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# PEACEFUL USES OF ATOMIC ENERGY

# **Proceedings of the Second United Nations International Conference on the Peaceful Uses of Atomic Energy**

**Held in Geneva  
1 September - 13 September 1958**

**Volume 1  
Progress in Atomic Energy**



**UNITED NATIONS**

**Geneva  
1958**

## PREFACE

More than 2,100 papers were submitted by the nations, the specialized agencies, and the International Atomic Energy Agency, which participated in the Second United Nations International Conference on the Peaceful Uses of Atomic Energy. The number of papers was thus about twice that involved in the First Conference. Provision was therefore made to hold five concurrent technical sessions in comparison with the three that were held in 1955. Even so, the percentage of orally presented papers was less in 1958 than in 1955.

In arranging the programme, the Conference Secretariat aimed at achieving a balance, allowing adequate time for presentation of as many papers as possible and, nevertheless, leaving time for discussion of the data presented. Three afternoons were left free of programme activities so that informal meetings and discussions among smaller groups could be arranged. No records of these informal meetings were made.

A scientific editorial team assembled by the United Nations checked and edited all of the material included in these volumes. This team consisted of: Mr. John H. Martens, Miss L. Ourom, Dr. Walter M. Barss, Dr. Lewis G. Bassett, Mr. K. R. E. Smith, Martha Gerrard, Mr. F. Hudswell, Betty Guttman, Dr. John H. Pomeroy, Mr. W. B. Woollen, Dr. K. S. Singwi, Mr. T. E. F. Carr, Dr. A. G. Kolb, Dr. A. H. S. Matterson, Mr. S. Péter Welgos,

Dr. I. D. Rojanski, Dr. David Finkelstein, Dr. Cavid Erginsoy (Dr. Erginsoy's services were furnished through the courtesy of the International Atomic Energy Agency), Dr. Vera J. Peterson, Dr. Hywel Jones, Dr. Paul S. Henshaw, Dr. Alvin Glassner and Mr. J. W. Greenwood.

The speedy publication of such a vast bulk of literature obviously presents considerable problems. The efforts of the editors have therefore been primarily directed towards scientific accuracy. Editing for style has of necessity been kept to a minimum, and this should be noted particularly in connection with the English translations of certain papers from French, Russian and Spanish.

The Governments of the Union of Soviet Socialist Republics and of Czechoslovakia provided English translations of the papers submitted by them. Similarly, the Government of Canada provided French-language versions of the Canadian papers selected for the French edition. Such assistance from Governments has helped greatly to speed publication.

The task of printing this very large collection of scientific information has been shared by printers in Canada, France, Switzerland, the United Kingdom and the United States of America.

The complete Proceedings of the Second United Nations International Conference on the Peaceful Uses of Atomic Energy are published in a 33-volume English-language edition as follows:

Volume No.	Sessions Included
1 Progress in Atomic Energy .....	1, 2, 23a, 23b, 23c
2 Survey of Raw Material Resources .....	E-5, E-7b, E-9
3 Processing of Raw Materials .....	E-10, E-6 and E-7a
4 Production of Nuclear Materials and Isotopes .....	E-11, E-12, C-14, C-15
5 Properties of Reactor Materials .....	E-14, E-15
6 Basic Metallurgy and Fabrication of Fuels .....	E-13, E-17, E-18
7 Reactor Technology .....	E-19, E-21, E-22
8 Nuclear Power Plants, Part 1 .....	3, 6, 7
9 Nuclear Power Plants, Part 2 .....	B-9, B-10, B-11
10 Research Reactors .....	B-5, B-12
11 Reactor Safety and Control .....	B-13, B-14a, A-14
12 Reactor Physics .....	B-17, B-18, B-21
13 Reactor Physics and Economics .....	B-19, B-15, B-14b
14 Nuclear Physics and Instrumentation .....	A-18, A-19
15 Physics in Nuclear Energy .....	A-21, A-22

