

Thirty Second

L O N D O N

International

Y O U T H S C I E N C E

F O R T N I G H T

1990

LONDON INTERNATIONAL YOUTH SCIENCE FORTNIGHT

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Founded by the late Philip S. Green, MBE in 1959, the Science Fortnight aims to give a greater insight into science and its applications for the benefit of mankind and to develop a greater understanding between young people of all nations.

Past Presidents
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10 DOWNING STREET
LONDON SW1A 2AA

THE PRIME MINISTER

In the recent past, great changes have taken place in many parts of the world. Seemingly unchallengeable systems of government and inflexible attitudes have changed dramatically. As a result, in many people's minds this has given new hope that the quality of life can be improved and that the world will be a better and safer place for all of us.

For a scientist about to embark on his or her career these changes, and the possibilities that now exist to a greater degree to work to improve life on earth, offer an exciting challenge. The gains, however, will not all come quickly and it is important in the excitement of exploring new opportunities, not to overlook the scientific principles of testing and verifying and to proceed with caution. Adaptation to change is an important factor. A high priority must be given to righting some of the damage that has been caused to our environment, as well as ensuring that in future greater care is taken to protect our greatest resource - our own planet.

The programme of the Science Fortnight will touch on some of these matters and I am sure that you will find the opportunity to exchange opinions with your counterparts from other countries and cultures a thought provoking and enriching experience.

On behalf of Her Majesty's Government, it gives me great pleasure to welcome you to London and to the Science Fortnight.

Margaret Thatcher

INTERNATIONAL SPONSORS

The Science Fortnight gratefully acknowledges the support and cooperation of the many institutions overseas which select and sponsor participants. The following list is inevitably incomplete, being based on bookings received at the time of going to press (1 March, 1990). Apologies are tendered to those who booked subsequently and have been omitted.

Australia
CRA National Science Summer School

Bahrain
University College of Bahrain
Bahrain School

Belgium
British School of Brussels

Canada
Youth Science Foundation
Manhoba Schools Science Symposium
Memorial University, Newfoundland

France
Ecole des Mines, Saint-Etienne

Greece
Athens College
Moraitis School

Hong Kong
King George V School, Kowloon

Ireland
Royal Dublin Society

Israel
Weizmann Institute of Science

Jordan
University of Jordan

Kuwait
Kuwait Foundation for the
Advancement of Sciences

Namibia
Rossing Uranium Limited

New Zealand
Royal Overseas League

Norway
Unge Forskere

Malta
NSTS Youth and Student Travel

Oman
Sultan Qaboos University

Portugal
Calouste Gulbenkian Foundation

Singapore
Ministry of Education

South Africa
Foundation for Education, Science and
Technology

Sweden
Forbundet Unga Forskare

Switzerland
Schweizer Jugend Forscht
International School of Geneva

Taiwan (Republic of China)
Free Chinese Centre, London
Ministry of Education

Trinidad
Holy Faith Convent, Couva

United States of America
Junior Science & Humanities
Symposium
Navy Science Awards Program

Venezuela
The British Council

The Science Fortnight gratefully
acknowledges the assistance of the
British Council and of the Great Britain
/ East Europe Centre in facilitating
participation from a number of overseas
countries.

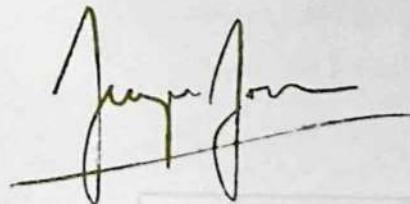
THIRTY-SECOND LONDON INTERNATIONAL YOUTH SCIENCE FORTNIGHT 1990

As the world witnesses a more open and trusting relationship being developed between the major power blocks, many believe that the consequent reduction in defence spending will release funds for more constructive purposes and the betterment of the quality of life on earth. Vast sums have been spent around the world on the research and development of weapons and other means of destruction. Any diversion of the scientific endeavour and resources that have been deployed on such works is to be welcomed.

It would, however, be naive to believe that we were on the threshold of a great leap forward and that cash and goodwill would solve the world's problems in the foreseeable future.

