequate time would be available to explore scientific sessions of some of the Commissions. However, the matter was not settled in 1969, in part because the question of the desirability of holding the Assembly in large cities had been raised. The subject will come up next at the October 2-3, 1970, meeting of the IUPAP Executive Committee at Copenhagen.

The Committee concluded that Washington was as desirable as any city (noting the April 27, 1970, recommendation of the Academy's Foreign Secretary), that appropriate events could be arranged for evenings, and that suitable transportation as well as accommodations could be provided through the Academy. The Chairman was authorized to cope with the topic as the situation in Copenhagen warranted.

3. IUPAP Commissions

The membership of Commissions was noted, as well as the list of approved 1970 conferences.

Bacher observed that the essential work of IUPAP was performed by the Commissions. Hence their membership was critical. He suggested that U.S. members bear in mind prospective good nominees, U.S. and other, for Commission membership. Such proposals best come up within and through the Commissions: it is difficult to deal with Commission membership at General Assemblies. U.S. Commission members were asked to keep Havens and/or Odishaw informed of their nominees as early as possible.

Havens asked U.S. Commission members to bear in mind the 1972 General Assembly: if IUPAP accepts our invitation to hold it in Washington, we would hope that some Commissions might plan their sessions in or around the General Assembly period. Such scientific sessions might not only enhance interest in the General Assembly but lead to the presence of more active scientists.

4. ICO Congress, Santa Monica, 1972

Dr. Dow Smith summarized the status of planning for the ICO Congress: (a) a local arrangements committee is at work on its tasks; (b) the scientific program will emphasize invited

papers, using space optics as a primary theme. Contributed papers, as of present thinking, are not desired, but the meeting of the American Optical Society at San Francisco the week following the ICO Congress will provide opportunities for such presentations; (c) budgetary and administrative matters are under consideration, and it is expected that documentation on these will be available to the Academy this summer.

5. Visa Matters

Bacher reported that the other members of the IUPAP Executive Committee appeared largely unconcerned about the visa question, perhaps reflecting the fact that few difficulties had arisen in the last few years. He indicated that IUPAP and its Commissions should inject a definite visa issuance date in meeting plans -- say, six to eight weeks prior to a meeting -- so that IUPAP representations could be made in the event of a problem. He noted that an occasional visa refusal to an individual can happen: what is not acceptable is exclusion of all scientists from a particular nation.

Goldberger noted the forthcoming High Energy Physics Conference in the USSR: invitations have been issued to Israeli scientists but the question was, will visas be granted? The Committee suggested that the Commission might appropriately express its concern to the President of ICSU and the ICSU Committee on Free Circulation of Scientists through IUPAP.

Rowan reviewed the activities of the above ICSU Committee and noted an approach that the Academy's Foreign Secretary had put to the Committee (Attachment D in the material provided with the agenda).

6. Membership of USNC-IUPAP

The current membership, including several new or reappointed Society representatives was noted (agenda Attachment E).

Bacher invited members to provide him with suggestions on officers for the next three years (by the end of June 1970). With these in hand, he would set up a small nominating committee which would submit its recommendations to the Academy's President. Bacher also referred to the communication from the President of the Academy, suggesting rotation of officers and members of national committees, and expressed his own agreement.

Havens noted the desirability of having a chairman who was also a member of the IUPAP Executive Committee: at present two U.S. physicists so serve: Bacher and Weisskopf.

7. Constitution of USNC-IUPAP

The change proposed in Attachment F of the agenda was approved.

8. Other Business

(a) Wolfe described the AIP program devoted to the publication of proceedings of conferences. He speculated on whether the AIP should take interest in proceedings of international conferences. Seitz noted that perhaps it would be easiest to consider first such conferences as are held in the United States although the AIP could explore the broader aspects as well with IUPAP Commissions.

(b) Meyer noted that the Cosmic Ray Commission plans to hold its 1973 conference in the United States. Steps have been taken by U.S. cosmic ray physicists to plan this session. A small committee is to be established within the NAS/NRC for general fiscal and planning purposes. Because the conference will be held at a university, a local arrangements committee will be established once the former group has decided on the site.

APPENDIX I

I.U.P.A.P.

Working Document

Budget proposed to the Executive Committee for 1970

INCOME	(estimated)	
Member countries (168 x $300.)	$ 50,400.	
UNESCO	16,100.	
Interests	500.	
		$ 67,000.

EXPENDITURES		
Conferences	$ 44,000.	
Commissions	8,000.	
Secretariat	2,000.	
Banking and Accounting	500.	
Publications	2,000.	
Subscriptions (ICSU, CIES, IUSTP)	2,000.	
Executive Committee	5,000.	
Contingencies	1,500.	
		$ 65,000.
PROPOSED SURPLUS		$ 2,000.

Quebec, September 1969.

APPENDIX II

INTERNATIONAL UNION of PURE and APPLIED PHYSICS
UNION INTERNATIONALE de PHYSIQUE PURE et APPLIQUÉE

Liste des congrès approuvés en 1970
Conferences approved for 1970

1.	Second International Conference on ATOMIC PHYSICS A - $3,000.	Oxford U.K.	July 21-24
	Organized by: Dr. G.K. Woodgate, Department of Physics, Clarendon Laboratory, Parks Road, Oxford, ENGLAND.		
2.	Symposium on POLARISATION PHENOMENA in NUCLEAR REACTIONS B - $1,000.	Madison Wisconsin U.S.A.	August 31- Sept. 4
	Chairman: Prof. Barshall		
	Information: (Low Energy) Nuclear Physics Commission c/o Prof. J. Teillac, secretary, Laboratoire Joliot-Curie, Faculté des Sciences d'Orsay, Orsay 91, FRANCE.		
3.	HYPERFINE INTERACTIONS DETECTED by NUCLEAR RADIATION C - $1,000.	Rehovoth Israel	
	Information: (Low Energy) Nuclear Physics Commission		
4.	ANGULAR CORRELATIONS in NUCLEAR PHYSICS C - $500.	Delft Holland	1st week Sept.
	Organized by: Dr. B. van Nooijen, Technische Hogeschool Delft, Dept. of Experimental and Nuclear Physics, Berlageweg 15, Delft, HOLLAND.		
5.	International Conference on MAGNETISM A - $4,000. maio $5,000.	Grenoble France	Sept. 14-19
	Chairman: Professor L. Néel, Laboratoire d'Électrostatique et de Physique du Métal, Casier postal no 166, Grenoble-Gare 38, FRANCE.		

5a. The DENSITY of ELECTRONIC CHARGE ~~and~~ SPIN and MOMENTA — C - ~~$500.~~ — Aussois, France — Sept. 7-12

Chairman: Dr E.F. Bertaut,
Laboratoire d'Électrostatique et de Physique du Métal,
Cedex no 166, Grenoble-Gare 38, FRANCE.

5b. MAGNETIC THIN FILMS — C - ~~$500.~~ — Prague, Czechoslovakia — Sept. 21-23

Chairman: Prof. L. Valenta,
Department of Theoretical Physics,
Charles University,
Ke Karlovu 3, Prague 2, CZECHOSLOVAKIA.

6. International Working Seminar on the ROLE of HISTORY of PHYSICS in PHYSICS EDUCATION — C - $1,500. — MIT - Cambridge Mass. U.S.A. — July 13-17

Chairman: Prof. A.L. King,
Dartmouth College,
Hanover, New Hampshire 03755, U.S.A.

7. Int. Congress on the EDUCATION of TEACHERS of PHYSICS in SECONDARY SCHOOLS — B - $1,500. — Eger, Hungary — Sept. 11-17

Chairman: Prof. E. Nagy,
Institute for Experimental Physics,
Eötvös University,
Muzeun Körüt 6-8, Budapest VIII, HUNGARY.

8. XVth International Conference on HIGH ENERGY PHYSICS — USSR — Summer

Organized by Prof. ~~V.P. Dzhelepov~~ N.N. Bogolubov, A - $4,000.
Joint Institute for Nuclear Research,
Head Post Office, Box No. 79, Moscow, USSR.

9. STATISTICAL MECHANICS — A - $3,000. — Mexico — October 19-24

Organized by Dr. E. Braun and Dr. A. Morales,
Comision Nacional de Energia Nuclear,
Av. Insurgentes Sur 1079,
Apartado Postal no. 27-190, Mexico 18 D.F.

10. 12th International on LOW TEMPERATURE PHYSICS LT-12 — A - $5,000. — Kyoto, Japan — Sept. 4-10

Organized by: T. Sugawara,
Institute for Solid State Physics,
University of Tokyo,
7-21-1 Roppingi, Minato-ku, Tokyo, JAPAN.

10a. TRANSPORT PROPERTIES of SOLIDS — C - $500. — Sydney, Australia — August 27-29

Organized by: Dr. G.K. White,
CSIRO - Division of Physics,
Sydney University Grounds,
Chippendale, NSW 2008, AUSTRALIA.

11. DÉCHARGES et ISOLEMENT ÉLECTRIQUES dans le VIDE — Waterloo, Canada — Sept.

Information: Dr. Max Goldman, B - $0.00
Laboratoire de Synthèse atomique et
d'Optique protonique,
67, rue Maurice-Günsbourg,
Ivry-sur-Seine 94, FRANCE.

12. IVth International Congress on RADIATION RESEARCH — Évian, France — June 28 July 4

Information: Secrétariat du IVe Congrès de Radiologie, B - $600
c/o Wagon-Lits Cook, 16 rue du Mont-Blanc,
Casier postal 230, CH-Genève, SWITZERLAND.

(Secretary of International Association for
Radiation Research: Dr. R.F. Kimball,
Biology Division, Oak Ridge National Laboratory,
P.O. Box Y, Oak Ridge, Tennessee 37831, U.S.A.).

13. SEMI-CONDUCTORS — A - $5,000. — Boston, Mass, U.S.A. — August 17-21

Information: Semi-Conductors Commission,
c/o Prof. E.W.J. Mitchell, secretary,
J.J. Thomson Physical Laboratory,
Whiteknights Park, Reading,
Berkshire, ENGLAND.

13a. RADIATION EFFECTS in SEMICONDUCTORS — C - $500. — Albany, New York, USA — August 24-26

information: Semi-Conductors Commission

14. PRECISION MEASUREMENTS and FUNDAMENTAL CONSTANTS — Gaithersberg, Maryland, USA — August 3-7

Organized by Dr. L. M. Branscomb, B - $1,000.
A-363 Physics Building, mais $600.
National Bureau of Standards,
Washington, D.C. 20234, U.S.A.

B - $1,500.

15. The PHYSICS and CHEMISTRY of SEMICONDUCTOR HETEROJUNCTIONS — Budapest, Hungary — October 11-17

Organized by: Dr. G. Szigeti

Information: Semi-Conductors Commission
c/o Prof. E.W.J. Mitchell, secretary,
J.J. Thomson Physical Laboratory,
Whiteknights Park, Reading, Berks. ENGLAND.

B - $1,000.

16. METASTABLE ALLOYS — Brelo, Yugoslavia — Sept.

Information: Solid State Commission
c/o Prof. Walter Boas, secretary,
Division of Tribophysics, C.S.I.R.O.,
University of Melbourne, Parkville 3052,
Victoria, AUSTRALIA.

B - $1,500.

17. X-RAY SPECTROSCOPY — Paris, France

Information: Mlle Yvette Cauchois,
Laboratoire de Chimie physique,
11, rue Pierre et Marie Curie,
Paris Ve, FRANCE.

B - $2,000.

18. International Conference on THERMODYNAMICS — Cardiff, Wales, U.K. — April 1-4

Organized by Professor P.T. Landsberg,
Dept. of Applied Mathematics and
Mathematical Physics, University College
of South Wales and Monmouthshire,
Cathays Park, Cardiff CF1 3NR, UNITED KINGDOM.

$0.00

19. HOLOGRAPHY — Besançon, France — July

CIO Conference organized by Prof. J. Vienot,
Département de Physique,
Université de Besançon,
8, rue de la Convention,
Besançon, FRANCE.

PLUS

20. INSTRUMENTATION — $1,000. — Dubna, USSR — September 8-12

Inf.: Prof. V.P. Dzhelepov
Joint Inst. for Nuclear Research
Head Post Office Box 79, Moscow, USSR.

APPENDIX V

INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS

Brief Reports from Commissions : 1970-1971 (numbered as in IUPAP-16)

1. Financial Commission

(no report)

2. SUN Commission

The SUN Commission has continued its regular programme of work by correspondence. A meeting of the Commission was held in Paris on August 19th and 20th. The next meeting will be directly before the 1972 General Assembly.

No conferences are proposed during the next three years but the Commission ask for a normal $1,500 for travel plus $3,000 for additional Commission travel (instead of holding a conference).

The Commission requests the Executive to endorse their view that the mole should be introduced as a base unit in the International System of Units and to transmit this opinion to the International Committee on Weights and Measures.

The Secretary-General has requested the Commission to consider promoting collaboration with IUPAC.

3. Thermodynamics and Statistical Mechanics Commission

The Commission met in Paris on April 19th, 1971. It was decided to arrange a conference on statistical mechanics for the autumn of 1973, probably at Amsterdam when the centenary of the van der Waals equation will be celebrated. A Boltzmann meeting may be held in Vienna in 1972.

4. Cosmic Ray Commission

The 1971 Conference was held in Hobart, Tasmania. The next conference will be in 1973, most probably in Denver, Colorado. The 1975 meeting may be held in Munich.

5. Very Low Temperature Commission

The Commission met on September 8th, 1970 during the Kyoto meeting (LTI2). The next conference will be LT13 at Boulder, Colorado in 1972. Thereafter it is proposed to move to a 3 year cycle.

The Commission urges international support for helium conservation.

6. Publications Commission

The IUPAP Commission on Publications has been inactive since the 1969 General Assembly. Plans for a meeting in August 1971 did not work out, and it is now anticipated that the Commission will meet in the spring of 1972 to prepare for the 1972 General Assembly.

7. Acoustics Commission

The 7th ICA conference was held in August 1971 in Budapest and the 8th is being planned for 1974 in London.

A list of acoustical societies has been prepared to circulate to societies. Details of events in acoustics are also published.

Preliminary discussions are taking place which may lead to the formation of a European Acoustical Society.

ICA is paying special attention to environmental acoustics. A member of the commission has been nominated to serve on SCOPE.

ICA is in close touch with several scientific unions.

8. Semiconductor Commission

The last meeting of the Commission was on August 17th, 1970. Two conferences were held in 1970 and one in 1971. Two conferences are proposed for 1972 but unfortunately it will not be possible to hold a specialist meeting in association with the General Assembly in 1972.