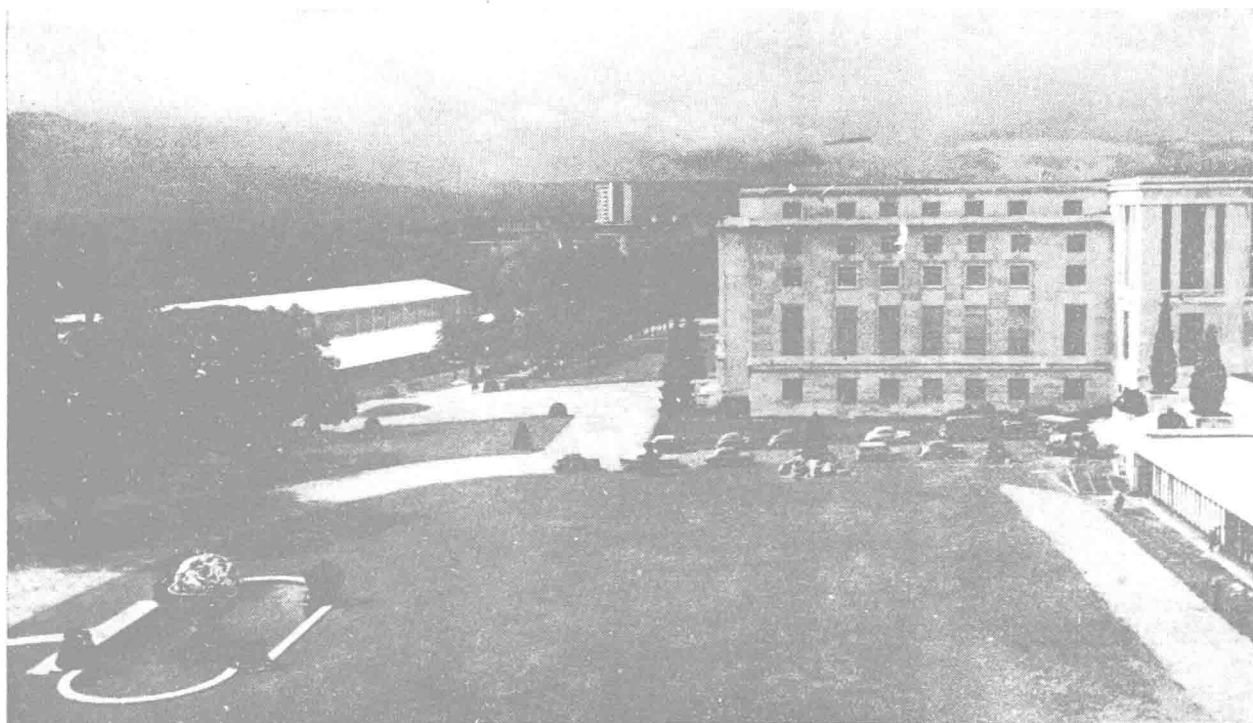


Volume No.		Sessions Included
16	Nuclear Data and Reactor Theory .....	A-11, A-12, A-13
17	Processing Irradiated Fuels and Radioactive Materials .....	C-17, C-18, C-19
18	Waste Treatment and Environmental Aspects of Atomic Energy .....	C-21, C-22, D-19
19	The Use of Isotopes: Industrial Use .....	5b, D-7
20	Isotopes in Research .....	D-6
21	Health and Safety: Dosimetry and Standards .....	5a, D-15
22	Biological Effects of Radiation .....	D-9, D-10
23	Experience in Radiological Protection .....	D-11, D-12
24	Isotopes in Biochemistry and Physiology, Part 1 .....	D-13
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26	Isotopes in Medicine .....	D-17, D-18
27	Isotopes in Agriculture .....	D-21, D-22
28	Basic Chemistry in Nuclear Energy .....	C-9, C-10, C-11
29	Chemical Effects of Radiation .....	C-12, C-13
30	Fundamental Physics .....	15, A-17
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The Officers of the Conference. Left to right, sitting: Sir John Cockcroft (UK), Dr. Homi Bhabha (India), Professor V. S. Emelyanov (USSR), (Vice-Presidents); Professor Francis Perrin (France), (President); Rear Admiral Otacilio Cunha (Brazil), Dr. W. B. Lewis (Canada), Dr. I. I. Rabi (USA), (Vice-Presidents). Standing, Dr. Sigvard Eklund (Conference Secretary-General), Mr. Homi Sethna (Deputy Conference Secretary-General)

The Palais des Nations and Exhibit Building



## INTRODUCTION

The General Assembly, in resolution 912 (X) on the peaceful uses of atomic energy, adopted unanimously on 3 December 1955, recommended "that a second international conference for the exchange of technical information regarding the peaceful uses of atomic energy should be held under the auspices of the United Nations in two to three years' time".