Although the East-West confrontation has eased there still remains the danger of conflict in other parts of the world. The North-South imbalance with the northern 'haves' and the southern 'have nots' bears the seeds of misunderstanding and distrust from which conflict could all too easily develop. Similarly, overzealous 'nationalists' (one might ask whether 'nationalism is sometimes a synonym for 'prejudice') in pursuit of their own ideals are little mindful of the safety and wellbeing of their neighbours. If the world's peace and stability is the long term aim, much more is needed than a reduction in defence expenditure. An acceptance of the right of all to live and eat, to be safe and healthy in a peaceful environment must be a basic educational concept.

Perhaps the meetings you will have in the Science Fortnight will show you the importance of learning tolerance and respect for others whose culture and ideals may differ greatly from those you hold. Without tolerance and respect, understanding and goodwill, there is little real hope of a more peaceful and secure world, no matter how much defence expenditure is reduced.



George McGowan
Director

London International Youth Science Fortnight

ACKNOWLEDGEMENTS

The Science Fortnight extends its gratitude to all those who have so generously assisted in the organisation of the 1990 meeting, and in particular to:

The Council and Staff of the Institution of Electrical Engineers for providing premises and facilities for lectures and meetings.

The Speakers and Lecturers whose contributions are invaluable.

The academic, commercial and industrial organisations, research establishments, university departments, museums etc which have arranged visits and lectures.

The Wardens, Bursars and Staff of the Halls of Residence where participants are accommodated.

The New Chef in a Box Ltd for the provision of packed meals.

Group Travellers International of Potters Bar for the provision of coach transportation throughout the Science Fortnight.

The many Local Education Authorities and commercial undertakings which sponsor British participants.

British Airways plc for its generous assistance with travel arrangements for students from a number of overseas countries.

The Foreign & Commonwealth Office for its guarantee against loss.

All those who have assisted in the planning and preparation of the programme, together with the many people not included in this list who have, by their generous assistance made the organisation of the 1990 Science Fortnight possible.

RESIDENTIAL STAFF OF THE LONDON INTERNATIONAL YOUTH SCIENCE FORTNIGHT, 1990

Deputy to the Director: Roger Mulberge
Chief of Staff: Charles Muller

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Katharine Ingram (UK)
Kemi G Eke (UK)
Jean-Francois Muller
(Luxembourg)

The Student Staff of the Science Fortnight is selected from former participants. Applications to serve as staff are not accepted and appointment is by invitation only.

DAILY PROGRAMME

Wednesday 25 July		Arrivals Welcome & Orientation in Halls of Residence
Thursday 26 July	10.00	*Introductions & Programme Briefing
	11.00	*OPENING CEREMONY
	14.15	*Lecture/Demonstration: 'At Home With Science and Technology'
	20.00	Welcome Disco at the Elizabeth Suite
Friday 27 July	20.00	Half Day Visits to Research and Industrial Establishments Student Topics at University College
Saturday 28 July	10.00	*Lecture/Demonstration: <i>Thunder & Lightning</i>
	14.15	Optional Half Day Sightseeing Tour of London
	16.30	Inter Hall Swimming Gala at University of London Union Optional Theatre and Concert Visits
Sunday 29 July	09.00	Optional Day Excursions to (a) Stonehenge and Salisbury (b) Portsmouth
	20.00	Feature Film at College Hall: <i>Some Like It Hot</i>
Monday 30 July	10.00	Specialist Lectures
	14.15	*Illustrated Lecture: <i>Nuclear Power — Can we do without it?</i>
	20.00	Student Topics at University College, London
Tuesday 31 July	21.00	Day Visits to Research & Industrial Establishments Topics for Tonight Informal Discussions in Halls of Residence
Wednesday 1 August	10.00	Visits to Scientific Museums at South Kensington
	14.15	Seminars at University College, London and the Institution of Electrical Engineers
	20.00	*Lecture/Demonstration: <i>'Immunology and Cancer — Recent Developments in Detection and Treatment'</i>

Thursday 2 August	08.00	Day Visits to Oxford and Cambridge Morning visits to University and Research Establishments Afternoon Tour of City and Colleges
Friday 3 August	10.00	Seminars led by former participants of the Science Fortnight, at University College London and the Institution of Electrical Engineers
	14.15	Lecture/Demonstration: <i>'Chemistry of Light'</i>
	20.00	International Cabaret at Carisbrooke Hall
Saturday 4 August	10.00	*Lecture/Demonstration: <i>Energy On Planet Earth</i>
	14.15	Inter Hall Rounders in Regent's Park Optional Theatre and Concert Visits
Sunday 5 August	09.00	Optional Day Excursion to (a) Stratford upon Avon (b) Hampton Court & Windsor
	20.00	Feature Film at College Hall: <i>Blazing Saddles</i>
Monday 6 August	10.00	*Participants' Forum I
	14.15	*Question Time with Members of Parliament
	20.00	Hall of Residence Visits
Tuesday 7 August	10.00	*Participants' Forum II
	14.15	*CLOSING CEREMONY
	20.00	Farewell Disco at the Elizabeth Suite

