

NEWSLETTER

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**Groupe International de recherche sur l'enseignement de la physique
International research group on physics teaching
Internationaler Arbeitskreis zur Förderung des Physikunterrichts**

No. 9 - July 1981

1. This newsletter is being sent to all GIREP members with their membership cards. These cards are dated with the years for which membership fees have been paid, and some may notice that their membership has lapsed. The membership fee for 1981 (and also for 1982 if paid before September 1981) is 10\$, or £5, per year. Because of the high cost of postage, etc., future newsletters will be sent only to those who have paid their fee for the current year. Any queries about membership fees should be directed to the Treasurer, Marisa Michelini, at Modena Instituto di Fisica, Italy.

2. GIREP 1981 Conference

This is being held in Balaton, Hungary, on the theme of Nuclear Physics - Nuclear Power, from 6th September to 12th September 1981. The Business Meeting for GIREP members will be held at the conference in the afternoon of Saturday, 12th September. If any member has an issue that they would like raised at that meeting, they should contact either the President, Arturo Loria, at Modena Instituto di Fisica, Italy, or the Secretary, Brian Woolnough, at Oxford University, England, before the meeting. In particular, if anyone has any further proposals for the theme and for the place of the GIREP 1983 Conference they should write in good time so that it can be considered along with other proposals. Members may like to be reminded of the themes that have been covered by GIREP conferences in the past:

- 1979 Rehovot Israel; Waves and Oscillations, and Current Problems
- 1978 Oxford England; Electronics and Optics, and Practical Work
- 1976 Montpellier France; Probability and Statistics, and First Steps
- 1973 Venice Italy; Electricity, Magnetism and Quantum Mechanics
- 1969 Copenhagen Denmark; Energy and Relativity
- 1967 Lausanne Switzerland; Maths and Physics

3. Treasurer's Notes

We must first apologise that the Credit Suisse account number for GIREP, given in the last newsletter, No 8, was incorrect. The correct number is 376089-91. The annual subscription is 10\$ and may be paid in one of the following ways:

Payments from Italy, to Marisa Michelini, (GIREP Treasurer),
Instituto di Fisica, Via Campi, 213/A -
41100 Modena, Italy (Lit 10,000 per year)

Payments from UK, to Brian Woolnough, (GIREP Secretary)
Department of Educational Studies, 15 Norham Gardens,
Oxford University, Oxford, UK (£5 per year)

Payments from Eastern European Countries, to George Marx (GIREP Vice President),
Dept of Atomic Physics, Eotvos University, Budapest,
Hungary.

All other payments by means of cheque issued to Credit Suisse, Lausanne, Switzerland, in favour of GIREP account no 376089-91. (¥10 per year)

It would help the Treasurer if any members who pay their fees through Credit Suisse would, at the same time, notify her direct.

4. Future Meetings

Members may like to know of other meetings being held by organisations interested in physics education, planned for the coming years. If any member knows of other meetings being planned, I would like to know so that we could prevent meetings clashing which might have similar customers.

- a) 7-11 September 1981. EPS 'Trends in Physics' Istanbul, Turkey
- b) December 1981. 'Quantum Mechanics Workshop' India (contact Prof LS Kothari, Dept of Physics, University of Delhi, India)
- c) May 1982. 'Physics and Mental Development' Gothenburg, Sweden (contact Dr N Svantesson, Lapap hogskolan, Box 1010, 431 26 Moludal, Sweden)
- d) 1982. 'Physics Education for Middle East Countries' Cairo, Egypt (contact Prof M Mokhtar, Dept of Physics University of Cairo, Egypt)
- e) September 1982. 'History of Physics in Secondary School Science' Pavia, Italy (contact Dr F Bevilacqua, Centro di Studi per la Didattica, Facolta di Scienza, Universita di Pavia, Via A Bussi, 97106, Pavia, Italy)
- f) Summer 1983, probably late June-early July; ICPE Summer School 'Research in Physics Education' France (contact Prof G Delacote, ICPE Summer School, Mission du Musee, Department Conception, 211 ave Jean Jaures 75019, Paris, France).

5. Recent, and Forthcoming, Publications

- a) The Education and Training of Physics Teachers, World-wide. Edited, for GIREP, by Brian Davies. To be published by John Murray, London (Summer/Autumn 1981). Cost about £5.

GIREP members from about 30 countries around the world sent in descriptions of their own country's system of education, and of the ways in which future physics teachers are educated in physics and prepared for teaching. These reports were edited with as much information as possible transferred to diagrams, but an attempt was made to keep to the style of writing in the original descriptions to give some variety in the reading of country-by-country accounts. Statistics relating to education and educational institutions were either kindly obtained by the GIREP correspondents themselves or were obtained from embassies or consulates of the countries concerned. Following the recommendations of the 70 GIREP representatives who read the 'preliminary edition' sent out to them in 1979, other kinds of information were put into tabular form, or into sections dealing with a single item. The form of the book, as a result, is:

- 1 Editorial introduction, and explanation of how to use the book;
- 2 Country-by-country descriptions of physics in education, and of the education of physics teachers, with diagrams of school systems and teacher training courses;
- 3 Summaries of teacher training courses, in table form;
- 4 Country-by-country summary of in-service courses and post-qualification courses;
- 5 Curriculum developments in physics, or physical science, with an indication of educational changes, likely in the next few years, which may well affect the state of physics education;
- 6 Tables of educational statistics: eg population, number of schools at different levels of education, number of institutions preparing physics teachers, number of physics teachers per year;

- 7 Final stage (university or college) physics examination questions from different countries, to give an idea of the standard of physics attained by the student before the start of a teaching career: (alternatively where correspondents have preferred, examples of the types of text books used are given to indicate standards expected);
- 8 Names and addresses of governmental departments responsible for physics education at different levels in the different countries;
- 9 Names and addresses of the GIREP Correspondents who provided the bulk of the information in the book and from whom further, more specialised, information may be obtained.