Under the terms of the resolution, the Secretary-General, acting upon the advice of the Advisory Committee on the Peaceful Uses of Atomic Energy, determined that the Conference should be held in Geneva from 1 to 13 September 1958, and issued invitations to the States Members of the United Nations and of the specialized agencies, to all the specialized agencies, and to the International Atomic Energy Agency to participate.

In formulating the provisional topical agenda of the Conference and in making all other arrangements for it, including the final preparation of a detailed programme based upon the papers submitted, the Secretary-General was assisted by the Advisory Committee on the Peaceful Uses of Atomic Energy, as provided in resolution 912 (X). The following individuals represented their countries in the Advisory Committee at one or more of its meetings during this period: Brazil—Messrs. Jayme de Barros, J. Costa Ribeiro and Cintra do Prado; Canada—Mr. W. B. Lewis; France—Messrs. B. Goldschmidt and F. Perrin; India—Mr. H. J. Bhabha; Union of Soviet Socialist Republics—Messrs. V. S. Emelyanov and D. V. Skobeltzin; United Kingdom of Great Britain and Northern Ireland—Sir John Cockcroft and Mr. J. V. Dunworth; United States of America—Mr. I. I. Rabi.

In pursuance of the General Assembly's resolution, the appropriate specialized agencies (the International Labour Organisation, the Food and Agriculture Organization of the United Nations, the United Nations Educational, Scientific and Cultural Organization, the World Health Organization and the World Meteorological Organization), and the International Atomic Energy Agency, were consulted by the Secretary-General and the Advisory Committee concerning the topical agenda and other arrangements for the Conference. These consultations took place at the Committee's meetings in New York in September 1956 and in Geneva in May 1957 and May 1958.

The provisional topical agenda for the Second Conference, elaborated in the Advisory Committee and circulated to Governments on 24 June 1957, was even wider in its scientific and technological scope than that of the First International Conference on the Peaceful Uses of Atomic Energy, since it covered a new field, namely, the possibility of controlled fusion. In the Conference Programme for the Second Conference, as in that of the First, a reasonable balance was sought between the various scientific and technical aspects of the peaceful uses of atomic energy.

The Secretary-General, on the recommendation of the Advisory Committee, appointed M. Francis Perrin, Haut Commissaire à l'Energie Atomique of France, as President of the Conference, and Mr. Sigvard Eklund, Director of Research of the Swedish Atomic Energy Company, as Conference Secretary-General. Mr. Homi N. Sethna of the Atomic Energy Establishment of India was appointed Deputy Conference Secretary-General, and Mr. Ivan Ulehla of Czechoslovakia as Special Assistant to the Conference Secretary-General. Twenty-four scientific secretaries were recruited from eighteen countries to serve as temporary members of the United Nations Secretariat in order to assist the Conference Secretary-General in the preparation and conduct of the Conference.

The organization of the Conference was on the basis of an initial series of general sessions introducing the various main branches of the peaceful uses of atomic energy, followed by the five parallel series of technical sessions which were necessary to cover the wide range of the programme and the great volume of papers submitted. The main subjects dealt with by these sessions were as follows: physics (including fusion); reactors; chemistry; isotopes and radiological protection; and raw materials, metallurgy and reactor technology.

A series of public evening lectures by eminent scientists was also included in the programme. The formal sessions of the Conference were supplemented by a large number of informal meetings and discussions among different groups of specialists.