9. Magnetism Commission

The Commission met during the 1970 Grenoble conference and made plans for the 1973 meeting in Moscow. The 1976 meeting will be held in Amsterdam.

10. Solid State Physics Commission

The Commission continues to favour medium sized conferences on relatively restricted topics rather than general conferences covering all aspects of solid state physics.

The Commission make suggestions for the scientific programme at the Washington General Assembly. They comment on the new proposal for Union election procedure.

The Commission recommends IUPAP to consider Gordon-type conferences and sponsorship for high-level summer schools.

11. Commission on Particles and Fields

The Commission met in August 1970 and again in August 1971. It continues to arrange an active programme of conferences. A report on the August 1971 meeting is expected.

12. Nuclear Physics Commission

The Commission recommends three conferences for 1972.

The Commission is concerned that the Commission on Particles and Fields has arranged a meeting in Dubna USSR, in September 1971, on "High Energy Physics and Nuclear Structure" without consultation. It appears that steps will have to be taken to improve collaboration between the two commissions.

13. Commission on Atomic Masses and Related Constants

The Commission met on August 3rd 1970, in Washington D. C. It decided to withdraw its endorsement of the 1963 list of fundamental physical constants and urged that IUPAP and CODATA should determine what new values should be recommended for general use.

The Fourth International Conference on Atomic Masses and Fundamental Constants was held at the N. P. L. Teddington between 6th and 10th September, 1971. The next meeting in this series will be in 1974 or 1975.

The Commission are considering changing their name to "Atomic Masses and Fundamental Constants". They consider that this change will not cause awkward clashes with the SUN, the Atomic and Molecular Physics Commission or the Commission on Particles and Fields.

14. Commission on Physics Education

The Commission met in Eger, Hungary in 1970 and again in Kiel on June 25th-26th, 1971, when plans were reviewed for a congress to be held in Kiel in 1972.

Their writing projects are essentially complete and the MSS have been sent to UNESCO by the editors.

The Commission seeks the advice of the Executive on its plans for producing a number of paper-back volumes to comprise a history of physics. It is suggested that an international editorial board should be established, the members being appointed by IUPAP and IUHPS. It is envisaged that the editorial board will have to raise the necessary funds for its work.

15. Atomic and Molecular Physics and Spectroscopy

The Commission will not meet during 1971; business has been conducted by correspondence.

16. Plasma Physics Commission

The Commission sponsored three conferences in 1971 but, so far, none are preposed for 1972. Plans are being made for a large conference on Phenomena in Ionized Gases for 1973.

The Commission held its first full meeting at Madison, Wisconsin on June22nd, 1971. The IAEA has set up an International Fusion Research Council who membership overlaps to a large degree the membership of the IUPAP Commission. The Council and the Commission plan to exchange working papers. The Commission is also in touch with the Plasma Physics Division of the E. P. S.

The Secretary of the Commission has received a proposed constitution for the International Scientific Committee that runs the series of International Conferences on Phenomena in Ionized Gases.

17. ICO

ICO continue to be active in organising conferences and seminars. The ninth congress will be held in 1972.

Consideration is being given to a revision of the ICO Statutes.

ICO is in close touch with the EPS.

Three countries have applied for membership - DDR, Israel and Mexico.

A multi lingual glossary of technical optics terms is in preparation.

The first ICO news letter was published in February 1971. About 1, 000 copies were sent to National Committees.

18. Report of the IUPAP Representative to COSPAR

I attended the XIV Plenary meeting and the XVI meeting of the COSPAR Executive Council in Seattle, Wa., USA during June 1971 as a representative of the IUPAP. The programme was in many ways of special interest to physicists, topics discussed in several group meetings covering areas like the physics of the magnetosphere, atmospheric physics, investigations of the moon and planetary studies of mars, venus and so on. Each adhering union like the IUPAP has a right to nominate representatives on the various working groups but presumably we have not done so in the past as the expense involved will not be commensurate with the returns.

Executive Committee will recall my having raised the subject of our relationship with COSPAR at our meeting in Copenhagen. As a result of the discussions at that time, the Associate Secretary-General has issued a memo to the IUPAP National Committees in countries with COSPAR National Committees suggesting better liaison between the two bodies at the National level. This is bound to produce some effect. In addition, a note of announcement under the heading of SPACE RESEARCH has also been inserted in our News-Bulletin No. 23. In spite of these efforts, it is my feeling that the relationship between IUPAP and COSPAR remains somewhat passive and derserves to be improved. It is interesting to see that the feeling held by me on behalf of a well established scientific stream like physics is also held by another equally important union, namely IUPAC. The IUPAC representative at the Seattle meeting of COSPAR expressed himself in the following words. "There is a strong feeling within IUPAC that its relationships with several international bodies, including COSPAR, can be improved. In particular, if the studies of COSPAR working groups can benefit from talents to be found in IUPAC, then IUPAC should participate more actively than in the past. IUPAC is not interested in passive representation. Its cooperation must be active, otherwise it is not worthwhile".

While I report my reactions, I have no clear cut suggestions to make but the situation merits discussion in the IUPAP both formally and informally.

(signed) S. Bhagavantam
(IUPAP representative to COSPAR)

Executive Committee of IUPAP, DUBLIN, September 1971

Report on the Activities depending on Commission XV : Atomic and Molecular Physics and Spectroscopy

The members of the commission had not the occasion to meet during the university year 1970-71. The important questions were treated by correspondance between chairman, secretary and the members.

Conferences held in 1971

Two conferences interesting the field of Commission XV were held this year :

a) The seventh international conference on Physics of Electronic and Atomic Collisions, organized by Professor J. KISTEMAKER, held in Amsterdam July 26-30.
The conference covered the large field of collision physics which is rapidly developing.
More than 700 participants attended the conference (registration fee : $ 40.-), in addition 80 students at a reduced fee were present.
26 countries were represented.
456 papers were presented.
The book of abstracts printed by North Holland C° was available at the conference.
A separated book containing the invited papers and the progress reports will be published at the end of this year.
The total conference budget amounted to Florins 150.000 (about $ 40.000.-).
The IUPAP grant was $ 4.000.-

b) The third international conference on Vacuum Ultraviolet Radiation Physics held in Tokyo, Japan, August 30 - September 2.
Chairman of the Steering Committee : Dr. ISHIGURO
Chairman of the Organizing Committee : Prof. FUJIOKA
204 participants attended the conference, among them 54 from abroad from 8 different countries.
The conference covered essentially the entire range of vacuum ultraviolet from 2000 Å to a few Å.
More than 80 papers were presented. The booklet of abstracts was available in Offset form at the conference. It is not intended to publish the proceedings.
The total budget of the conference amounted to 8 Million Yen ($ 22.000.-).
The contribution of IUPAP was $ 2.500.-
The greatest part of this sum was used for financial help to participants from abroad.
19 participants received each 30.10^3 Yen.
The registration fee was $ 25.-

.../...

Proposals for the year 1972

Support from IUPAP has been requested for three international conferences to be held in 1972, in the field of Commission XV. The members of the commission are in favor of such a support :

a) The International Conference on Inner Shell Ionization Phenomena, to be held at ATLANTA, Georgia, U.S.A., April 17-21
Organizer : Dr. R.W. FINK, Professor of Chemistry, Atlanta.

This will be the first international conference in this field of physics. Its interest will be to bring together workers in the separate fields of Auger electron spectroscopy, X-ray spectroscopy, radioactive decay, atomic collisions, theoretical atomic physics and nuclear physics.
A number of participants between 100 and 200 is expected. The proceedings will be published.
The total budget needs are evaluated to $ 15.000.-

Dr. PRICE (London) proposes a IUPAP grant of $ 1.500.-

b) The Third International Conference on Atomic Physics, to be held in BOULDER, Colorado, U.S.A., August 7-12
Organizer : Dr. S.T. SMITH, from J.I.L.A.

This type of conference, which brings together physicists working in the different fields of atomic physics, is held with a periodicity of two years. The first conference was held in New York (1968) and the second in Oxford (1970). For each of these conferences, the success was guaranted by selected distinguished invited papers which were published in the conference proceedings. This will be the case also for the Boulder conference. More than 300 people are expected to attend this conference, the fee will be fixed to $ 40.-, and for young participants to $ 10.
The total budget is expected to be $ 20.000.-
A request is made for an IUPAP grant of $ 5.000. The grant attributed to the Oxford conference in 1970 was $ 3.000.

c) The 17th International AMPERE Conference on Radiofrequency Spectroscopy, to be held
at Wihuri Physical Laboratory, University of TURKU, Finland, August 21-26
Organizer : Professor V. HOVI, Turku.

This conference brings together physicists from East and West. At the last conference of this type in Bucarest, Rumania, in 1970, more than 700 people attended the meeting, 300 from Rumania, 200 from Eastern Europe, 200 from Western Europe, 40 from America and other continents.
The moral support of IUPAP is requested.
The organizing Committee applies for a IUPAP grant of $ 1.000 to 1.500.-

.../...

In July 1971, the Chairman of Commission XV was informed of a proposal made by Professor S. BHAGAVANTAM to organize an international conference on Raman Scattering to be held in Bangalore, India, during December 1972 or January 1973, partly intended to commemorate the life and work of the late Sir C. V. RAMAN.

It was not possible to consult the members of the Commission before the meeting of the Executive Committee.

To be able to give a good financial support to this conference, the Chairman of Commission XV suggests to fix its date on January 1973 and to foresee it in the IUPAP budget of 1973.

APPENDIX I

INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS

Possible new arrangements for the appointment of Executive Committee and Commission Members at General Assemblies

1. Introduction

At its 1970 meeting in Copenhagen the IUPAP Executive Committee reviewed the arrangements adopted at recent General Assemblies for the appointment of Executive Committee and Commission Members. They noted that some physicists at the 1969 General Assembly in Dubrovnik were somewhat concerned when a number of additions to commissions were proposed from the floor but no formal elections were held. The Executive considered a new election scheme suggested by the Secretary-General and, after agreeing a number of modifications, they decided to seek opinions from National Committees and Commissions.

The Executive hope that IUPAP Members and Commissions will consider (probably by correspondence) the proposed scheme during the first half of 1971 and submit written comments and amendments to the Secretary-General by the end of May. The Executive plan to meet in Dublin in September, 1971, when they will reconsider their proposals in the light of the comments available. If they receive sufficient encouragement, the Executive will formally propose new election procedures for use at the 1972 Assembly. In this event, an Extraordinary General Assembly will be held immediately before the normal 1972 Assembly in order to consider the new scheme and, if it is adopted, to amend the Statutes accordingly. It should then be possible to use the new scheme at the 1972 Assembly.

In order to set the scene, the procedures used recently are described briefly in paragraphs 2 and 3, and a possible new scheme is outlined in paragraphs 4 and 5.

2. The present procedure - Executive Committee

The Statutes provide for a President, the Immediate Past-President, a First Vice-President (who acts for the President in his absence), an unspecified number of Vice-Presidents and a Secretary-General. The Executive is appointed by the General Assembly and serves for 3 years. The President serves for a maximum of 3 years and Vice-Presidents for a maximum of 6 years. By custom the First Vice-President succeeds the President; he may be chosen from among the Vice-Presidents or appointed directly to the office of First Vice-President.

In 1963 the Executive appointed Professor Kerwin as Associate Secretary-General.

Approximately 9 months before a General Assembly, National Committees are asked for nominations for the office of First Vice-President and for Vice-Presidents. Proposals must be sent to the Secretary-General 3 months before the Assembly. A list of all proposals is published at the beginning of the Assembly.

The outgoing Executive meets just before the Assembly and prepares its list of candidates for vacancies on the Executive, taking account of all the proposals received, the needs of the Union and the necessary world-wide distribution of the Executive membership. The Executive list is also published at the beginning of the Assembly and, in practice, is usually confirmed at the last session of the Assembly. In recent years formal elections have not been necessary as no additional or alternative names have been proposed from the floor of the Assembly. Perhaps the major difficulty is that the number of Vice-Presidents is not fixed, which would make formal voting on any proposals somewhat awkward.

3. The present procedure - Commissions

Commissions consist of a Chairman, a Secretary, a number of members and provision is made for corresponding members. The Statutes do not fix the sizes of commissions. The 1960 General Assembly, however, decided that the membership should be limited to 6 or 7, together with a small number of corresponding members. The corresponding members were envisaged as advisers to the commission to which they were attached. They were not entitled to attend commission meetings except as alternates for full members.

Commissions are appointed for 3 years but there are no strict rules about the total length of service of commission members - 6 years is regarded as the normal period but some members serve for very much longer.

The method of appointment at General Assemblies is as follows:-

(a) Nine months before the General Assembly the Secretary-General calls for nominations from National Committees and from the retiring Commissions.

(b) The full list of nominations is published at the beginning of the Assembly.

(c) The retiring Executive draws up its recommended list of commission members which is also published at the beginning of the Assembly. The appointment of commission members takes place during the last session of the Assembly. In practice, the Assembly accepts the Executive list but often adds names, particularly as corresponding members. Thus the number of corresponding members has grown considerably since 1960, i.e. from 1 or 2 to 6 or 7 per commission.

Nominations from the floor of the Assembly are valuable but cause considerable problems. Firstly, the names proposed may not be generally known to the Assembly and consequently it is difficult for members to make significant judgments. Secondly, considering that in

practice there is no real difference between ordinary and corresponding members, the size of some commissions has become unwieldy. Furthermore, the secretariat often have considerable difficulty in obtaining the addresses of the physicists added to the Executive List by the Assembly.

The main difficulty with the present procedure is that the number of commission members is not fixed in the Union Statutes; thus it is difficult to hold formal ballots for a specified number of vacancies.

4. A suggested procedure for the future - Executive Committee

At its 1970 meeting in Copenhagen the Executive decided to recommend for discussion the following proposals:-

(a) The composition of the Executive should be President, Immediate Past-President, First Vice-President, 8 Vice-Presidents, Secretary-General and Associate Secretary-General. (This is the present size of the Executive.)

(b) The length of service of the President, Immediate Past-President and First Vice-President to be 3 years - as at present. Vice-Presidents to serve for 3 years with the possibility of one further term of 3 years - i.e. a maximum of 6 years. The Executive did not decide on fixed terms of service for the Secretary-General and the Associate Secretary-General.

Nominations would be called for from National Committees as at present and the full list of names published at the beginning of the Assembly. Names and full addresses, together with a brief statement on the candidates' professional experience and position, would be required on a special form.