Wednesday
8 August
Departures

*Events marked thus take place at
The Institution of Electrical Engineers, Savoy Place, London WC2R 0BL

PRINCIPAL LECTURES AND DEMONSTRATIONS

Thursday 26 July	11.00	Opening Ceremony Speakers will include Professor J M Thomas FRS Director of the Royal Institution of Great Britain and President of the Science Fortnight
	14.15	At Home With Science & Technology Professor Gareth Roberts, BSc, MA PhD DSc FRS Director of Research, Thorn-EMI plc Professor of Engineering Science, University of Oxford
Saturday 28 July	10.00	Thunder and Lightning Dr Frank Palmer, BSc PhD Department of Chemistry, University of Nottingham
Monday 30 July	14.15	Nuclear Power — Can We Do Without It? Harry Cole, CEng MIERE formerly of UK Atomic Energy Research Laboratory, Harwell
Wednesday 1 August	20.00	Immunology and Cancer — Recent Developments in Detection and Treatment Dr Richard O'Kennedy, BSc, PhD, MIBiol MIBioll DipFS Acting Head of School of Biological Sciences City University, Dublin, Ireland
Friday 3 August	14.15	Chemistry of Light Dr Peter Douglas, BSc, PhD and Dr Andrew Mills BSc PhD FRSC Department of Chemistry, University of Swansea
Saturday 4 August		Energy on Planet Earth Professor Trevor M Letcher, PhD Professor of Physical Chemistry Rhodes University, Republic of South Africa
Monday 6 August	10.00	Participants' Forum I Theme: <i>For What Use is Science if Mankind does Not Survive?</i>
	14.15	Question Time with Members of Parliament Andrew Bowden, MBE MP (Conservative) W E (Ted) Garrett, MP (Labour) Lord (Stephen) Ross of Newport, (Social Liberal Democrat)
Tuesday 7 August	10.00	Participants' Forum II
	10.00	
	15.00	Closing Ceremony

SPECIALIST LECTURES AND SEMINARS

Monday 30 July	10.00	Institution of Electrical Engineers
	A	Guinea Pigs and Patients — The Role of the Controlled Clinical Trial in Cancer Treatment Dr Frances Calman, MB BS MRCP FRCR Department of Radiotherapy and Oncology King's College Hospital, London
	B	Codemakers versus Codebreakers: An Introduction to Cryptography Professor Fred C Piper BSc PhD ARCS DIC FIMA Professor of Mathematics Royal Holloway & Bedford New College University of London
	C	Molecular Symmetry, Reactivity & Spectroscopy Dr Alison Rodger, BSc (Sydney) MA (Oxford) Physical Chemistry Laboratory, University of Oxford
	D	Fossils, Evolution and the Origin of Species Dr Peter Sheldon, BSc PhD Department of Geology, University College Cardiff
Wednesday 1 August	14.15	Seminars 1-3: Institution of Electrical Engineers Seminars 4-5: University College London Engineering Building
	1	A Beginner's Guide to Food Analysis Dr Suzanne E Emmett, BSc (Wales) PhD Cert Ed Food Research Association, Leatherhead
	2	Traditional Medicine — Does It Have A Future? Dr Peter J Hylands, BPharm PhD CChem FRSC Xenova Ltd, Slough, Berkshire
	3	How Green is Space? Dr Alan Johnstone, BSc MSc PhD Mullard Space Science Laboratory, University College London
	4	'Elementary, My Dear Watson' Martin L Perkins, MA (Oxon) FIMA FRSA Senior Master & Head of Mathematics St Olave's Grammar School, Orpington
	5	Two Brains in One Head — a Problem in Communication Dr George E Savage, BSc PhD School of Biological Sciences, Queen Mary & Westfield College, University of London