Twenty Governments presented scientific exhibits which were housed in a special temporary building covering an area of 8331 square metres, constructed for the purpose in the grounds of the Palais des Nations. The countries providing exhibits were:

Argentina	Japan
Belgium	Norway
Canada	Spain
Czechoslovakia	Sweden
Denmark	Switzerland
France	Union of South Africa
Germany (Federal Republic of)	Union of Soviet Socialist Republics
Hungary	United Kingdom of Great Britain and Northern Ireland
India	United States of America
Italy	Venezuela

Exhibits from the Centre Européen de Recherches Nucléaires, from the Joint Institute for Nuclear Research (Dubna, USSR), and from IAEA were also displayed. Approximately 109,000 persons visited the Exhibit Building during the Conference. The exhibits included operating reactors, laboratory equipment, experimental fusion devices, models of nuclear power plants, demonstrations of techniques used in producing and processing atomic fuels, demonstrations of the uses of radioisotopes in agriculture, biology, medicine and industry, and models of accelerators and other machines used in research on the structure of matter.

Fifty films relating to subjects on the programme, provided by nine countries, were shown in a special cinema room employing a new type of projector which reproduced the sound track simultaneously in the four official languages of the Conference.

A large commercial and industrial exhibition organized by the Swiss authorities was held in the Palais des Expositions in Geneva simultaneously with the United Nations Conference.

Participation in the 1958 Conference was on a much larger scale than in 1955. In the First Conference, 1132 abstracts of scientific papers and 1067 full papers were submitted by thirty-eight Governments. Of these, 450 were selected for oral presentation. In the Second Conference, 2535 abstracts and 2135 full papers were submitted by forty-six Governments and six inter-governmental organizations, of which 714 were selected for oral presentation.

Sixty-nine States and nine specialized agencies participated in the Second Conference, the total number of delegates and advisers being 2692 as compared with 1428 in 1955. In addition, 3651 observers from industrial concerns, academic institutions and non-governmental organizations attended the Conference, as compared with 1334 in 1955.

A total of 911 accredited representatives of information media in thirty-six countries covered the Conference. With a view to ensuring an accurate and understanding coverage of the highly scientific and technical proceedings, press briefings were held at the end of each morning and afternoon, at which the officers and participants from the sessions gave explanations of the discussions and answered questions.

The complete proceedings of the Conference, comprising thirty-two volumes and an index, as provided in the Conference rules of procedure, are being published only in English. Abridged editions will also appear simultaneously in French, Spanish and Russian, and will contain the records of all Conference sessions, all papers selected for oral presentation, all papers originally presented in the language of the version concerned, and a limited number of other papers selected for the purpose.

## Foreword

The First United Nations Conference on the Peaceful Uses of Atomic Energy in 1955 brought about the publication, for the first time, of a very large amount of information on all aspects of the peaceful uses of atomic energy. The Second Conference, in 1958, continued this process of free exchange of information on an even broader scale. The thirty-two volumes of the Proceedings of the Second Conference present a truly comprehensive portrayal of the developments in the peaceful uses of atomic energy which are going on all over the world. They also reveal how the information declassified at the First Conference has stimulated activities in this field in many countries. These volumes, I believe, will be of great value to the scientific community. But over and above their scientific importance, they are an impressive reflection of the generosity of Governments in giving vital information freely for the common good, and of the will of Governments to co-operate with each other in developing atomic energy for the good of mankind as a whole.



Dag HAMMARSKJÖLD  
*Secretary-General of the United Nations*



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## **Programme of the Conference**



Secretariat of the Conference. Front row, left to right: B. Urquhart, D. Okrent, A. Rao, I. Rajanski, I. Ulehla, H. Sethna, S. Eklund (Conference Secretary-General), F. Hudswell, L. Bassett, Mrs. T. Bernert, V. Ziegler, Miss R. Bovy, I. Dostrovsky, F. Bruce, A. Sabry. Back row, left to right: P. Tanguy, C. Sastre, N. Groby, C. Sanchez del Rio, H. Fukunaga, A. Vergin, J. Martens, Mrs. M. Gerrard, W. Barss, Miss L. Ourom, T. Coor, A. Salam, G. Strelin, A. Efimov, T. Carr, W. Woollen, C. Garavaglia, T. Church, G. Matz. Absent: D. Copp, K. Smith, R. de Mautort, R. Lavigne

## Programme of the Conference

The programme shown here is that prepared by the Conference Secretariat and published in the Journal during the course of the Conference. In some cases, subsequent last minute changes were necessary, but by and large the Conference proceeded as planned. The programme that is given in the Record of Session for each session in the respective volumes shows the proceedings as they actually took place.