The retiring Executive would publish its list at the beginning of the Assembly, bearing in mind all the nominations received and the need to have an Executive composed of distinguished physicists expert in a wide variety of specialities within physics and also reasonably representative of physicists throughout the world.

Additional names could be added to the Executive List after being proposed and seconded by National Delegations. Both proposer and seconder must come from different countries and neither may belong to the candidate's own country. If additional names are duly proposed and seconded, a secret ballot would be held, following the voting procedures established in the existing Union Statutes, i.e. voting by National Delegations according to the numbers of votes prescribed for each delegation.

5. A suggested procedure for the future - Commission Members

The Executive recommends the following arrangements:-

(a) Each Commission should consist of a Chairman and Secretary together with 7 to 10 ordinary members. It would avoid complications,

however, if all commissions could be fixed at the same size, say, 10 members.

(b) The appointment of corresponding members should be discontinued.

(c) Normally, not more than one ordinary member of a Commission to come from any one country.

(d) The actual number of ordinary members to be fixed for each commission by the General Assembly, after receiving the advice of the Commission and the Executive Committee and before voting for members. (This complication would be avoided if the size of all Commissions could be the same.)

(e) Ordinary members would serve for 3 years and may be appointed for one further period of 3 years. Exceptionally, and for certain commissions only, e.g. SUN and Atomic Masses and Related Constants, a longer period of service may be permitted.

(f) The Chairman and Secretary would normally serve for 3 years (usually after 3 years as an ordinary member or exceptionally after 6 years).

The Election procedure would follow broadly the one proposed for the appointment of the Executive Committee. The essential steps would be the following :-

(i) First-round nominations would be requested by the Secretary-General from both Commissions and National Committees, with a deadline of 3 months before the General Assembly. All nominations would be published at the beginning of the Assembly. Names and full addresses, together with a brief statement on the candidate's professional experience and position, would be required on a special form.

(ii) The Executive Committee would publish its list of commission members early in the Assembly.

(iii) Additions to the Executive List can then be proposed - both proposer and seconder must come from two different countries, other than that of the nominee.

(iv) If additions to the Executive list for a commission are proposed and seconded, a secret ballot for the agreed number of places on that particular commission will be held and the results announced at the last session of the Assembly.

6. Summary of Proposals

The recommendations made in this paper can be summarized as follows:-

(i) The size of the Executive is fixed and terms of office are fixed for all

the members, other than the Secretary-General and Associate Secretary-General.

(ii) The size of each Commission would be fixed and terms of office of the members are fixed (allowing for a few exceptional cases).

(iii) The grade of corresponding member of commissions is abolished.

(iv) Nomination procedures are clearly established.

(v) Formal elections will be held, if required, according to the rules laid down in the Union Statutes.

Nuffield Lodge,
Regent's Park,
London, N.W.1.

Dr. C.C. Butler, FRS
Secretary-General, IUPAP

February 1971

APPENDIX II

I U P A P

Comments on Proposed Election Procedures

Submitted by Commissions

The Commission numbers correspond to those found in IUPAP-16.

Those Commissions omitted from the following notes have not replied to several memoranda requesting their opinions.

3 - Thermodynamics and Statistical Mechanics Commission

(1) Commission favours all proposals with one exception concerning Point 5(e) - a possible service of only three years is too short for an effective contribution to be made.

(2) Nothing is said about mechanism for appointment of Chairman and Secretary. Commission recommends that these officers should be elected from the ordinary members.

4 - Cosmic-Ray Commission

(1) Commission is in general agreement with proposals.

(2) Accept that all Commissions should be of the same size.

(3) Prefer size to be Chairman plus Secretary plus eight members.

(4) Period of membership 3+3 years.

(5) Secretary appointed for six years after three years as a member - subsequently to be Chairman for three years.

6 - Publications Commission

The Commission supports the proposals.

7 - Acoustics Commission

(1) No objections to rules for election of Executive members.

(2) Limitation of terms of service of Chairman and Secretary of Commissions too restrictive. Recommend two terms for Chairman and three terms for Secretary. Chairman to be ordinary member for one term after his service as Chairman.

(3) Commission not very happy about proposals from the floor of the assembly.

(4) Acoustics Commission needs observers from other Unions - not to be counted in the total of ten members.

9 - Magentism Commission

Comments of the Chairman: Dr. W. Marshall.

(1) Strongly approves of objectives for Executive elections.

(2) Serious doubts about proposals for Commissions.

(3) Magnetism Commission operates well with ordinary and corresponding members. Much money will be needed if distinction is to be abolished.

(4) There is no argument for all Commissions being the same size.

(5) Agrees that not more than one full member should come from any particular country.

(6) Either Chairman or Secretary should serve longer than three years.

(7) Election procedures admirable.

10 - Solid State Commission

(1) Commission gives general approval.

(2) Concerning 5(c): membership should be maximum of two per country or one per country disregarding nationality of Chairman and Secretary.

(3) Concerning 5(f): the office of Secretary should be for a long period.

(4) Doubt if restriction of 5 (iii) is necessary.

11 - Commission on Particles and Fields

(1) Approve of discontinuing category of corresponding member.

(2) Limitation of one member from any one country inappropriate for this Commission. Recommend there should be no more than two members of a Commission from one country, including the Chairman and Secretary.

(3) Favour Chairman, Secretary and ten Members.

13 - Commission on Atomic Masses and Related Constants

(1) Limiting the size of the Executive seems admirable.

(2) The size of Commissions should depend on the work to be done - not the same for each Commission.

(3) Commission likes corresponding members. Favours membership of six ordinary and a number of corresponding members.

(4) Objects to arbitrary and restricted clause 5(c). Commissions must be composed of persons best qualified to carry out the goals of the commission.

(5) Terms of office are too restrictive in 5(e) and 5(f).

16 - Plasma Physics Commission

(1) Generally support proposals.

(2) Secretary doesn't think any of Executive should have fixed terms of service.

(3) 5(c):suggest eliminate "normally".

17 - International Commission for Optics (ICO)

Comments by the President.

(1) Secretary of commission should serve longer than three years.

(2) Three years adequate for Chairman.

DIVISION OF PHYSICAL SCIENCES
NATIONAL RESEARCH COUNCIL
2101 CONSTITUTION AVENUE
WASHINGTON, D.C. 20418

Hugh Odishaw
Div of Physical Sciences
National Research Council
2101 Constitution Ave
Wash DC 20418

NATIONAL RESEARCH COUNCIL
NATIONAL ACADEMY OF SCIENCES NATIONAL ACADEMY OF ENGINEERING
2101 CONSTITUTION AVENUE WASHINGTON, D.C. 20418

DIVISION OF PHYSICAL SCIENCES

December 9, 1970

Professor Victor F. Weisskopf
Department of Physics
Massachusetts Institute of Technology
Cambridge, Massachusetts 02139

Dear Prof. Weisskopf:

I am pleased to confirm your membership on the U.S. National Committee of the International Union of Pure and Applied Physics (IUPAP) as designated in the committee's constitution. Article II of the latter co-opts IUPAP officers who are U.S. scientists, and we hope you can participate in the committee's work.

There is enclosed your copy of a memorandum to USNC-IUPAP members, and you will note that the next meeting takes place on February 3 in New York and that the primary agenda item is planning for the 1972 General Assembly to be held in Washington. The USNC-IUPAP will be more active in this period until the General Assembly has been held; ordinarily, the committee has had a single luncheon session during the annual APS April meetings in Washington.

With kindest regards,

Sincerely yours,

Hugh Odishaw
Executive Secretary

Enclosure

cc: Dr. R. F. Bacher
Dr. W. W. Havens, Jr.

NATIONAL RESEARCH COUNCIL

NATIONAL ACADEMY OF SCIENCES NATIONAL ACADEMY OF ENGINEERING

2101 CONSTITUTION AVENUE WASHINGTON, D.C. 20418

DIVISION OF PHYSICAL SCIENCES

December 9, 1970

TO: Members of USNC-IUPAP

FROM: Hugh Odishaw

1. Next Meeting. Prof. Havens has scheduled our next meeting for Wednesday, February 3, 1971, in New York, at the time of the annual APS New York session. This will be a luncheon session starting at 12 noon and ending about 3:30 or 4:00. The principal topic: the next General Assembly of IUPAP.

Prof. Bacher recently informed us that the Executive Committee of IUPAP accepted our invitation to hold the Assembly in Washington, D.C., in 1972, that 1972 is the 50th anniversary of IUPAP, and that the Executive Committee is interested in sessions appropriate to the occasion. Early planning is mandatory. We must soon prepare a budget that must reflect program and activity plans, which may well take some time. Our committee will act as the Academy's host organization, and it will probably be necessary to set up program planning and local arrangements subcommittees.

Accordingly, you are invited to give such matters as the above consideration between now and the February 3 meeting. Your views should range from specific suggestions of individuals for the one or two subcommittees noted above to themes for special sessions. Prof. Havens plans to interrogate U.S. members of IUPAP Commissions with regard to commission interests in scientific meetings tied to the General Assembly.

2. USNC-IUPAP Officers. Last spring the President of the Academy appointed a Nominating Committee consisting of Drs. Koch, Seitz and Smoluchowski (chairman) to nominate officers for the next three years. The candidates proposed are indicated on the enclosed ballot, which you are asked to mark and to return before the end of the year.

3. USNC-IUPAP Constitution. You will recall that the Constitution was revised recently to provide for 3-year terms for officers. A copy of the Constitution as it now stands is enclosed.

4. IUPAP General Report 1970. Approximately two weeks ago a copy of this report was sent to you.

5. Proposed International Conference on Inner Shell Ionization Phenomena. Prof. W. R. Fink of the Georgia Institute of Technology and his colleagues propose the conduct of this conference in April 1972. I have provided Prof. Fink with the IUPAP procedures on securing IUPAP sponsorship (pages 81-83 of the above IUPAP report). Accordingly, he is addressing the Secretary of IUPAP Commission 15 on Atomic and Molecular Physics and Spectroscopy Physics (W. L. Fite of the University of Pittsburgh) while also seeking our Committee's endorsement. His proposal is enclosed and your comments are invited.

6. Helium Conservation. There is enclosed a letter from Prof. Bardeen along with a statement from the IUPAP VLT Commission (and also an article from Science, 20 March 1970, vol. 167, No. 3925). Note Prof. Bardeen's request, in his last paragraph.

U.S. NATIONAL COMMITTEE
OF THE
INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS

Ballot for the 1971 Officers

Chairman:

☐ Robert F. Bacher

☐ _____

Vice Chairman:

☐ Sanborn C. Brown

☐ _____

Secretary-Treasurer:

☐ W. W. Havens, Jr.

☐ _____

The names that appear on this ballot are those proposed by the Nominating Committee: you may vote for these or for other current members of USNC-IUPAP. Please return this ballot by the end of the year.

December 1, 1970

CONSTITUTION OF THE
UNITED STATES OF AMERICA NATIONAL COMMITTEE
OF THE
INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS
REVISED JUNE 7, 1970

In the text of the Constitution and By-Laws, "USANC" stands for "United States of America National Committee," "IUPAP" stands for "International Union of Pure and Applied Physics" and "NRC" stands for "National Research Council."

Article I. Objects:

The objects of the USANC of the IUPAP shall be (1) to promote the advancement and dissemination of physics, (2) to represent the United States in the IUPAP, and (3) to carry out such duties as are required of a national committee under the Statutes of the IUPAP, including the nomination to NRC of delegates to Assemblies of the IUPAP.

Article II. Membership:

The USANC shall consist of voting members appointed by the NRC, and these shall include:

1. Ex officio:

   (a) Any or all of the following officials of IUPAP who are citizens of the United States: The President, any Vice President, and the Secretary of IUPAP and the Chairman of any Commission of IUPAP. The term of membership on the USANC of any of the above shall continue after his retirement from his IUPAP office until the end of the calendar year following that in which his retirement occurred.

   (b) The Chairman of the U.S.A. National Committee of any Commission of the IUPAP designated by the IUPAP as an Affiliated Commission.

   (c) The Chairman of the Division of Physical Sciences of the NRC.

2. Nominees as follows:

Nominator	For terms starting Jan. 1
(a) American Physical Society (2)	
One for 1 year term	1952 only
One for 2 year term	1952 only
One for 3 year term	1953 and every third successive year
One for 3 year term	1954 and every third successive year
(b) American Association of Physics Teachers (1)	
One for 3 year term	1952 and every third successive year
(c) American Institute of Physics (1)	
One for 3 year term	1952 and every third successive year
(d) A committee composed of the Chairman of the Division of Physical Sciences of the NRC (as Chairman) and the officers of the USANC (3)	
One for 3 year term	Every year

3. A nominee as follows:

The Acoustical Society of America (1)	
One for 3 year term	1952 and every third successive year

However, this section 3 of Article II shall become inoperative and shall be automatically deleted from this Constitution if and when the USANC determines that an Affiliated Commission of the IUPAP on Acoustics has come into existence, and the Chairman of its USA National Committee has been designated.

If anyone appointed on nomination in accordance with provisions of this Article vacates his appointment for any reason, the organization which originally nominated him shall be invited to nominate a successor to be appointed the next January 1 to serve the remainder of the original term of appointment.

No one shall be eligible to be nominated by the same nominating organization for more than two consecutive three-year terms.

Article III. Officers:

The officers of the USANC shall be the Chairman, the Vice-Chairman, and the Secretary-Treasurer. The term of office in each case shall be three calendar years. If the office of Chairman is vacated for any reason, the Vice-Chairman shall become Chairman. If the office of Vice-Chairman is vacated for any reason, a successor for the remainder of the term shall be elected at the next meeting of the USANC. If the office of Secretary-Treasurer is vacated for any reason, a successor shall be appointed for the remainder of the term by a Committee composed of the Chairman and Vice-Chairman of the USANC and the Chairman of the Division of Physical Sciences of the NRC.

Article IV. Election of Officers:

Officers for each three-year term shall be elected before the end of the calendar year following the year of the preceding IUPAP General Assembly. The ballot shall be mailed by the Secretary not later than December 1, and shall contain the names of nominees for each office. All ballots returned by the date printed on the ballot shall be counted. The nominee receiving the most votes for a given office shall be declared elected to that office.

A slate of nominees for each office shall be prepared by a Nominating Committee, appointed and functioning in such manner as shall be specified in the By-Laws. No individual shall be nominated unless his membership in the USANC the following year is assured by continuation of term or new appointment.

No one shall be eligible for more than two consecutive full terms in the same office.