SEMINARS LED BY FORMER PARTICIPANTS

Friday 3 August	10.00	Seminars I-III: Institution of Electrical Engineers Seminars IV-VII: University College London, Engineering Bldg
	I	<i>Immunodeficiency — Acquired Immunodeficiency Syndrome</i> Dr Miguel Forte (1976), LicMed(Lisbon) DTM&H(London) Hospital Santa Maria (Lisbon, Portugal) — currently undertaking research at East Birmingham Hospital on a grant from the Calouste Gulbenkian Foundation
	II	<i>Learning to Play the System</i> Stephen Jackson (1985) BA (Mod) (Maths & Science) GJW Government Relations Ltd, London
	III	<i>The Science of Anthropology?</i> Alex Lee (1986) BSc Preparing Doctoral thesis, National Taiwan University
	IV	<i>Manufacturing, Marketing and Money — A Different View of Science</i> Nigel Lee (1984) MEng (Hons) ACGI Andersen Consulting, London
	V	<i>Science and the Law</i> Charles Muller (1982), LL.M Lawyer, Grand Duchy of Luxembourg
	VI	<i>At The Speed Of Light</i> L Larnes St Ville (1986) BSc(Eng) GEC Marconi Research Ltd
	VII	<i>Environment and Technology</i> Benoit Templier (1982) Ingenieur des Arts et Manufactures Renault Motor Company, France

The speaker's first year of participation in the Science Fortnight is indicated in parenthesis after his name

TOPICS FOR TONIGHT

Informal discussions led by Science Fortnight Staff

Tuesday 31 July	21.00	College Hall <i>Genetic Engineering — Should We Play God?</i> introduced by Roger Pepin
		Ifor Evans Hall <i>Embryo Research — What Price for Progress?</i> introduced by Keith Martin
		International Hall <i>Attitudes to Animals</i> introduced by Judith Purdy

HALF DAY VISITS TO INDUSTRIAL & RESEARCH ESTABLISHMENTS & TO UNIVERSITY DEPARTMENTS

Friday, 27 July	Royal Naval College, Greenwich
BBC Television Centre	Dept of Nuclear Sc & Technology
British Gas plc	St Bartholomew's Hospital
South Eastern Gas, Croydon	Dept of Histopathology
Brunel University, Computer Centre	J Sainsbury plc
City University	University College London
Department of Mechanical Engineering & Aeronautics	Department of Chemistry
GEC Research Ltd	Department of Electronic & Electrical Engineering
Hirst Research Centre	Thames Water Utilities
Imperial College of Science Technology and Medicine	Beckton Sewage Treatment Works
Dept of Chemical Engineering	Wellcome Museum of the History of Medicine
King's College London	Zoological Society of London
Chelsea Department of Pharmacy	Institute of Zoology,
Department of Biophysics	Dept of Veterinary Medicine

DAY VISITS TO INDUSTRIAL & RESEARCH ESTABLISHMENTS

Tuesday, 31 July	Royal Botanic Gardens, Kew
British Petroleum	Royal Marsden Hospital, Sutton
BP Research Centre	Royal Navy
Exxon Chemical Ltd	Institute of Naval Medicine
Esso Petroleum Co Ltd	Shell Research Ltd
Fawley Refinery	Sittingbourne
Freemans plc	SIRA Ltd, Chislehurst
Distribution Division, Peterborough	Smith Kline Beecham Research Ltd
National Inst for Medical Research	STC Technology Ltd, Harlow
Nuclear Electric	University College London
Dungness A & B Power Stations	Mullard Space Science Laboratory
Royal Air Force	
Institute of Aviation Medicine	

VISITS TO OXFORD & CAMBRIDGE

Thursday, 2 August	Oxford
Cambridge	University of Oxford
University of Cambridge	University of Oxford
University Chemical Laboratory	University Botanic Garden
Department of Physics	Department of Engineering Science
Cavendish Laboratory	Department of Physics
Department of Engineering	Clarendon Laboratory
Department of Medicine	Oxford Scientific Films Ltd
Physiological Laboratory	
British Antarctic Survey	
NAPP Laboratories Ltd	
St John's Innovation Centre	

STUDENT TOPICS

Participants who wish to give a paper based on a project or investigation they have undertaken will be allocated a period during one of the sessions listed below. Papers will be grouped by category and a schedule published at the beginning of the Science Fortnight.