Papers were presented by their authors unless otherwise stated.

### GENERAL SESSIONS

#### (Sessions 1-23)

**Session 1: Monday, 1 September, 10.30 (Vol. 1)**

#### OPENING OF THE CONFERENCE

*President: F. Perrin (France)*

Opening of the Conference

Welcoming address by President of the Swiss Confederation ..... Mr. T. HOLENSTEIN

Address by the Secretary-General of the United Nations ..... Mr. D. HAMMARSKJOLD

Address by the President of the Conference. Mr. F. PERRIN

Address by the Director-General, International Atomic Energy Agency ..... Mr. S. COLE

Address by the Director-General, World Health Organization ..... Mr. M. G. CANDAU

Messages from Heads of States and Prime Ministers

**Session 2: Monday, 1 September, 14.30 (Vol. 1)**

#### THE FUTURE OF NUCLEAR POWER

*Chairman: Sir John Cockcroft (UK)*

*Scientific Secretaries: S. Eklund and D. Okrent*

#### CHAIRMAN'S REMARKS

P/183 (Canada)

Canada's steps towards nuclear power..... W. B. Lewis

P/1131 (France)

Atomic energy and the French problem of energy supplies..... P. Ailleret

P/2027 (USSR)

The future of atomic energy in the USSR..... V. S. Emelyanov

P/262 (UK)

The UK programme for the development of nuclear power..... W. Strath

P/1076 (USA)

Highlights of nuclear power development in the United States..... W. K. Davis and U. M. Staehler

*Presented by W. K. Davis*

#### DISCUSSION

P/1624 (India)

A study of the contribution of atomic energy to a power programme in India.....

H. J. Bhabha and N. B. Prasad

*Presented by H. J. Bhabha*

#### PANEL DISCUSSION ON THE FUTURE OF NUCLEAR POWER IN OTHER COUNTRIES

#### Panel members

Australia	P/1093	Netherlands	P/2435
Germany		Poland	P/1593
(Federal Republic)	P/1806	Romania	P/1304
Italy	P/1363	Spain	P/2336
Japan	P/1318	Sweden	P/2342

**Session 3: Tuesday, 2 September, 9.00 (Vol. 8)**

#### EXPERIENCE WITH NUCLEAR POWER PLANTS

*Chairman: W. B. Lewis (Canada)*

*Scientific Secretaries: C. Sastre and P. Tanguy*

#### CHAIRMAN'S REMARKS

P/301 (UK)

Some experiences in the Industrial Group of the UK Atomic Energy Authority, 1947-1958.... L. Owen

P/1522 (UK)

Operating experience at Calder Hall H. G. Davey *et al.*  
*Presented by T. N. Marsham*

P/1132 (France)

Experience obtained during two years' operation of the reactor GL..... M. de Rouville *et al.*  
*Presented by M. de Rouville*

#### DISCUSSION

P/1075 (USA)

Experience with USA nuclear power reactors..... C. Goodman *et al.*  
*Presented by L. H. Roddis Jr.*

P/2462 (USA)

Shippingport Atomic Power Station (PWR)..... J. W. Simpson and H. G. Rickover  
*Presented by J. W. Simpson*

P/2183 (USSR)

Operating experience with the first atomic power station in the USSR and its use under boiling conditions..... N. A. Dollezhal *et al.*  
*Presented by A. I. Krasin*

#### DISCUSSION

## Session 4: Tuesday, 2 September, 14.30 (Vol. 31)

## POSSIBILITY OF CONTROLLED FUSION

Chairman: H. J. Bhabha (India)

Scientific Secretaries: H. Sethna and T. Coor

## CHAIRMAN'S REMARKS

## P/145 (Sweden)

Magnetohydrodynamics and the thermonuclear problem ..... H. Alfvén

## P/78 (UK)

Controlled thermonuclear research in the United Kingdom ..... P. C. Thonemann

## DISCUSSION

## P/2298 (USSR)

Investigations on controlled thermonuclear reactions in the USSR ..... L. A. Artzimovich  
Presented by E. I. Dobrokhotoy