Article V. Meetings:

Meetings of the USANC shall be called by the Chairman at times and places designated by him. It shall be his duty to call at least one such meeting during each calendar year. A meeting may also be called by the Chairman of the Division of Physical Sciences of the NRC. One half of the full membership of the USANC shall constitute a quorum. A regularly-called meeting attended by fewer may, however, act tentatively, subject to veto of any action

by mail ballot by a majority of the full membership. A ballot for this purpose must be mailed within ten days of the meeting, and all votes received within ten days of such mailing shall be counted.

Article VI. Amendments:

Subject to approval by the NRC, this Constitution may be amended by an affirmative vote of at least two-thirds of the full membership of the USANC.

Proposal November, 1970

INTERNATIONAL CONFERENCE ON INNER SHELL IONIZATION PHENOMENA - on the Production and Decay of Inner Shell Atomic Vacancies, Atlanta, April 17-21, 1972

An international conference on the production and decay of inner shell atomic vacancies in atoms is especially timely in view of the current rapid expansion of this field, both experimentally and theoretically, and in view of its many cross-links among different fields of physics and chemistry. Such a conference will satisfy a number of needs, the foremost of these being the necessity to bring together workers in the separate fields of Auger electron spectroscopy, X-ray spectroscopy, radioactive decay, atomic collisions, theoretical atomic physics, and to some extent also, nuclear physics. Although each of these fields involves investigations and practical applications of different phenomena by different techniques and methods, they all have a common origin or interest in the creation and decay of inner shell atomic vacancies. Unfortunately, these fields have been relatively separate, with little direct communication among workers in the various fields. Furthermore, the principal working groups are widely dispersed throughout the world, so that, for example, several attempts to arrange a symposium (on x-ray fluorescence yields and Coster-Kronig transitions) at meetings of the American Physical Society have been discouraged, due to opinions that there are too few American physicists involved in this field to make such a symposium worthwhile. Whether or not this argument is valid, it is true that the major work in these fields is conducted in many separate locations in many countries of the world.

This Conference therefore will provide a forum for the extensive exchange of information and expertise among workers in different fields from widely separate locations, as well as among those working closely along similar lines. Further, this Conference will present the subject from a unified

point of view, including recent theoretical work, to give the participant a better appreciation of where his own work fits in, which specific processes would be the most useful to study, and what methods or results from related fields could be brought to bear on his own investigation of these phenomena.

Finally, the need to bring together current theory and recent experimental results is especially urgent, owing to the recent rapid development of both theory and experiment on inner shell ionization phenomena. This conference will emphasize especially the close contact of theorists and experimentalists and will intersperse theoretical papers among the related experimental ones, in order to promote such contacts.

It is particularly appropriate to hold such a conference in Atlanta, Georgia, where Georgia Tech and Emory University have been leading centers in recent years in the development and exploitation of new experimental methods, and where Georgia State University has been furnishing active contact on current theoretical developments. Indeed, for these reasons, the organizing committee of the conference consists of members from these three institutions. At Georgia Tech and Emory University there are major efforts on measurements of x-ray fluorescence yields and Coster-Kronig transition probabilities involving the study of x-ray emissions from radioactive sources. Also at Georgia Tech there is an experimental program of research in high energy atomic collision phenomena, including the study of the post-collision states of excitation and ionization. Work at Georgia State University concerns the calculation of atomic ionization cross sections as well as the theoretical study of radiative decay rates for inner shell vacancies. Moreover, Georgia Tech and Emory University also have been major contributors to a recent international effort for the preparation

of an extensive review[1)] on x-ray fluorescence yields and Coster-Kronig transition probabilities, including both theoretical and experimental results.

The Conference will be held on the campus of Georgia Institute of Technology, Atlanta, primarily in plenary sessions, during the Dogwood Festival Season, April 17 - 21, 1972. April is an especially lovely month in Atlanta and is usually still cool and pleasant, with many special activities and sightseeing activities arranged for Dogwood Festival. The choice of these dates is made so as not to conflict with the American Physical Society Meeting in Washington, D. C., during the last week of April, which many of our overseas visitors may also wish to attend on their way home.

There will be three mailings of announcements, in addition to general announcements in Physics Today and Chemical & Engineering News. The first mailing of about 500 addresses will be in January, 1971; a second mailing of about 300 addresses will be planned for about November, 1971, and it will call for abstracts and preliminary registration and will give some preliminary information on the program of invited speakers. A final mailing of 200 to 250 addresses will go out about March, 1972, and this will call for final manuscripts in advance of the conference. It also will contain detailed travel, hotel, and registration instructions, hotel and conference registration/reservation forms, and a preliminary copy of the program.

The mailings, as well as other administrative conference services (such as hotel block reservations, on-campus luncheons, registration desk

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[1] W. Bambynek, (EURATOM, Geel, Belgium); B. Crasemann (Univ. of Oregon); R. W. Fink and H. U. Freund (Georgia Tech); Hans Mark (NASA-Ames Research Center, California); R. E. Price (Livermore, California); P. Venugopala Rao (Emory University, Atlanta); and C. D. Swift (NASA-Ames Research Center, California), "X-ray Fluorescence Yields and Coster-Kronig Transition Probabilities," Revs. Modern Phys. (in preparation, 1971); see also the 1966 review by R. W. Fink, R. C. Jopson, Hans Mark, and C. D. Swift, "Atomic Fluorescence Yields," Revs. Modern Phys. 38, 513 (1966).

personnel and procedures, conference mail, coffee breaks, chartered buses, name-badge preparation, secretarial services, hand-out materials, bulletin boards, audiovisual equipment and projectionist, PA systems, tape recorders, lists of participants, telephone messages, and meeting rooms) will be provided by the Georgia Tech Department of Continuing Education which has professional staff which has provided services of this type for 200 short courses and conferences per year with an international audience of 10,000 people. This department has an experienced administrative staff for both preconference and conference services.

ORGANIZATION OF CONFERENCE COMMITTEES

There will be two committees, a local organizing and administrative committee, which is already functioning, and an international advisory board, presently (October, 1970) being formed. The latter committee will function to suggest and approve invited speakers and topics and to assure high scientific quality of the published proceedings by checking and reviewing manuscripts of conference papers.

The local organizing-administrative committee consists of the following members:

Dr. S. Manson, Associate Professor (Theoretical Physics)
Department of Physics
Georgia State University
Atlanta, Georgia

Dr. P. Venugopala Rao, Associate Professor (Nuclear & Atomic Physics)
Department of Physics
Emory University
Atlanta, Georgia

Dr. E. W. Thomas, Associate Professor (Atomic Physics)
School of Physics
Georgia Institute of Technology
Atlanta, Georgia

Dr. R. W. Fink, Professor of Chemistry (Nuclear & Atomic Physics-Chemistry)
School of Chemistry
Georgia Institute of Technology (Conference Chairman)
Atlanta, Georgia

The international advisory board has been invited, and subject to acceptances and substitutions, consists of the following invited members: K. Siegbahn (Sweden), M. A. Listengarten (USSR), E. Merzbacher (USA), H. A. Bethe (USA), E. H. S. Burhop (England), S. K. Haynes (USA), R. van Lieshout (Netherlands), U. Fano (USA), D. Berenyi (Hungary), J. Zylicz (Poland), and J. A. Bearden (USA). This committee is just being formed, and there may be changes or additions to it before it is finally constituted.

LIST OF CONFERENCE TOPICS

1.0 Theory

- 1.1 Radiative transitions
- 1.2 Nonradiative transitions
- 1.3 General theoretical results on inner shells
  - 1.3.1 Conversion and Auger electron emission probabilities
  - 1.3.2 Coster-Kronig transition probabilities
  - 1.3.3 Ionization by atomic or charged particle collisions
  - 1.3.4 Miscellaneous theoretical results

2.0 X-rays

- 2.1 Atomic fluorescence yields (K, L, and M shells)
- 2.2 Relative radiative transition rates
- 2.3 X-ray emissions in radioactive decay
- 2.4 Rare and forbidden x-ray lines and satellites (multiple vacancy phenomena)
- 2.5 New developments in x-ray experimental techniques and detectors, including coincidence methods

3.0 Auger electron spectroscopy

- 3.1 K Auger electron spectra
- 3.2 L and M Auger electron spectra
- 3.3 Electron- X-ray coincidence methods
- 3.4 Coster-Kronig transitions
- 3.5 Multiple vacancy phenomena
- 3.6 Low energy internal conversion (M,N,O,...shells)
- 3.7 New developments in Auger electron spectroscopic techniques

4.0 Inner shell ionization by charged particles or atomic collisions

- 4.1 Electron bombardment
- 4.2 Proton and alpha-particle bombardment
- 4.3 Heavy ion bombardment
- 4.4 Atomic and molecular collisions

5.0 Miscellaneous related topics

- 5.1 Orbital electron capture in radioactive decay
- 5.2 Higher order processes leading to inner shell ionization
- 5.3 Internal conversion coefficients (K, L shells)
- 5.4 New experimental techniques

There will be a program of invited and review papers and shorter contributed papers.

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN
DEPARTMENT OF PHYSICS
URBANA, ILLINOIS 61801

December 8, 1970

Dr. Hugh Odishaw
Division of Physical Sciences
National Academy of Sciences
2101 Constitution Avenue
Washington, D. C. 20418

Dear Dr. Odishaw:

At its meeting in Kyoto, Japan, in September 1970, the Commission on Very Low Temperatures of IUPAP discussed at length a proposal of Professor J. F. Allen, of the University of St. Andrews, Scotland, that helium conservation be made a matter of international concern. The U.S. program of helium storage is in severe financial difficulties. If the program cannot be sustained, future applications of low temperature technology will be greatly hampered. It was suggested that ways be found for other countries to share the costs of helium conservation, so that the program can be kept or expanded.

Following the Kyoto meeting a statement was prepared and circulated to Commission members for approval. Replies have now been received, with most members of the Commission endorsing the statement. The statement is being sent to Prof. C. C. Butler, Secretary-General of IUPAP with recommendation that the matter be considered and to take appropriate action to bring the problem to the attention of ICSU member governments. Members of the VLT Commission are also taking up the matter with their own National Committees.

It is suggested that the U.S. National Committee consider the statement, and if favorable, bring it to the attention of appropriate people in the Executive and Legislative branches of the government concerned with helium conservation.

Sincerely yours,

John Bardeen

John Bardeen

JB:jmr

enclosure

cc: Dr. W. W. Havens, Jr.

Recd 12/10/70

International Union of Pure and Applied Physics

Very Low Temperature Commission

Helium Conservation

At its meeting held on 8 September 1970 during the Twelvth International Conference on Low Temperature Physics held in Kyoto, Japan, the question of helium conservation was considered as a matter of international urgency.

Helium is an element with unique properties for which there is no conceivable substitute. In a very few gas wells in the world, practically all the known ones being in the USA, the covering mantle is sufficiently impermeable to retain helium in concentrations high enough to make separation and restorage underground reasonably economic.

In 1958, the U.S. Congress initiated a far-sighted programme for the separation and underground storage of helium gas for the future use of humanity. The programme envisaged the ultimate storage of 10^{11} cubic feet of helium at ntp, at a cost of several hundred million dollars.

Now, after ten years of work and the successful storage of 2.42×10^{10} cubic feet, 30 year's supply at current rate of consumption, the US government have found the programme too costly and are considering abandoning it. Two of the principal reasons appear to be the curtailment of the NASA programme with consequent reduction of income from NASA for the sale of helium, and the undercutting of the government price for helium by commercial operators of helium separation plants.

It may be that at some time in the future, if fusion processes can be made economic, then helium may be an economic by-product. It may also be possible economically, but this is not the case for the foreseeable future, to separate helium from the atmosphere. Unless and until either of these processes can come into being, helium is the one irreplaceable and wasting element.

It is an accident of geography and geology that the only sources of abundant helium are in the USA. The American government has for ten years performed a world service in conserving helium for world wide use. It seems unreasonable that the USA should continue to bear the sole cost of preserving helium for the future use of all the peoples of the world.

The Commission therefore makes the urgent plea that IUPAP should consider the matter of helium conservation, and if favourable to our plea, should, through ICSU or by other means, bring the question of helium conservation to the notice of ICSU member governments.

It would be inappropriate for the Very Low Temperature Commission to make specific recommendations as to the method of financing internationally the conservation of helium. We do, however, suggest that the member governments find a method of sharing in the cost of conservation possibly by buying, and banking in the US storate system for future use, helium in appropriate quantities.

In this matter of helium conservation, the Very Low Temperature Commission has an absolutely vital interest since helium provides its essential sustenance. Nevertheless, helium has a vastly wider use in the scientific and technological world. We are concerned not only for the decades immediately ahead but for many future generations.

We are aware that governments have been unaccustomed to planning more than a few decades in advance. Problems of safeguarding the environment are, however, now forcing a much longer term view. The conservation of helium is one highly important factor in this context. The Very Low Temperature Commission is therefore stressing the extreme importance of this matter, and repeats its urgent request that IUPAP give it earnest and early attention.

Helium: Costs Jeopardize Future of Government Conservation Program

The fate of a government program to stockpile helium—a unique natural resource that is rapidly being wasted—is under review at high levels in the Nixon administration. The review was sparked largely by financial pressures. The government's helium conservation program, which provides for extracting helium from streams of natural gas and storing it underground for future use, has recently been running at a huge deficit. Everyone close to the situation agrees that something must be done to rectify the mess. But knowledgeable scientists are worried that the Nixon administration, in responding to short-range financial pressures, may allow the squandering of a priceless natural resource that may be desperately needed by future generations.

The outlines of the struggle are still somewhat indistinct, for much of the debate is going on behind closed doors. But, in general, the continuance of some kind of helium conservation effort seems to be favored by the scientific community and by the tiny helium industry, which profits from the existing program, while the need for further conservation has been questioned by economists and budget-oriented officials. One of the leading opponents of the conservation program is said to have been John F. O'Leary, who headed the Bureau of Mines until recently. (Helium activities accounted for almost half of the Bureau's entire 1969 budget of $117 million.) The leading scientific body that considered helium needs—a National Academy of Sciences committee—felt strongly that the conservation effort should be expanded, but its recommendations were toned down before publication because of protests by the Bureau of Mines.

The alarm over helium stems from the fact that it has unique properties for which there is often no real substitute in high-technology applications. Helium is the only gas which can be used to develop the low temperatures needed to attain superconductivity in metals, since it is the only known material that remains fluid at temperatures near absolute zero. It is also the lightest inert gas, is less soluble in fluids than any other gas, has the lowest liquefaction temperature of any gas, is the only known substance which will not freeze at atmospheric pressure, and has the lowest refractive index of any gas. Helium is nonflammable and nontoxic to man, has a small molecular cross section, and does not become radioactive.

