

# NEWSLETTER

**girep**

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

N. 24 - July 1990

This issue of the Newsletter brings you the Treasurer's report on the state of GIREP's accounts and other information.

## 1. GIREP BALANCE, JUNE 1989 - JUNE 1990

Notes: 1) GIREP has four main Bank Accounts: (a) Barclays Bank and (b) Girobank, London, (c) Banca Popolare, Modena, (d) Crédit Suisse, Lausanne. Small GIREP funds are also held in Hungary and Poland to help members who live in countries where it may be difficult to pay fees in western currencies. The adjustments and balances of accounts are made whenever GIREP meetings are held in any of those countries - as in Poland in 1991.

2) The Accounts presented here do not include payments of fees to the hungarian or polish accounts mentioned above.

3) The Accounts relate to the latest banking information to hand.

4) Original documentation is held at The Institute of Physics, London. Photocopies of any documents will be provided free of charge but not of postage to any GIREP member requesting them.

<u>(a) Barclays Bank (£st)</u>	CREDIT	DEBIT
from 23.05.89 to 22.06.90		
1. Carried forward from previous balance	1462.34	
2. Transfer from GIRO Account	120.00	
3. Transfer from Munchen	119.36	
4. To ENERGY Conference		657.95
5. ICPE Proceedings		1641.66
6. Fees	819.43	
7. Cheque from IOP	275.00	
8. Bank charges		45.41
	<hr/>	<hr/>
Totals	2796.13	2345.02
Carried forward		451.11

<u>(b) Girobank (£st)</u>	CREDIT	DEBIT
from 13.06.89 to 9.07.90		
1. Opening of account N.538894806	20.00	
2. Fees	330.00	
3. Transferred to Barclays Bank		120.00
4. Charge for intl. order		5.92

(b) Girobank (cont)	CREDIT	DEBIT
5. Account N.538894814	<u>10.45</u>	
Totals	360.45	<u>125.92</u>
Carried forward		<u>234.53</u>

(c) Banca Popolare (Lit)		
from 31.12.88 to 28.2.90		
1. Carried forward from previous balance	1325240	
2. Fees	1026365	
3. Secretary's expenses		641100
4. To ENERGY Conference		1431221
5. From AIF for TMP books	287232	
6. Bank charges		<u>41331</u>
Totals	<u>2638837</u>	<u>2113652</u>
Carried forward		<u>525185</u>

(d) Crédit Suisse (SFr)		
from 26.04.89 to 30.06.90		
1. Carried forward from previous balance	837.80	
2. ICPE Proceedings		861.25
3. Fees	77.90	
4. Bank charges		<u>35.40</u>
Totals	<u>915.70</u>	<u>896.65</u>
Carried forward		<u>19.05</u>

Dollar summary at current rates of exchange:

In London (both accounts)	£st 685.60	US\$ 1247.86
In Modena Lit. 525185		435.46
In Lausanne SFr 19.05		<u>13.54</u>
Total in US\$		1696.86

Active (paying) membership of GIREP is now around 260. If we assume that one half of these will pay their fees of \$18.20 for 1991, then we can expect an additional income of \$2366, producing a likely sum of \$4000 to put towards Poland '91.

Brian Davies Honorary Treasurer of GIREP

## 2. WHAT IS THE PRICE FOR A RICH LIFE

At the 1989 GIREP Conference on Energy and Risk Education Dr. Zofia Golab-Meyer gave an invited talk on "What is the price for a rich life". The text of her talk is not reported in the Conference Proceedings. In her talk she described a questionnaire given to 570 pupils aged 12-17, from working class and rural families in and around Cracow, in order to test their ecological consciousness, with the aim of examining their readiness to undertake activities in order to protect the environment. It must be noticed that as a consequence of heavy industrialization, in relatively few years Cracow has become a very polluted city: the hopes of its citizens for a richer life due to the industrial activities were repaid by acid rains, undrinkable water and a generally deteriorated quality of life. The questionnaire aroused much interest among the participants to the Conference and Dr Golab-Meyer feels it's worthwhile to make its contents known to a wider public.