Countries represented in the book include: Argentina, Australia, Austria, Brazil, Cameroon, Denmark, Finland, Germany (East), Germany (West), Ghana, Honduras, Hungary, India, Italy, Japan, Kenya, Malaysia, Mexico, Netherlands, New Zealand, Pakistan, Philippines, Poland, Portugal, Rumania, Senegal, Sweden, Thailand, United Kingdom, USSR, Yugoslavia, Zambia.

The work for this publication, and for the earlier preliminary edition, was generously supported by a grant from UNESCO.

- b) **Careers in Physics** The Institute of Physics in England has recently produced a very useful little booklet and leaflet on 'careers in physics'. There is no copyright on these and the Institute would be happy if other countries copied or translated them. They are most helpful to young people considering their own careers. Copies are available, free, from Maurice Ebison, Institute of Physics, 47 Belgrave Square, London, England.
- c) **Cooperation between Science Teachers and Mathematics Teachers.** The Committee on the Teaching of Science of the International Council of Scientific Unions (ICSU-CTS) has published a series of booklets on cooperation between science teachers and mathematics teachers. The first titles are listed below and it is hoped to publish further books in due course.

- 1 Functions and Physics
- 2 Links between Geography and Mathematics
- 3 Our Inheritance: Common Ground for the Mathematics and Biology Teacher
- 4 Mathematics and Chemistry
- 5 Mathematical Modelling
- 6 Mathematical Modelling with Calculus

The books are obtainable from the Publications Officer, the Association for Science Education, College Lane, Hatfield, Hertfordshire, UK. The cost is £5 or US \$12 for the set of six by surface mail. (They can be sent air mail at an extra charge of £2 or US \$4.)

- d) **Proceedings of the International Conference on Postgraduate Education of Physicists (Prague August 1980).** Edited, for ICPE, PJ Kennedy and K Vacek. The book contains chapters on Methods of postgraduate training; Postgraduate training for industrial societies; What do physicists do? Employment prospects; Postgraduate training and the needs of society; Postgraduate training and general physics education. With 310 pages, in soft cover, it costs £7, including post and packaging. Available from the Education Officer, Institute of Physics, 47 Belgrave Square, London.
- e) **Einstein, a Centenary Volume,** edited for ICPE by AP French. This highly acclaimed and delightful volume is now available in French and Japanese, and will soon be available in German and Spanish. It costs £10.50, or \$20.00 in cloth cover and \$8.95 in paper cover and is available from Heinemann Educational Books, London; Harvard University Press, Cambridge, Mass; Hier et Demain (in French) Paris, France; Baifukan (in Japanese), Tokyo, Japan, F Vieweg und Sohn (in German) Wiesbaden, W Germany.

- f) **Science in Society.** There has been concern for some time in the Association for Science Education in the UK that the teaching of science in secondary schools has failed to show the relevance of what has been taught to the world outside the classroom. There has been great emphasis on 'science for the enquiring mind', but little attention to 'science for action' or 'science for citizens' which should perhaps be other components of science teaching. For this reason the Association set up a Science in Society project in 1977 under the direction of John Lewis of Malvern College, Worcestershire, UK, to produce resource material to supplement existing teaching. Over 200 science teachers, industrialists, scientists and others were involved in producing material which was tested in 50 schools and colleges over a three year period.

The material has now been published jointly by the ASE and Heinemann Educational Books. It consists of a Teacher's Guide and a series of 12 student readers concerned with such topics as Health and Medicine, Food and Agriculture, Population, Energy, Mineral Resources, Land and Water, Industry in the Economy, Looking to the Future, as well as a little History and Philosophy of Science. Another interesting resource are the eight decision-making exercises, recommended as an integral part of the course. These student simulation projects are in the areas of Alternative Energy, Central Heating, Dental Health, Hilltop Development, Marimbian Health Service, Minerals in Buenafortuna, Power Stations and Public Inquiry.

Further details and the material itself is obtainable from:

The Association for Science Education
College Lane, Hatfield,
Hertfordshire, UK.

Heinemann Educational Books Inc.
4 Front Street, Exeter,
New Hampshire, USA.

Another project, with similar aims, is being developed in English schools, and is called 'SISCON in Schools' (SISCON = Science in its Social Context). Topics include Man and Nature, How can we be sure, Technology, Invention and Industry, Evolution and Human Genetics, The Atomic Bomb Science and War, Energy, Food Health and Population, and Cosmology Space and Fiction. This is still in draft form, but will be published soon. Anyone wishing to receive more details should contact Joan Solomon, St David and St Katharine School, Hillfield Avenue, London N8 7DT, UK.

- g) **Proceedings of the International Conference on Education for Physics Teaching** (Trieste September 1980), editor A Loria, is in preparation and will be available 'soon'.

6. Future Newsletters

If any member has an item that they would like to share with other GIREP members, and would wish to have it included in a future GIREP newsletter, they should send it to the Secretary, Brian Woolnough, Department of Educational Studies, Oxford University, 15 Norham Gardens, Oxford OX2 6PY, UK.