These properties, singly and in combination, give helium many important uses, some of which are unique. The largest current use for helium is as a purging and pressurizing agent in liquid-fueled rockets. Expanding helium provides the pressure needed to push the rocket fuel to the engines, and helium keeps the propellant mixtures at the proper temperature.

Helium's lightness and nonflammability make it the safest lifting gas; its small molecular size and rarity in the atmosphere make it superb for leak detection; its nontoxicity and lightness make it valuable as a breathing mixture for underwater work; and its ability to reach low temperatures and gain superconductivity make it necessary for most kinds of super-cold applications. Helium is currently used extensively in shielded-arc welding and gas chromatography. It is also expected to play a key role in the development of nuclear reactors, lasers and masers, magnetohydrodynamics, and superconducting cables for transmitting electrical power.

The chief existing source of helium is certain natural gas reserves, of which the largest known happen to be located in the United States, primarily in Kansas, Oklahoma, and Texas. The helium in these reserves is generally thought to have been produced by long-term radioactive decay processes in which uranium and thorium emitted alpha particles (helium nuclei) which then captured electrons and became stable helium gas. The threat to this supply of helium lies in the fact that the natural gas supplies are used as a domestic household fuel. Unless the helium is extracted before the gas is delivered to the customer, it is passed into the atmosphere when the natural gas is burned.

In an effort to save this disappearing resource, the federal government launched a helium conservation program in 1960. The government has long been the leading user of helium, and the Bureau of Mines in the Depart-

ment of the Interior has operated its own helium extraction facilities for many years. Under legislation enacted in 1960, the Bureau also encouraged four private companies—Northern Helex, Cities Service Helex, National Helium, and Phillips Petroleum—to build additional extraction plants. The Bureau buys helium from the four companies under long-term (22-year) contracts and transports it through a Bureau-owned pipeline to an underground reservoir near Amarillo, Texas, where it is stored. Additional gas for storage is periodically produced by the Bureau's own plants. At the end of 1969, the reservoir contained about 24.2 billion cubic feet of helium—roughly a 30 years' supply at current rates of usage. But the program has recently cost more than expected and has accumulated gas more rapidly than anticipated. As a result, congressional committees have questioned the viability of the program and a review has been launched by the Nixon administration and its Interior Department.

It is hard to tell from the public record whether the conservation effort is apt to be abandoned, for no key official seems to have publicly recommended either droping or continuing the program. But a well-placed source in the Nixon administration told *Science*: "The conservationists are not crying wolf. At the highest levels of the administration, it is very seriously being considered to drop the program." The only public hint of the administration's intent comes in the proposed budget for fiscal 1971, which eliminated funds for further helium purchases pending the outcome of a survey of the conservation program. In a sentence which implies that the program is no longer needed, the budget document says: "A decrease in the projected demand for helium, together with technological developments that will augment the potential supply, has resulted in a decision to re-examine the need for the long-range helium program."

The conservation program, as eventually established, contemplated that the government would buy 62.5 billion cubic feet of helium from the four private contractors over the period 1961–83. The program in its early years was to be financed partly by loans from the Treasury, and partly by revenues from current helium sales, but it was ultimately supposed to pay for itself. The assumption was that the government would retain a monopoly or near monopoly of helium sales and thus could set its selling price at any level needed to make the program self-liquidating. Thus the government contracted to buy helium from the four companies at about $12 per 1000 cubic feet and it set an artificially high price of $35 per 1000 cubic feet for all sales to government agencies and other users. That price was designed to liquidate the program within 35 years.

Unfortunately, things didn't work out as planned. The total demand for helium has recently been running be-

hind projections, largely because of a slackening of activity in the space program. And to make matters worse for the government, a small private helium industry has sprung up that operates independently of the conservation program. A handful of private companies, including two companies related to those that supply helium to the government under contract, have built their own extraction facilities and are competing with the government program. The private plants undersell the government by $10 to $15 per 1000 cubic feet. They are not able to sell directly to government agencies, but they have captured about 45 percent of the total helium market by selling to private industry and to contractors that work for the government. This competition has reduced the revenues of the conservation program and has forced it to borrow additional money from the treasury. Meanwhile interest rates have soared far beyond expectations, thus increasing the costs of the program. The program entered fiscal year 1970 with about $18 million in unpaid bills. Under existing conditions, Interior Department officials say the program is "financially untenable" and will not be self-liquidating in 35 years as required.

In an effort to cut costs, the Bureau of Mines has closed down two of its older helium plants and is phasing out a third. It is also shutting its Helium Research Center near Amarillo, which has some 69 employees and an annual budget of some $1.2 million. "We feel it is pure folly to shut us down," says L. W. Brandt, the center's director. "Continuing research is needed." Laboratory personnel are particularly upset that the closing notice came without warning and without prior consultation with them. "It's a hell of way to phase out a facility," says Robert Barieau, the center's project leader in thermodynamics.

The problems confronting the conservation program have led some authorities to suggest that it be abandoned or reevaluated. Lee E. Preston, an economist at the State University of New York at Buffalo, has conducted a cost-benefit analysis of the program and concluded that "additional purchases for storage should cease as soon as possible." The General Accounting Office (GAO), the House Appropriations Committee, and the Budget Bureau have also raised questions. A recent GAO report was so negative in tone that the helium industry charged it was "apparently designed to justify cancellation of the entire program." The picture is complicated by the fact that the program has long had the aura of a "give-away" to the helium companies. At least one House member has scornfully called it "the Helium Poverty Program," and a 1963 GAO report charged that the government would incur "unjustified costs" of at least $155 million over the life of the helium contracts.

Those who argue for curtailing or canceling the conservation program generally contend that there is already

plenty of helium in storage or in newly found gas reserves to meet foreseeable demand for many, many years; that there is a potential for discovering new helium reserves, especially since no systematic exploration for helium has ever been undertaken; and that improvements in technology will undoubtedly permit extraction of helium from gas sources previously considered too lean for economical use. Since these analysts foresee no shortage of helium, they consider costs the crucial question, and they conclude that the present conservation program is too costly a way to meet future needs.

Informed elements of the scientific community, on the other hand, argue that a vital element should be conserved even if the program can't pay for itself as originally planned. "It should be run like a conservation program, not like a business," says Preston E. Cloud, Jr., chairman of the National Academy of Sciences committee that produced a recent report on "Resources and Man." The members of Cloud's committee unanimously agreed that helium is an irreplaceable commodity that is being wasted in great quantities. They originally wrote a recommendation urging that the conservation program be expanded to extract helium from leaner sources. But before the committee's report was published, it was circulated, as a matter of courtesy, to the sponsors who provided financial support. One of these sponsors—the Bureau of Mines—objected. The Bureau had no veto power over the committee's recommendations, but Cloud says the Bureau claimed that more recent data than that relied upon by the committee "raised questions about our helium recommendation as originally written." Cloud said that because of the Bureau's objections, and because it is always possible that helium will eventually be produced by nuclear fusion or perhaps even by extraction from the atmosphere, he reworded his committee's report so that it simply calls for reevaluation of the conservation program and subsequent expansion if deemed necessary. However, Cloud said he strongly believes, as an individual, that conservation should be continued and expanded. "To say that something will come along [to ensure an adequate helium supply] is an act of faith that shouldn't be used as a basis for public policy," he added.

The Office of Science and Technology, headed by Lee A. DuBridge, President Nixon's science adviser, is also said to favor continued conservation, though it won't comment on the issue on the grounds that its advice is intended solely for the White House. OST is said to believe that while the conservation program may need reform, it would be a "bad mistake" to allow rich supplies of helium to escape into the atmosphere.

The cause of conservation is also being promoted by a small-scale industrial-academic complex. The companies that hold helium extraction contracts with the government have organized a Helium Society and have enlisted more than 1100 members, mostly from the academic world. The Society has hired M. Scott Carpenter, the former astronaut, to act as its president. It will hold a symposium in Washington, D.C., on 23 and 24 March. James R. Killian, Jr., former science adviser to President Eisenhower, will act as honorary chairman, and a slew of helium experts will give papers.

The debate over helium conservation stems largely from a difference in gut feelings about the future. Conservationists view helium as an irreplaceable resource. They believe it is in danger of being wasted with no real assurance that an alternate supply will be found or a substitute material developed to meet potentially sizable future needs. Critics of the program, on the other hand, suspect that large quantities of gas are being stored at unreasonable cost to meet futuristic demands that can barely be foreseen. They believe there are cheaper ways than long-term storage to meet whatever needs may develop. Each side comes up with differing estimates of future supply and demand and differing conclusions as to whether helium conservation is necessary and desirable. Hopefully the Nixon administration and the appropriate congressional committees will sift through the conflicting claims and make certain that a precious natural resource is not squandered simply because the existing conservation program has run into severe problems.—PHILIP M. BOFFEY

UNION INTERNATIONALE de PHYSIQUE PURE et APPLIQUÉE

INTERNATIONAL UNION of PURE and APPLIED PHYSICS

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MEMO to Members of the Executive Committee
from the Associate Secretary-General

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Please note the following corrections to be made to the list of 1971 conferences recently circulated to you.

Unfortunately, the circulated list did not include the corrections brought to the initial proposals as a result of discussion at the Executive meeting.

No. 6 : Int. Conf. on Crystal Growth: $2,000. instead of $1,000.

No. 16: Int. Conf. on Vacuum UV radiation Physics: $2,500. instead of $2,000.

No. 17: Int. Conf. on Atomic Collisions: $4,000. instead of $3,000.

Québec, December 3rd, 1970.

PHYSIQUE INTERNATIONALE

I.U.P.A.P. News-Bulletin No. 20 December 1970

INTERNATIONAL CONFERENCES in 1971

At its October meeting, the Executive Committee, acting on the recommendation of the various International Commission, extended the sponsorship of the Union to 20 international conferences, being organized in 12 member countries (Australia, Canada, Denmark, France, Hungary, Israel, Japan, Netherlands, U.S.A., U.S.S.R.). The complete list was published as issue No. 19 of this News-Bulletin (October 1970). The first of these conferences is scheduled for April 5-7th at Tel-Aviv Israel, when the conference on Duality and Symmetry in Hadron Physics will be organized by Prof. Y. NE'EMAN.

IUPAP MEMBERS HONORED

All IUPAP members rejoiced to learn of the awarding of the Nobel Prize in Physics for 1970 to Prof. Louis NÉEL of France and Prof. H.O.G. ALFVEN of Sweden. Prof. Néel was President of the Union from 1963 to 1969. Prof. Alfven is one of the founding members of the International Commission on Plasma Physics.

1972 GENERAL ASSEMBLY at WASHINGTON

Lieu of the 1972 IUPAP General Assembly, which will correspond with the 50th anniversary of the Union, has been fixed in Washington, U.S.A. The dates have not been fixed, pending liaison with the E.P.S. to avoid a conflict, but will probably be in the second half of September.

NEW SECRETARY-GENERAL at I.C.S.U.

Professor F.A. STAFLEU of the Netherlands was elected as Secretary-General of ICSU at its Madrid General Assembly. He succeeds Prof. K. Chandrasekharan of India.

UNISIST : "feasible"

The UNESCO-ICSU Committee on the establishment of a World Science Information System has reported that it is feasible. An intergovernmental conference will be held in 1971 to establish mechanisms.

PHYSICS ARCHIVES

Participants in the Seminar on the Role of the History of Physics in Physics Education (at M.I.T., July 1970) called the attention of the Education Commission to the importance of preserving archival material. It was urged to alert "physicists and physics organizations of all nations, including the National Committees of the Union to the need of preserving their own personal papers, and .... similar records of their scientific institutions, journals, and societies".

The Commission on Physics Education advises:

: that Dr. Charles Weiner of the American Institute of Physics' Center for the History and Philosophy of Physics has offered the Center's services to aid societies or countries in setting up Physics archives;

: Prof. Stephen Brush of the University of Maryland is organizing a committee on the translation of Historical Materials.

ICSU and POLLUTION : Noise

The General Assembly of ICSU, held at Madrid in September 1970, reviewed plans for its Special Committee on the Problems of the Environment (SCOPE). A possible duplication of effort with UNESCO's Man and the Biosphere (MAB) programme was noted, and liaison established between the two groups. IUPAP's contribution to the ICSU project will concern itself largely with pollution by noise. Dr. Andres LARA of Spain's Centro de Investigaciones Fisicas has been named by the Union to the SCOPE Committee, on the recommendation of the Commission on Acoustics.

CRITERIA for CONFERENCE PAPERS

At the October 1970 Union Executive meeting, it was agreed that, in addition to the other criteria (News-Bulletin No. 15, January 1970) IUPAP would only sponsor conferences where papers were accepted and refereed as to their scientific content and relevance to the conference. Political or institutional criteria may not be used.

IUPAP

I.U.P.A.P.
Executive Committee
Minutes of the meeting of October 2nd-3rd, 1970
Copenhagen, Denmark.

The Executive convened at 14h.00 in the Niels Bohr Institute, where excellent arrangements had been made by Dr. S. Rozental.

President Bacher presided.

Were also present: Dr. S. Bhagavantam, Prof. W. Boas,
Prof. W. Dekeyser, Prof. C.C. Butler
Prof. A. Kestler, Prof. L. Kerwin
Prof. V. Maier-Leibnitz, Prof. L. Pal,
Prof. V. Weisskopf, Dr. S. Rozental.

During the meeting, Mr. Eisenstern, artist, assisted, making sketches of the committee members.

Sent apologies for their absence: Prof. D.I. Blokhintsev
Prof. G. Bernardini.

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1. Introduction

The President welcomed the members to the meeting, and expressed the pleasure of the Executive at finding itself in the Niels Bohr Institute. Dr. Rozental welcomed the meeting to Copenhagen and expressed the hope that the members might find some time to savor the historical and other attractions of the City.

2. Agenda

Professor Butler reviewed the proposed agenda briefly, indicating that the jurisdiction over thin films (item 6), election methods (item 13), and ICSU business (item 9) might be the most time-consuming matters. It was agreed to leave item 12 over until the next day.

Thus presented, the agenda was adopted unanimously.

3. Minutes

Those of the pre-XIIIth General Assembly (September 10, 1969) and post-XIIIth General Assembly (September 13, 1969) meetings of the Executive Committee both held at Dubrovnik were presented and adopted unanimously on motion by Prof. Boas seconded by Dr. Bhagavantam.

4. Matters arising from (3)

These were referred to item 16.