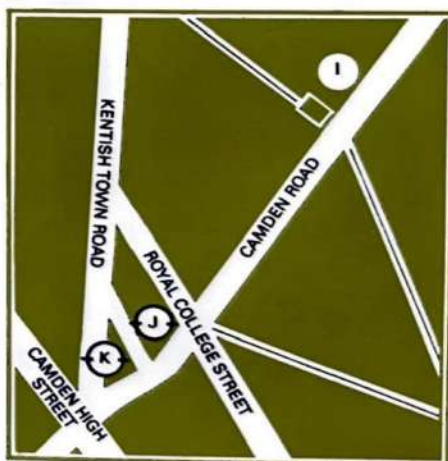
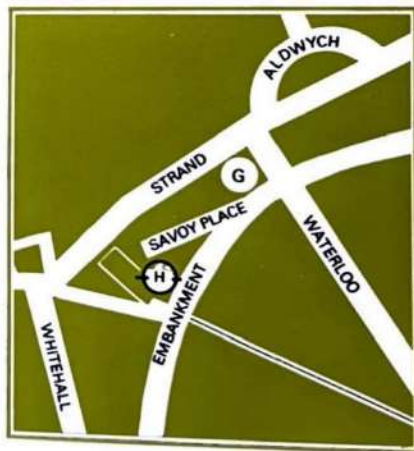
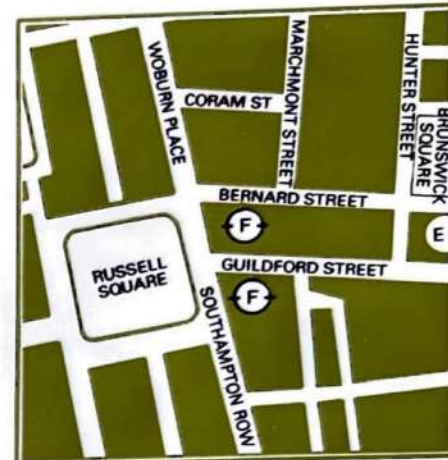
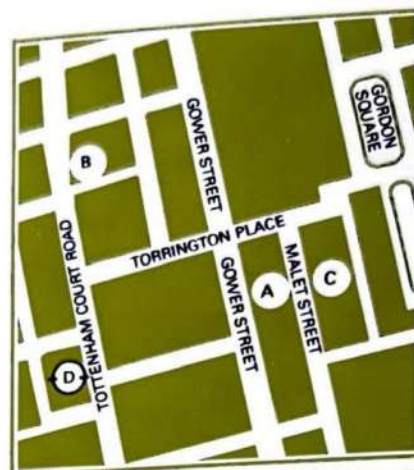
Friday 27 July	20.00	University College, London, Engineering Building Lecture Theatres: G6, 421, 422, 508
Monday 30 July	20.00	University College, London, Engineering Building Lecture Theatres: G6, 421, 422, 508

MUSEUM VISITS

Wednesday 1 August	10.00	Geological Museum Exhibition Road, South Kensington, London SW7
	10.00	Natural History Museum Cromwell Road, South Kensington, London SW7
	10.00	Science Museum Exhibition Road, South Kensington, London SW7

SOCIAL PROGRAMME

Thursday 26 July	20.00	Welcome Disco The Elizabeth Suite, Gresham Street, London EC2
Saturday 28 July	16.30	Inter Hall Swimming Gala University of London Union, Malet Street, London WC1
Sunday 29 July	20.00	Feature Film: <i>Some Like It Hot</i> College Hall, Malet Street, London WC1
Friday 3 August	20.00	International Cabaret Carisbrooke Hall, Seymour Street, London W2
Saturday 4 August	14.15	Inter Hall Rounders Competition Regent's Park, London NW1
Sunday 5 August	20.00	Feature Film: <i>Blazing Saddles</i> College Hall, Malet Street, London WC1
Tuesday 7 August	20.00	Farewell Disco Elizabeth Suite, Gresham Street, London EC2



KEY TO MAPS

- A College Hall
- B Empire Rooms
- C University of London Union
- D Goodge Street Station
- E International Hall
- F Russell Square Station
- G Institution of Electrical Engineers
- H Embankment Station
- I Ifor Evans Hall, 109 Camden Road
- J Camden Town Underground
- K Camden Road Station
- L Elizabeth Suite

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33rd LONDON
INTERNATIONAL
YOUTH SCIENCE FORNIGHT
24 July to 7 August 1994