## P/2410 (USA)

Peaceful uses of fusion ..... E. Teller

## DISCUSSION

## P/1056 (Germany Fed. Rep.)

Recent work on controlled thermonuclear fusion in Germany (Federal Republic) ..... L. Biermann

## DISCUSSION

## Session 5a: Wednesday, 3 September, 9.00 (Vol. 21)

## OPERATIONAL EXPERIENCE IN HEALTH AND SAFETY

Chairman: W. B. Lewis (Canada)

Scientific Secretaries: D. H. Copp and R. Bovy

## CHAIRMAN'S REMARKS

## P/2263 (WHO)

The work of the International Commission on Radiological Protection ..... R. M. Sievert

## P/184 (Canada)

Health and safety in Canadian operations ..... G. C. Butler *et al.*  
Presented by G. C. Butler

## P/302 (UK)

Radiation exposure experience in the UK Atomic Energy Authority in 1957 ..... H. J. Dunster *et al.*  
Presented by A. S. McLean

## P/1551 (USA)

Experience in the United States with reactor operation and safeguards ..... C. R. McCullough

## DISCUSSION

## Session 5b: Wednesday, 3 September, 10.30 (Vol. 19)

## PROGRESS IN THE USE OF ISOTOPES

Chairman: O. Cunha (Brazil)

Scientific Secretaries: I. Rojanski and A. Rao

## P/2390 (USA)

The atomic triad—reactors, radioisotopes and radiation ..... W. F. Libby

## P/2308 (USSR)

Applications of radioactive isotopes ..... A. V. Topchiev *et al.*  
Presented by A. V. Topchiev

## DISCUSSION

## P/2496 (UK)

The medical value of the localization of radioactive isotopes ..... E. E. Pochin

## P/1101 (Finland)

Tracer techniques in the Finnish industry ..... U. A. Luoto and E. G. Rotkirch  
Presented by V. A. Luoto

## DISCUSSION

## Session 6: Wednesday, 3 September, 14.30 (Vol. 8)

## USE OF NUCLEAR ENERGY FOR PURPOSES OTHER THAN GENERATION OF ELECTRICITY

Chairman: V. S. Emelyanov (USSR)

Scientific Secretaries: I. Rojanski and A. Rao

## CHAIRMAN'S REMARKS

## P/1831 (USA)

The use of nuclear energy for purposes other than the generation of electricity ..... W. H. Zinn and R. P. Godwin  
Presented by W. H. Zinn

## P/1137 (France)

Possibilities and conditions for use of water and gas-cooled reactors in oil tankers ..... L. B. du Colombier *et al.*  
Presented by R. Gibrat

## P/2140 (USSR)

The atomic icebreaker, "Lenin" ..... A. P. Alexandrov *et al.*  
Presented by A. P. Alexandrov

## P/1319 (Japan)

A nuclear powered emigrant ship ..... S. Takeuchi *et al.*  
Presented by S. Takeuchi

## DISCUSSION

## P/135 (Sweden)

R3—a natural uranium, heavy water reactor for combined electricity production and district heating ..... P. H. Margen *et al.*

## P/136 (Sweden)

ADAM—a 75 Mw nuclear energy plant for house heating purposes ..... I. Wivstad and C. Mileikowsky  
P/135 and P/136 presented by P. H. Margen

## P/76 (UK)

The possibility of the direct application of fission fragment recoil energy to industrial chemical processes ..... J. K. Dawson *et al.*  
Presented by J. K. Dawson

## DISCUSSION

## P/2179 (USA)

Non-military uses of nuclear explosions ..... H. Brown and G. W. Johnson  
Presented by G. W. Johnson

## DISCUSSION



## Session 7: Thursday, 4 September, 9.00 (Vol. 8)

## PLANS FOR CONSTRUCTION OF NUCLEAR POWER PLANTS

Chairman: F. Perrin (France)