5. Reports from Secretariat

a) Secretary-General Butler reviewed the routine but important business concerning international conferences and liaison with Commissions and National Committees.

He reported progress in obtaining information concerning conferences, but continued difficulties in the matter of nominations.

b) Professor Kerwin commented on the secretariat services at Quebec (the availability of Mme Balaux for half-time had been of great assistance), the distribution of the News-Bulletin, the publishing of IUPAP-16, the setting up of the Union fichier, the evolution of the conference check-list.

The reports were received, and the continuing of the half-time position at Quebec approved.

6. Commission Reports

The Secretary-General tabled the reports received thus far (copies to members of the Executive) and submitted several particular points for discussion:

a) No. 5: Low Temperature — A problem had arisen with respect to the International Conference held in Japan in that the Japanese Physical Society which co-sponsored the meeting did not wish to accept papers from laboratories sponsored by armed services (e.g. the U.S. Naval Research Laboratory). Discussion revealed unanimity on the point that scientific criteria only might be used in IUPAP-sponsored meetings.

It was agreed to modify the conference check-list to ensure this policy being carried out and the secretariat was instructed to do everything possible to enforce it.

It was then proposed by Dr. Bhagavantam and seconded by Prof. Dekeyser and unanimously adopted that:

> Page 82 of IUPAP-16 be modified by adding (2.A(c)) ''The accepting of papers must not be based on any but criteria of scientific merit''.

A preliminary report had been submitted on the problem of helium stockage. The U.S. program aiming at storing 10^{11} c.f. had been stopped at about 2.5×10^{10} c.f. This was considered an insufficient reserve for world purposes. The Commission suggested that the Union might advise governments of the importance of this programme and possibly take action through ICSU.

President Bacher undertook to obtain information on the U.S. position and to report to the 1971 Executive meeting.

At Prof. Weisskopf's suggestion, the Secretary-General undertook to obtain information on any comparable USSR programme.

Prof. Boas reported that the Sydney Conference had had over 50% of its papers from outside the country.

b) No. 6: Publications — President Bacher undertook to find out why no report had been submitted.

c) No. 9: Magnetism — No replacement for the USSR member had yet been suggested. The Secretary-General would follow this up.

d) No. 12: Nuclear Physics — It was noted that the Commission did not plan any major conference for the next four years, although several small conferences were scheduled. Professor Kerwin would contact Professor Bell and see if one might not be considered timely for 1972.

e) No. 14: Education — The Secretary-General reported that the Commission had been very active. Professor Kerwin noted that the Commission had reported two visa problems in connection with its Conference in Hungary. Dr. Kelly, Prof. Nagy, Prof. Pal, Prof. Kastler (then in Budapest) and Prof. Kerwin had intervened and the visas had finally been granted,

although tardily. Professor Kastler expressed the opinion that the matter had been essentially technical (e.g. in the case of a South African delegate, the lack of diplomatic relations between Hungary and South Africa made visas complicated). A note would be sent to ICSU.

The Commission proposed to collaborate with I.U.H.P.S. on a 'History of Physics'. Professor Weisskopf expressed reserves about a book written by Committee, and doubts about the availability of first class physicists really cognizant on such history.

7. Cospar

Dr. Bhagavantam reported the highlights of the Leningrad meeting. The main problem seemed to be to get the various components of COSPAR to work together. An example was the fact that the physicists on the various National Committees for COSPAR did not work through IUPAP, which had no official representatives on working groups or committees - although there were physicists present on them. He suggested that the Secretary-General write to the National Committees for COSPAR for suggestions of names of physicists which IUPAP might name to COSPAR committees.

The Secretary-General and Professor Maier-Leibnitz pointed out that this situation was difficult to change. COSPAR already had national committees in all but 4 IUPAP countries. There was even a COSPAR country that was not in IUPAP.

It was decided that Professor Kerwin should write to National Committees urging them to dialogue with COSPAR national committees and to submit names of members to the COSPAR working groups.

8. Thin Films

The International Committee on Thin Films had forwarded a proposal through Dr. Boas that an International Commission on the subject be set up. This area of Physics clearly had ramifications in Solid State, Semiconductors, and Magnetism, already the subject of three Commissions. One of the Executive's specific responsibilities being to delineate the fields for Commissions, the subject was the object of the lengthy detailed discussion.

No formal action was taken for the moment.

13. Commission elections

a) The difficulties attendant on elections to Commissions at General Assemblies were reviewed by the Secretary-General. The present system resulted in too many members (particularly corresponding members) named hastily, some of which were poorly identified and difficult to locate. The role of corresponding member had become ambiguous.

b) These comments and suggested remedies were discussed at length by all members.

It was agreed to consider the matter in depth at the morning meeting.

The session then adjourned.

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d) These proposals initiated much discussion, including comments by Professor Butler on limiting the length of the Secretary-General's mandate, by Professor Maier-Leibnitz on the need for regular rotation of Commission members and the difficulty of getting National Committees to name young and active members, and by several concerning the need for certain changes in the Statutes (a preliminary list of possible changes had been circulated as a working document).

It was decided to adopt Professor Butler's suggestions except for the number of Commission members, which was set as possibly varying between 7 and 10, and in addition it was agreed that it was difficult for Commissions to be given votes in the Assembly and that the Associate Secretary-General should be officially included in the Executive.

It was agreed that the Financial Commission did not come under the discussion, and should henceforth be named the Financial Committee.

9. ICSU Affairs

Dr. Bhagavantam commented briefly on the ICSU General Assembly held in Madrid the week previously. He noted that scientists were probably more likely than others to speak of cooperation between nations without acrimony. Professor Bacher noted the need for a bolstered ICSU, and the difficulty of finding practical ways to do this.

Professor Kerwin reported his opinion of the ICSU budget as being unsatisfactory. In spite of a 20% increase in national fees and an increase in the (minor) Union contributions, a $200,000 deficit over the next two years was forcast. An 'appeal' to alleviate this was being considered. One factor for this situation was the [redacted] GARP project, budgeted at $70,000. a year, with no assured revenues.

10. Financial Reports

a) The audited financial report for 1969 corresponded well with the preliminary report examined by the Executive in September 1969. It was adopted. The surplus of $10,000 brought the capital account to $53,000, close to the goal of one year's operating budget as capital reserve.

b) The state of the 1970 budget as of September 1st was examined. No exceptional items presented themselves, and the probable deficit of $500 corresponded with a budgeted surplus of $600. This was received.

11. Conferences for 1971

The Secretary-General reviewed the submitted proposals. The use of a check-list had improved the information available, but much remained to be done in this way. The Executive approved a number of proposals for Union sponsorship and requested Professors Butler and Kerwin to present a preliminary Conference budget for the next day (see item 12).

14. 1972 General Assembly

a) It was agreed that Washington, U.S.A. should be the locale of the Assembly.

b) The meeting coinciding with the 50th Anniversary of the Union, it was felt that a special budget should be provided (possibly $10,000, to be discussed in 1971), and that a large local committee would have more than the usual arrangements to make.

c) It was noted that there might be conflict with a EPS meeting and with the ICSU Assembly in Helsinki. Professor Weisskopf agreed to write EPS concerning dates, that for the Washington meeting to be set in 1971.

d) It was noted that a special General Assembly would be held just previous to the regular General Assembly to make the changes in Statutes necessary for new type elections at the regular General Assembly.

12. Financial Allocations for 1971

The Secretariat presented a proposed list of grants for international conferences in 1971. Following some modifications, the list was approved. In Appendix I will be found the complete list of sponsored conferences, with pertinent grants.

15. 1971 Executive Meeting

An invitation had been received from the Royal Irish Academy inviting the Executive to Dublin for its 1971 meeting.

Professor Pal also extended a warm invitation from the Hungarian National Committee to meet in Budapest. It was decided to accept the prior Irish invitation, and to hope that the Hungarian invitation would be partie remise.

It was noted that the ICSU executive meeting in Ottawa on September 29-30, 1971, might make the Dublin meeting take place on (Sunday) 26th and 27th. Professor Kerwin would stop in Dublin to see if these arrangements were convenient.

16. Other Business

a) Professor Butler commented on the evolution of the European Physical Society. It had a very large permanent secretariat and 7 commissions, most of which corresponded to IUPAP Commissions. It also had a number of working groups. A document existed describing its work. About 25,000 physicists belonged to the adhering groups and there were 840 individual members. Three meetings were held a year, there were 20 conferences yearly, and the operating budget was 300,000 Swiss francs.

No difficulties were envisaged for IUPAP.

b) The matter of extending grants to conferences imposing a conference fee was discussed. The practice seemed rather generalized. Meetings also raised funds by renting exhibit space. It was agreed that such income should be mentioned in proposals.

17. Adjournment

Unanimous.

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INTERNATIONAL UNION of PURE and APPLIED PHYSICS

UNION INTERNATIONALE de PHYSIQUE PURE et APPLIQUÉE

Liste des congrès approuvés en 1971

Conferences approved for 1971

Commission on Thermodynamics and Statistical Mechanics

1.	Int. Conf. on Statistical Mechanics Organizer: Prof. Stuart A. RICE, University of Chicago, The James Franck Institute, 5640, Ellis Avenue, Chicago, Illinois 60637, U.S.A.	'A' $3,000.	Chicago U.S.A.	29 March- 2 April
2.	Conf. on Theoretical Physics and Biology Org.: Prof. M. MARCIS, Institut de la Vie, 89, boulevard St-Michel, Paris Ve, FRANCE.	'C' $0.	Versailles FRANCE	21-26 June

Commission on Cosmic Rays

3.	12th Int. Conf. on Cosmic Rays Org.: Drs. K.B. and A.G. FENTON, University of Tasmania, Department of Physics, Box 252 C, GPO Hobart, Tasmania 7001, AUSTRALIA.	'A' $8,000.	Hobart TASMANIA	16-25 August

Commission on Acoustics

4.	7th Int. Conf. on Acoustics Org.: Prof. T. TARNOCZY, Acoustical Research Group, Puskin u. 5-7, Budapest VIII, HUNGARY.	'A' $5,000.	Budapest HUNGARY	18-26 August

Commission on Semiconductors

5. Int. Conf. on Amorphous and Liquid Semiconductors — 'B' — $0. — Ann Arbor U.S.A. — 8-13 August

Org.: Prof. Morrel H. COHEN,
The James Franck Institute,
5640, Ellis Avenue South,
Chicago, Illinois 60637, U.S.A.

Commission on Solid State

6. Int. Conf. on Crystal Growth — 'B' — $1,000. — Marseille FRANCE — 5-9 July

Org.: Dr. MUFTACHIEV,
University of Marseille,
Marseille, FRANCE.

7. Int. Conf. for Solid Surfaces — 'B' — $0. — Boston U.S.A. — 11-18 October

Org.: Prof. C.B. DUKE,
Department of Physics,
University of Illinois,
Urbana, Illinois 61801, U.S.A.

8. Conf. on Colour Centres in Ionic Crystals — 'B' — $3,000. — Reading ENGLAND — 13-17 September

Org.: Prof. E.W.J. MITCHELL,
J.J. Thomson Physical Laboratory,
Whiteknights Park,
Reading, Berks., ENGLAND.

9. Int. Conf. on Light Scattering in Solids — 'B' — $2,000. — Paris FRANCE — 19-23 July

Org.: Prof. M. BALKANSKI,
Laboratoire de Physique des Solides,
Tour 13, 2ième étage,
Faculté des Sciences,
9, Quai St-Bernard,
Paris Ve, FRANCE.

Commission on Particles and Fields

10. VIIIth Int. Conf. on High Energy Accelerators — 'B' — $2,000. — CERN SWITZERLAND — 20-24 September

Org.: Dr. K. JOHNSON,
CERN,
1211 Geneva 23, SWITZERLAND.

11. Int. Conf. on Electron and Photon Interactions at High Energies — 'B' — Ø1,000. — Ithaca U.S.A. — 23-28 August

Org.: Prof. B.D. McDANIEL,
Laboratory of Nuclear Studies,
Cornell University,
Ithaca, N.Y. 14850, U.S.A.

12. Int. Conf. on Duality and Symmetry in Hadron Physics — 'B' — Ø1,000. — Tel-Aviv ISRAEL — 5-7 April

Org.: Prof. Y. NE'EMAN,
Dept. of Physics and Astronomy,
Tel-Aviv University,
Ramat-Aviv,
Tel-Aviv, ISRAEL.

13. Int. Conf. on High Energy Physics and Nuclear Structure — 'B' — Ø1,000. — Dubna U.S.S.R. — 7-12 September

Org.: Prof. V.P. DZHELEPOV,
Lab. of Nuclear Problems,
Joint Institute for Nuclear Research,
Head Post Office Box 79,
Moscow, U.S.S.R.

Commission on Nuclear Physics

14. Conf. on Statistical Properties of Nuclei — 'B' — Ø2,000. — Albany U.S.A. — 23-27 August

Org.: Dr. Jagadish B. GARG,
Physics Department,
SUNY at Albany,
1400 Washington Avenue,
Albany, N.Y. 12203, U.S.A.

Commission on Atomic Masses and Related Constants

15. IVth Int. Conf. on Atomic Masses and Related Fundamental Physical Constants — 'B' — Ø3,000. — Teddington ENGLAND — 6-10 September

Org.: Prof. E. Richard COHEN,
Science Center,
North American Rockwell Corporation,
1049, Camino Dos Rios,
Thousand Oaks, California 91360, U.S.A.

Commission on Atomic and Molecular Physics and Spectroscopy

16. 3rd Int. Conf. on Vacuum UV Radiation Physics — 'B' — Ø2,000. — Tokyo JAPAN — 30 August-2 September

Org.: Prof. Kozo ISHIGURO,
University of Tokyo,
College of General Education,
Komaba, Tokyo 113, JAPAN.

17. VIIth Int. Conf. on the Physics of Electronic and Atomic Collisions — 'A' — Ø3,000. — Amsterdam NETHERLANDS — 26-31 July

Org.: Prof. Dr. J. KISTEMAKER,
FOM-Instituut voor Atoom- en Molecuulfysica,
Kruislaan 407,
Amsterdam-Watergraafsmeer, NETHERLANDS.

Co Commission on Plasma Physics

18. Xth Int. Conf. on Phenomena in Ionized Gases — 'B' — Ø4,000. — Oxford ENGLAND — 13-18 September

Org.: Dr. R.N. FRANKLIN,
Keble College,
Oxford, ENGLAND.