Scientific Secretaries: W. B. Woollen and H. Fukunaga

## CHAIRMAN'S REMARKS

## P/2139 (USSR)

Graphite-uranium reactor with superheated high pressure steam ..... N. A. Dollezhal *et al.*  
*Presented by N. A. Dollezhal*

## P/2184 (USSR)

Water-water power reactors in the USSR ..... S. A. Skvortsov

## P/2447 (USA)

Full-scale power reactor projects in the United States of America ..... N. Hilberry

## PANEL DESCRIPTION OF POWER PROJECTS

## P/1885 (USA)

The Consolidated Edison Company of New York, nuclear electric generating station. G. R. Milne *et al.*  
*Presented by R. F. Brower*

## P/1038 (USA)

The Yankee Atomic Electric Plant. W. E. Shoupp *et al.*  
*Presented by R. J. Coe*

## P/2372 (USA)

The Dresden Nuclear Power Station. V. A. Elliott *et al.*  
*Presented by R. D. Maxson*

## P/1850 (USA)

The Enrico Fermi Atomic Power Plant ..... A. P. Donnell *et al.*  
*Presented by R. W. Hartwell*

## DISCUSSION

## P/73 (UK) (Talk also covers P/24, 75, 263 and 264)

Current re-designs of Calder Hall. J. B. W. Cunningham

## P/1133 (France) (Talk also covers P/1134 and 1135)

General characteristics and original aspects of reactors G2 and G3 ..... M. Pascal *et al.*  
*Presented by M. Pascal and J. P. Roux*

## DISCUSSION

## P/209 (Canada)

The Canadian NPD-2 nuclear power station ..... I. N. MacKay

## P/1120 (International Bank) (Talk also covers P/1364)

Project ENSI—a joint Government of Italy-World Bank study of a nuclear power plant. F. Ippolito and C. Allardice  
*Presented by C. Allardice*

## P/2092 (Czechoslovakia)

Engineering and economic aspects of the construction of an atomic power station in Czechoslovakia ..... A. Sevcik

## DISCUSSION

## Session 15: Tuesday, 9 September, 9.00 (Vol. 30)

## RECENT DEVELOPMENTS IN FUNDAMENTAL PHYSICS

Chairman: I. I. Rabi (USA)

Scientific Secretaries: I. Ulehla and I. Dostrovsky

## CHAIRMAN'S REMARKS

## P/2229 (USSR)

Startup of a 10-Bev synchrophasotron and first results of physical research ..... V. I. Veksler

## P/2529 (France)

The main characteristics of the proton synchrotron at Saclay and the results obtained during its start-up ..... H. Bruck *et al.*  
*Presented by S. D. Winter*

## P/268 (UK)

Contributions to knowledge of elementary particles by studies of cosmic radiation ..... C. F. Powell

## P/2525 (USSR)

Cosmic-ray studies in the USSR by means of rockets and sputniks. S. N. Vernov and A. E. Chudakov  
*Presented by V. A. Petukhov*

## P/2393 (USA)

Pions and antinucleons ..... G. F. Chew

## P/2465 (USA)

Theoretical ideas used in analyzing strange particles. R. P. Feynman and M. Gell-Mann  
*Presented by R. P. Feynman*

## DISCUSSION

## P/2459 (USA)

Weak interactions ..... C. S. Wu and L. Lederman  
*Presented by C. S. Wu*

## DISCUSSION

## P/2249 (USSR)

Investigations of the many-body problem and their application to the theory of nuclear matter ..... N. N. Bogolubov

## DISCUSSION

## Session 23a: Saturday, 13 September, 9.00 (Vol. 1)

## SUPPLY AND TRAINING OF TECHNICAL PERSONNEL

President: F. Perrin (France)

Scientific Secretaries: C. Sánchez del Río and A. Salam

## PANEL DISCUSSION ON TRAINING PROGRAMS

## P/2392 (USA) (Panel chairman's remarks)

Nuclear engineering and science education in United States universities ..... W. G. Whitman

## P/2257 (Brazil)

On the training of personnel for atomic energy in engineering schools in countries starting atomic programs ..... P. Ribeiro de Arruda  
*Presented by F. Gomes*

## P/2093 (Czechoslovakia)

Training of nuclear specialists in Czechoslovakia ..... B. Kvasil