19. Int. Symposium on Plasma Physics — 'C' — Ø0. — ? Est. CANADA — ? July

Org.: Dr. M.P. BACHYNSKI,
RCA Laboratories,
1001, Lenoir,
Montréal, P.Q. CANADA.

Relativity

20. 7th Int. Conf. on General Relativity and Gravitation — 'A' — Ø3,000. — Copenhagen DENMARK — ? July

Org.: Proc. C. MØLLER,
NORDITA,
Blegdamsvej 17,
DK-2100, Copenhagen Ø, DENMARK.

PHYSIQUE INTERNATIONALE

I.U.P.A.P. Bulletin No 19 Octobre 1970 October

At the meeting of the Executive Committee of I.U.P.A.P. held in Copenhagen in October 1970, the patronage of the Union was extended to the following international conferences to be held in 1971.

Where no source of information is listed, inquiries should be directed to the Secretary of the appropriate International Commission.

PLEASE KEEP THIS ISSUE OF THE NEWS-BULLETIN FOR REFERENCE

Lors de la réunion du Comité exécutif de l'U.I.P.P.A. tenue récemment à Copenhague, on a accordé l'appui de l'Union aux congrès internationaux dont la liste apparaît ci-après.

Dans le cas où aucune source particulière d'information n'est mentionnée, les intéressés sont priés de s'adresser directement au Secrétaire de la Commission internationale appropriée pour obtenir des renseignements supplémentaires.

VEUILLEZ CONSERVER CE NUMÉRO DU BULLETIN DE NOUVELLES POUR FINS D'INFORMATION ET DE RÉFÉRENCE

I.U.P.A.P.
Categories for International Conferences

A - Large (500-2000) full-fledged meetings where all or most aspects of a Commission's field are examined and reviewed. Most Commissions will only sponsor one such major meeting every three years.

B - Medium (100-500) sized conferences at which a particular aspect of a Commission's area of responsibility is examined in detail. A Commission might sponsor one such meeting a year.

C - Small (40-100) sized meetings, often by invitation only, where specialists gather to assess progress in a very limited field. Such meetings might be satellite conferences, preceeding or following a Category A meeting.

U.I.P.P.A.
Catégories des congrès internationaux

A - Grandes conférences plénières (500-2000) touchant tous les aspects du champ d'intérêt d'une Commission. En général, une Commission en organisera une à tous les trois ans.

B - Congrès moyens (100-500) alors qu'on étudiera un aspect particulier du champ d'intérêt et de responsabilité d'une Commission. Il peut y avoir un tel congrès à chaque année.

C - Petites réunions (40-100), souvent sur invitation, alors que des spécialistes examineront une question limitée. De tels congrès seront souvent organisés à l'occasion d'un congrès de la Catégorie A .

INTERNATIONAL UNION of PURE and APPLIED PHYSICS

UNION INTERNATIONALE de PHYSIQUE PURE et APPLIQUÉE

Liste des congrès approuvés en 1971

Conferences approved for 1971

Commission on Thermodynamics and Statistical Mechanics

1. Int. Conf. on Statistical Mechanics Organizer: Prof. Stuart A. RICE, University of Chicago, The James Franck Institute, 5640, Ellis Avenue, Chicago, Illinois 60637, U.S.A.	'A'	Chicago U.S.A.	29 March- 2 April
2. Conf. on Theoretical Physics and Biology Org.: Prof. M. MAROIS, Institut de la Vie, 89, boulevard St-Michel, Paris Ve, FRANCE.	'C'	Versailles FRANCE	21-26 June

Commission on Cosmic Rays

3. 12th Int. Conf. on Cosmic Rays Org.: Drs. K.B. and A.G. FENTON, University of Tasmania, Department of Physics, Box 252 C, GPO Hobart, Tasmania 7001, AUSTRALIA.	'A'	Hobart TASMANIA	16-25 August

Commission on Acoustics

4. 7th Int. Conf. on Acoustics Org.: Prof. T. TARNOCZY, Acoustical Research Group, Puskin u. 5-7, Budapest VIII, HUNGARY.	'A'	Budapest HUNGARY	18-26 August

Commission on Semiconductors

5. Int. Conf. on Amorphous and Liquid Semiconductors Org.: Prof. Morrel H. COHEN, The James Franck Institute, 5640, Ellis Avenue South, Chicago, Illinois 60637, U.S.A.	'B'	Ann Arbor U.S.A.	8-13 August

Commission on Solid State

6. Int. Conf. on Crystal Growth Org.: Dr. MUFTACHIEV, University of Marseille, Marseille, FRANCE.	'B'	Marseille FRANCE	5-9 July
7. Int. Conf. for Solid Surfaces Org.: Prof. C.B. DUKE, Department of Physics, University of Illinois, Urbana, Illinois 61801, U.S.A.	'B'	Boston U.S.A.	11-18 October
8. Conf. on Colour Centres in Ionic Crystals Org.: Prof. E.W.J. MITCHELL, J.J. Thomson Physical Laboratory, Whiteknights Park, Reading, Berks., ENGLAND.	'B'	Reading ENGLAND	13-17 September
9. Int. Conf. on Light Scattering in Solids Org.: Prof. M. BALKANSKI, Laboratoire de Physique des Solides, Tour 13, 2ième étage, Faculté des Sciences, 9, Quai St-Bernard, Paris Ve, FRANCE.	'B'	Paris FRANCE	19-23 July

Commission on Particles and Fields

10. VIIIth Int. Conf. on High Energy Accelerators Org.: Dr. K. JOHNSON, CERN, 1211 Geneva 23, SWITZERLAND.	'B'	CERN SWITZERLAND	20-24 September

11. Int. Conf. on Electron and Photon Interactions at High Energies Org.: Prof. B.D. McDANIEL, Laboratory of Nuclear Studies, Cornell University, Ithaca, N.Y. 14850, U.S.A.	'B'	Ithaca U.S.A.	23-28 August
12. Int. Conf. on Duality and Symmetry in Hadron Physics Org.: Prof. Y. NE'EMAN, Dept. of Physics and Astronomy, Tel-Aviv University, Ramat-Aviv, Tel-Aviv, ISRAEL.	'B'	Tel-Aviv ISRAEL	5-7 April
13. Int. Conf. on High Energy Physics and Nuclear Structure Org.: Prof. V.P. DZHELEPOV, Lab. of Nuclear Problems, Joint Institute for Nuclear Research, Head Post Office Box 79, Moscow, U.S.S.R.	'B'	Dubna U.S.S.R.	7-12 September

Commission on Nuclear Physics

14. Conf. on Statistical Properties of Nuclei Org.: Dr. Jagadish B. GARG, Physics Department, SUNY at Albany, 1400 Washington Avenue, Albany, N.Y. 12203, U.S.A.	'B'	Albany U.S.A.	23-27 August

Commission on Atomic Masses and Related Constants

15. IVth Int. Conf. on Atomic Masses and Related Fundamental Physical Constants Org.: Prof. E. Richard COHEN, Science Center, North American Rockwell Corporation, 1049, Camino Dos Rios, Thousand Oaks, California 91360, U.S.A.	'B'	Teddington ENGLAND	6-10 September

Commission on Atomic and Molecular Physics and Spectroscopy

16. 3rd Int. Conf. on Vacuum UV Radiation Physics 'B' Tokyo JAPAN 30 August-2 September

Org.: Prof. Kozo ISHIGURO,
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Komaba, Tokyo 113, JAPAN.

17. VIIth Int. Conf. on the Physics of Electronic and Atomic Collisions 'A' Amsterdam NETHERLANDS 26-31 July

Org.: Prof. Dr. J. KISTEMAKER,
FOM-Instituut voor Atoom- en Molecuulfysica,
Kruislaan 407,
Amsterdam-Watergraafsmeer, NETHERLANDS.

C9 Commission on Plasma Physics

18. Xth Int. Conf. on Phenomena in Ionized Gases 'B' Oxford ENGLAND 13-18 September

Org.: Dr. R.N. FRANKLIN,
Keble College,
Oxford, ENGLAND.

19. Int. Symposium on Plasma Physics 'C' ? Est. CANADA ? July

Org.: Dr. M.P. BACHYNSKI,
RCA Laboratories,
1001, Lenoir,
Montréal, P.Q. CANADA.

Relativity

20. 7th Int. Conf. on General Relativity and Gravitation 'A' Copenhagen DENMARK ? July

Org.: Proc. C. MØLLER,
NORDITA,
Blegdamsvej 17,
DK-2100, Copenhagen Ø, DENMARK.

REPORT OF THE INTERNATIONAL WORKING SEMINAR ON THE ROLE OF HISTORY OF PHYSICS IN PHYSICS EDUCATION

During the week of 13-17 July 1970, thirty-two persons from twelve countries, including physicists, physics teachers in universities and secondary schools, and historians of science met at the Massachusetts Institute of Technology in a seminar held under the auspices of the IUPAP Commission on Physics Education.

The participants in the Seminar shared a serious interest in the use of historical viewpoints and materials in the teaching of physics. Their purpose therefore was not to convince anyone that history should be used in physics teaching, but rather to explore and promote concrete methods for doing so. After five days of discussion and exchange of information and experiences, the International Working Seminar adopted several specific recommendations and began implementing some of them. The ultimate success of the Seminar, however, will depend on enlisting the cooperation of many other people. This brief report summarizes the recommendations and suggestions for carrying them out; further details, including selected lists of available resources, will be published later in a volume of "proceedings".

1. A Book on the History of Physics

The Seminar proposes that the IUPAP, together with the International Union of the History and Philosophy of Science, appoint an editorial council of physicists, historians, and other persons competent in the philosophical, social, and economic aspects of the development of physics, for the purpose of planning a book on the history of physics, primarily for teachers and advanced students of physics.

Although a number of excellent books on various aspects and periods of the history of physics are available, the participants in this Seminar know of no single authoritative book in English or any of the major European languages which

is comprehensive and up to date in the history of physics for physics teachers and advanced students of today. Such a book, it is believed, would raise the quality of both education and research in physics throughout the world.

The proposed Council would help ensure the approval of this project by the international physics community for which the book is to be prepared. The actual preparation of the book should be done by qualified historians of physics in accordance with guidelines developed by the Council. Authors and the Council should meet several times in conferences at initial and intermediate stages of preparation in order to discuss the nature of the book, methods of presentation, style, and other factors. It would be helpful if the Union would facilitate the translation of this book into other languages. It is recognized that part of the financial support for this project may have to be sought from other sources, but we consider it desirable that the project have the official sponsorship of the IUPAP and the IUHPS. Further suggestions for the execution of this project are included in the comments appended to this resolution.

Comments. In the interests of expediting the implementation of this project, the Seminar suggests that Dr. Max Jammer be responsible for carrying it forward, at least in the initial stages. It is further suggested that the editorial council should include in addition to Dr. Jammer at least one official representative of each of the two Unions, the IUPAP and the IUHPS, as well as competent scientists and scholars. We urge that the actual writing of the book be done by a very small number of authors (no more than about ten), and that the contributions of these authors not be regarded as independent sections of the book but that each author should confer with his co-authors in order to produce a coherent presentation and to avoid redundancy. While it is expected that the book will be written on a fairly advanced technical level and will concern itself mainly with the internal developments

of physics, some attention should be given to the philosophical and sociological aspects. The book should not be regarded as a handbook, but it should contain sufficient references to the relevant professional literature to facilitate further studies.

The working group which discussed this project recognizes that no single book prepared in this way would be completely satisfactory to everyone. Some would prefer a stronger emphasis on social and philosophical aspects; others would claim that the phrase "history of physics" misleadingly implies that physics can be treated as a science whose history is separate from that of the other sciences. We wish to make it clear that we are not requesting the international Unions to give official approval to this project in any exclusive sense that would deny the value of alternative approaches; rather, we believe that physics teachers and advanced students do feel a need for a book of the particular kind we are preparing.

2. Encouragement and Assistance to Teachers

(a) The Seminar requests that the International Commission on Physics Education inform national authorities concerned with physics education of the activities of the Seminar, and that they encourage these bodies to establish mechanisms to allow and encourage teachers of physics at all levels to use historical materials in their courses, in general accordance with the aims and goals in the Seminar report.

(b) It is further requested that the Commission encourage agencies and institutions responsible for the education (including refresher education) of those who teach physics, both at the secondary school and college level, to include training in the use of historical materials in their teacher preparation programs. As a first approximation, it is suggested that at least one course in the history of science focussing on the history of

physics and an introduction to the case study method is essential if teachers are to be adequately equipped to use historical materials in their own classrooms.

Comments. In order to implement these recommendations, it is especially important that the physics teacher have easily available such materials as short monographs on single topics in the history of physics, and annotated explanatory editions of historic books, articles, and collections of articles, as well as a comprehensive single book like the one described in the preceding recommendation. Participants in the Seminar have prepared lists of existing and proposed materials in the history of physics for classroom use, including complete courses such as Harvard Project Physics; case studies such as those edited by Conant and by Klopfer; books of various kinds; bibliographies; films; packages of multi-media materials on a single topic; and recommendations for teacher education. A few participants have already developed such materials or have taken the responsibility for preparing further materials that seem to be needed, and for trying them out in their own classes. The lists and other information will be published in a volume of proceedings.

3. Archival Materials

Physics education can be enriched through appropriate use of information on the development of 20th century physics obtained through well-documented historical studies based on archival materials. We are concerned that these materials will be lost, scattered, or destroyed unless serious efforts are made to preserve them in appropriate libraries, archives, and museums where they can be made available for scholarly use. We are encouraged by the results of such efforts now under way in several nations, but we wish to emphasize that much more needs to be done to provide the sound archival base that is essential for historical studies of recent physics. We urge the IUPAP to alert the physicists and physics organizations of

all nations, including the national committee of the Union, to the need to preserve their own personal papers (correspondence, manuscripts, photographs, historical apparatus, notebooks, etc.) and similar records of their scientific institutions, journals, and societies. (Information on what, where, and how to preserve such materials will be contained in the published proceedings of this Seminar.)

Comment. For this effort, Dr. Charles Weiner, Director of the Center for the History and Philosophy of Physics at the American Institute of Physics, has offered the services of the Center to the international physics community. Help would be given in establishing similar centers in other countries, and where no centers exist, it would be prepared to advise on where personal papers, photographs, historical apparatus, and other appropriate materials could be deposited.

4. Translations of Historical Materials

The Seminar requests the International Commission on Physics Education to cooperate with the Commission on Teaching of the International Union for History and Philosophy of Science and other scientific unions in establishing a committee on translations in the history of science. Such a committee should act as a clearinghouse for exchange of views of science teachers and historians on the desirability of translations of particular books and articles of historical importance, and for exchange of information on plans for such translations with translators and publishers.

Further suggestions and examples of the possible activities of this committee are included in the proceedings of this Seminar.

Comment: Any persons who are interested in the activities of the proposed committee are urged to communicate with Professor Stephen G. Brush, Institute for Fluid Dynamics and Applied Mathematics, University of Maryland, College Park, Maryland 20742, U.S.A.

5. Continuing International Cooperation

From the discussions of the working seminar it appeared that the exchange of experiences which revealed problems and proposals for the use of the history of physics in physics education was very fruitful. Therefore we urge special attention to international cooperation in this regard in the future. One of the reasons for this need is that relatively few historians of physics (and of science) all over the world are carrying on research work to serve as an example of such international cooperation. Furthermore, on the pedagogical side there has until recently been very little cooperation in improving and broadening the understanding of physics by means of the history of physics. Efforts are now beginning along these lines and should be greatly expanded.

Comment. The participants urge that other conferences and seminars be held to carry on the work started by this Seminar. Specifically, it was suggested that a similar group be convened in two or three years to evaluate progress on the foregoing recommendations and to prepare new guidelines.

The participants in the Seminar were: Richard BERENDZEN (Boston University), C. A. BOUTRY (Conservatoire National des Arts et Metiers, Paris), Sanborn C. BROWN (M.I.T.), Stephen G. BRUSH (University of Maryland, College Park), Harold L. BURSTYN (Carnegie-Mellon University, Pittsburgh), Robert S. COHEN (Boston University), Samuel DEVONS (Columbia University), Yehuda ELKANA (Hebrew University of Jerusalem), June Z. FULLMER (Ohio State University, Columbus), Brian GEE (Ecole Internationale de Geneve), Armin HERMANN (Stuttgart University), Tetu HIROSIGE (Nihon University, Tokyo), Gerald HOLTON (Harvard University), Michael HOSKIN (Cambridge University), Max JAMMER (Bar-Ilan University, Ramat-Gan), Giovanni JONA-LASINIO (University of Rome), Hans KANGRO (Hamburg University), William C. KELLY (National Research Council,

Washington), Allen L. KING (Dartmouth College), Martin KLEIN (Yale University), Ruud L. KRANS (State University, Utrecht), R. Bruce LINDSAY (Brown University), K. H. MARIWALLA (University of Technology, Teheran), G. C. MONETI (Syracuse University), Lester G. PALDY (State University of New York at Stony Brook), Arnold D. PICKAR (Portland State University), W. G. V. ROSSER (University of Exeter), Roger H. STUEWER (University of Minnesota), Dirk TER HAAR (University of Oxford), L. A. VERHAEGEN (University of Louvain), Charles WEINER (American Institute of Physics, New York), and Jolan ZEMPLEN (Technical University of Budapest).

This report was prepared by the undersigned Editorial Committee, which will also be responsible for the publication of the proceedings volume.

Organizing Committee

Allen L. King, Chairman
Sanborn C. Brown
Gerald Holton
William C. Kelly
Charles Weiner

Editorial Committee

Stephen G. Brush, Chairman
Armin Hermann
Allen L. King
Lester G. Paldy
L. A. Verhaegen

COMMENTS BY W. SCHAFFER

(19 August 1970)

"I think these [recommendations] are, on the whole, both sound and interesting and only a few comments are called for:

(1)
2. A Book on the History of Physics.

' ..... planning a book ..... ' - "this is best done by one man. Councils may improve a draft by criticisms and suggestions, but seldom create anything very elegant."

' .... such a book, ..., would raise the quality both of education and of research in Physics' - "I agree in general, but think that the History is best taught by being incorporated with the Physics. As a separated discipline it may easily lose some of its interest. Physics is more than a set of techniques, it is also a 'humanity', and as such its history is an essential part of it, e.g. we should not teach Newton's Laws merely as a piece of abstract logic, with postulates and definitions, theorems and applications, which is in any case not without difficulties. It should, in the first place, be taught in its historical setting. The book should be planned to help teachers present physics, or at least appropriate parts of physics, in this way."

' ... done by qualified historians of physics in accordance with .....' "I hope this does not mean a trades-union limitation, cutting out people who have not taken degrees in the subject 'History of Science' or who are not members of a university department labelled 'History of Physics'. The words 'qualified historians of physics' are (or should be) unnecessary - no-one would want to invite a man unversed in the field to share the preparation of the book." ' ..... urge that the actual writing of the book be done by a very small number of authors ... .'. "I agree strongly."

' .... will be written on a fairly advanced technical level ....' "We shall have to be careful here. At an advanced technical level this book will not be able to compete with specialised text books, or review articles; And the history may easily be swamped by the technicalities. Matters of present or very recent development are sometimes controversial, their history not yet known and their importance not yet assessed. I think that the main emphasis of the book should be the history of ideas and of the men who produced them, with techniques (as such) left to more specialised publications."

(2)
3. Encouragement and Assistance to Teachers.

'..... to include training in the use of historical materials in their teacher preparation programs' - "I agree fully with this and also with the paragraph as a whole."

* *
*

UNION INTERNATIONALE de PHYSIQUE PURE et APPLIQUÉE

INTERNATIONAL UNION of PURE and APPLIED PHYSICS

IUPAP

Secretary-General :
Prof. C. C. BUTLER, F.R.S.,
Physics Department
Imperial College
Prince Consort Road
London S.W. 7, England.
telephone: KEN. 5111

Secrétaire général adjoint :
Prof. L. KERWIN, F.R.S.C.,
Département de Physique
Faculté des Sciences
Université Laval
Québec 10, Canada.
téléphone: 656-2131

Québec, April 10, 1970.

Prof. V. Weisskopf,
Vice-President of I.U.P.A.P.,
Department of Physics,
Massachusetts Institute of Technology,
Cambridge, Mass. 02139.

Dear Prof. Weisskopf:

For your information and comments, I enclose a copy of the Union's audited financial statement for 1969 as well as some explanatory notes.

With best personal regards, I am,

Yours sincerely,

L. Kerwin

Larkin Kerwin,
Associate Secretary-General

LK:cgb

UNION INTERNATIONALE de PHYSIQUE PURE et APPLIQUÉE

INTERNATIONAL UNION of PURE and APPLIED PHYSICS

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Université Laval
Québec 10, Canada.
téléphone: 656-2131

NOTES on 1969 FINANCIAL STATEMENTS

1. Dues receivable

   Since January 1st, 1970, $4,020. of the $6,070. outstanding at that date have been paid.

2. Accounts payable

   This includes unused Commission travelling budgets.

3. Balance

   Our balance of about $53,000. is approaching one year's operating budget as desired.

4. Interest earned

   This reflects the increase in that part of the Union's capital placed in an interest-bearing account last year (the amount is now $15,000.).

5. Miscellaneous income

   Return of our 1968 subscriptions to I.C.S.U.

6. Subscriptions

   I.C.S.U. : $840. - C.I.E.S. : $200.

7. Bank charges

   Included in this item are the differences between theU.S. dues of some countries and the Canadian dollars in which they were paid. We are trying to eliminate this practice.

8. Net revenue

   As discussed last September, this unusual large surplus is caused by:

   a) the increase in I.C.S.U. grants of $3,000. which had not been budgeted;

   b) the reduced Commission travel, probably caused by the fact that we had a General Assembly;

   c) a reduction in expected secretariat expenses (principally printing);

   d) a budgeted surplus of $1,000.

FORTIER, LANGEVIN, PELLERIN, MORIN & MONTREUIL

COMPTABLES AGRÉÉS / CHARTERED ACCOUNTANTS

TROIS-RIVIÈRES
1350, RUE ROYALE - TÉL. 376-4477

CAP-DE-LA-MADELEINE
399-A, BOUL. STE-MADELEINE - TÉL. 375-8996

PIERRE FORTIER, C.A.
GABRIEL PELLERIN, C.A.
RENÉ MONTREUIL, C.A.

JACQUES R. LANGEVIN, C.A.
GILLES MORIN, C.A.
LÉON CADIEUX, C.A.

UNION INTERNATIONALE de PHYSIQUE PURE et APPLIQUEE

ETATS FINANCIERS

AU 31 DECEMBRE 1969

INTERNATIONAL UNION of PURE and APPLIED PHYSICS

FINANCIAL STATEMENTS

AS AT DECEMBER 31, 1969

UNION INTERNATIONALE de PHYSIQUE PURE et APPLIQUEE
INTERNATIONAL UNION of PURE and APPLIED PHYSICS

Nous avons examiné le bilan de l'Union Internationale de Physique Pure et Appliquée au 31 décembre 1969, et l'état des revenus et dépenses pour l'année terminée à cette date. Notre examen a comporté une revue générale des procédés comptables et tels sondages des livres, pièces et autres documents à l'appui que nous avons considérés nécessaires dans les circonstances.

A notre avis, le bilan et l'état des revenus et dépenses ci-annexés présentent équitablement la situation financière de l'Union Internationale de Physique Pure et Appliquée au 31 décembre 1969 ainsi que les résultats de ses opérations pour l'année terminée à cette date, conformément aux principes comptables généralement reconnus, appliqués de la même manière qu'au cours de l'année précédente.

Fortier, Langevin, Pellerin, Morin & Montreuil
Comptables agréés

Trois-Rivières, Qué.
le 3 avril 1970.

We have examined the balance sheet of International Union of Pure and Applied Physics as at December 31st 1969, and the statement of income and expenses for the year ended on that date. Our examination included a general review of the accounting procedures and such tests of accounting records and other supporting evidence as we considered necessary in the circumstances.

In our opinion the accompanying balance sheet and statement of income and expenses present fairly the financial position of the International Union of Pure and Applied Physics as at December 31st 1969, and the results of its operations for the year ended on that date, in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Fortier, Langevin, Pellerin, Morin & Montreuil
Chartered accountants

Trois-Rivières, Qué.
April 3rd, 1970.

UNION INTERNATIONALE de PHYSIQUE PURE et APPLIQUEE
INTERNATIONAL UNION of PURE and APPLIED PHYSICS

Bilan au 31 décembre 1969
Balance sheet as at december 31, 1969

ACTIF
ASSETS

	taux rate	U.S. Dollars	
ENCAISSE ET DEPOT CASH AND DEPOSIT			
12,841.91 dollars canadiens	$ 1.07 ¼	$ 11,973.81	
40,902.52 dollars américains		40,902.52	
			$ 52,876.33
COTISATIONS A RECEVOIR DUES RECEIVABLE			6,070.00
INTERETS COURUS ACCRUED INTEREST			500.00
			$ 59,446.33

PASSIF
LIABILITIES

COMPTES A PAYER ET FRAIS COURUS ACCOUNTS PAYABLE AND ACCRUED CHARGES		$ 6,560.00
AVOIRS SURPLUS		
Solde au 31 décembre 1968 Balance as at December 31, 1968	$ 42,622.00	
Ajouter: Revenu net de l'année Add: Net income for the year	10,264.33	
Solde au 31 décembre 1969 Balance as at December 31, 1969		52,886.33
		$ 59,446.33

UNION INTERNATIONALE de PHYSIQUE PURE et APPLIQUEE
INTERNATIONAL UNION of PURE and APPLIED PHYSICS

ETAT DES REVENUS ET DEPENSES
STATEMENT OF INCOME AND EXPENSES

pour l'année terminée le 31 décembre 1969
for the year ended December 31, 1969

REVENUS
INCOME

Subventions de l'I.C.S.U. Grants from U.N.E.S.C.O.	$ 16,125.00	
Cotisations des pays membres Dues from member countries	42,000.00	
Intérêt gagné Interest earned	1,000.00	
Revenu divers Miscellaneous income	887.00	
		$ 60,012.00

DEPENSES
EXPENSES

Conférences subventionnées par l'I.C.S.U. Conferences subsidized by U.N.E.S.C.O.	$ 16,125.00	
Conférences subventionnées par l'U.I.P.P.A. Conferences subsidized by I.U.P.A.P.	15,875.00	
Frais de déplacement - commissions Travelling expenses - commissions	6,700.00	
Frais de déplacement - comité exécutif Travelling expenses - executive committee	7,637.40	
Secrétariat et comptabilité Secretariat and accounting	1,638.57	
Cotisations Subscriptions	1,040.00	
Impression Printing	452.93	
Frais bancaires et échange Bank charges and exchange	278.77	
		49,747.67

REVENU NET DE L'ANNEE NET INCOME FOR THE YEAR	$ 10,264.33

UNION INTERNATIONALE de PHYSIQUE PURE et APPLIQUEE

COTISATIONS DES PAYS MEMBRES

	Unités 1969	Solde à recevoir 31-12-68	Cotisations 1969	Montants reçus	Solde à recevoir 31-12-69
Afrique du Sud	1	$	$ 250	$ 250	$
Allemagne Est	4		1,000	1,000	
Allemagne Ouest	12		3,000	3,000	
Argentine	2		500	500	
Australie	6		1,500	1,500	
Autriche	1		250	250	
Belgique	4	1,000	1,000	2,000	
Bolivie	1		250		250
Brésil	2		500	500	
Bulgarie	1		250	250	
Canada	8		2,000	2,000	
Chine-Formose	1		250	250	
Cuba	1		250	250	
Dannemark	3		750	750	
Espagne	4		1,000	1,000	
Etats-Unis	18	1,000	4,500	4,480	1,020 /
Finlande	1		250	250	
France	12		3,000	3,000	
Grande Bretagne	15		3,750	3,750	
Hollande	4		1,000	1,000	
Hongrie	2		500	500	
Indes	4	1,400	1,000	1,600	800
Irlande	1		250	250	
Israel	2		500	500	
Italie	12		3,000		3,000 /
Japon	8		2,000	2,000	
Mexique	2	1,000	500	1,500	
Norvège	1		250	250	
Pakistan	1		250		250
Pologne	4		1,000	1,000	
République Arabe Unie	1	250	250	250	250
Roumanie	3		750	750	
Suède	8		2,000	2,000	
Suisse	2		500	500	
Tchécoslovaquie	3		750	750	
U.R.S.S.	12		3,000	3,000	
Yougoslavie	1	250	250		500
	168	$ 4,900	$ 42,000	$ 40,830	$ 6,070

PHYSIQUE INTERNATIONALE

I.U.P.A.P. Special Bulletin — Bulletin spécial de l'U.I.P.P.A.

On est prié de noter les changements d'adresses suivants et, au besoin, de les inscrire dans la brochure UIPPA-16 - Rapport général 1970.

Please note the following changes to be made in IUPAP-16 - 1970 General Report.

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