**A QUESTIONNAIRE TO TEST THE ECOLOGICAL CONSCIOUSNESS OF PUPILS -**  
Zofia Golab-Meyer, Jagellonian University, Cracow, Poland

1. Imagine the following situation: you are going to get a new, big, beautiful apartment but either
  - A) in the neighborhood of a traditional coal heat and power plant or a metallurgical or chemical factory,
  - B) in the neighborhood of a nuclear power station.There are no other possibilities. Choose A or B.
2. Where would you like to live:
  - A) in a small nice cottage with a small garden near Cracow?
  - B) in a big, new and nice apartment house in the very centrum of Cracow?
3. Your district, part of city or village, has got from the state a lot of money. Would you prefer if the city council decides:
  - A) to spend it on cable television for every apartment?
  - B) to supply the town with very good drinking water?
4. Imagine that in front of your house there is a big empty space. Would you rather vote for:
  - A) making it a park or a sports-park?
  - B) making it a parking space for cars?
5. Would you prefer to go to school every day using
  - A) a very good public transport (tramway, underground, train, bus)?
  - B) your own car?
6. As you know, when a car is not running very fast (below 100 km/h) it exhausts less toxic fumes. Are you
  - A) for limiting the speed of cars on forest roads?
  - B) or against?
7. Lead-free gasoline is less toxic but more expensive. Nevertheless
  - A) would you buy it?
  - B) or not?
8. Washing powders are being produced with less toxic substances, but they are more expensive and some people think that they do not wash so well. Nevertheless
  - A) are you willing to use them?
  - B) or not?
9. A) Are you willing to collect glass and paper even if nobody pays for it?
  - B) or not?
10. A) Are you willing to pay more for food that is wholesome but not so "nice", grown with natural fertilizers?
  - B) or not?

At the end of her talk Dr. Golab-Meyer commented the results. The questionnaire showed a fairly high level of ecological consciousness and good will. The implications for education are that science and technology teaching should take advantage of the

childrens' readiness, discussing ecological problems explicitly in the classroom and fixing good ecological habits from the very first years of school.

Teaching to solve the ecological problems is another question and a big challenge in itself: the fostering of a scientific way of thinking in the children is still possibly the best way. However education is not neutral and, with the most honest intentions, the teacher always performs some kind of indoctrination and manipulation of the pupils' opinions. It is therefore important that science be taught in such a way that the students become aware of the limits of their knowledge and of the limits of science itself.

### 3. OBITUARY

With great sorrow we announce the death of Prof. Eric Rogers in London at the beginning of this summer. Prof. Rogers was honorary member of GIREP since many years. His inspiring personality, his contributions to physics and to physics education, the enthusiasm with which he participated to the GIREP Conferences although in the last years his mobility was impaired will never be forgotten by all those who had the fortune to know him.

### 4. PUBLICATIONS

1) H.M.C. Eijkelhof, Radiation and Risk in Physics Education, Centre for Science and Mathematics Education, University of Utrecht, P.O.Box 80.008, 3508 TA Utrecht, The Netherlands (223 pages, in english)

This publication is a research thesis begun in 1986 following completion of the Dutch Physics Curriculum Development Project (PLON). The aim was to investigate further new approaches to teaching and learning about ionizing radiation, initially developed in one of the PLON-Units for senior secondary education. The work is, therefore, part of a long-term curriculum development and research programme the next stage of which will be the writing and evaluation of new curriculum materials.

The Table of Contents is: 1. Introduction. 2. Selection of Curriculum Contexts and Contents. 3. Lay- and Pupils' Ideas about Radioactivity, Radiation and Risk. 4. Teaching and Learning about Radioactivity, Radiation and Risk. 5. Focus on Risk Assessment. 6. Recommendations for Teaching about Ionizing Radiation and Risk.

2) Ch. Ruhl, La Physique du Hasard, Collection Liaisons Scientifiques, Coédition Hachette-Publications du CNRS (185 FF, french)

This book presents Chance in an historical perspective that goes from Blaise Pascal to Albert Einstein. The last part of the book examines the experiments by A. Aspect on single photon interference and correlation between photons. The publication is addressed to physicists, teachers and students, and also to the educated reader.

3) Actes du Colloque "Le Transfert des Connaissances en Sciences et Techniques, Montpellier 4-7 Sept. 1989, Université Sciences et Techniques du Languedoc (550 pages, in french; cost 180 FF)

This Conference was one of the events that commemorated the 700th year of the University of Montpellier.

The main themes were:

- Contributions to education of didactical research, action-research and pedagogical innovation, pupils representations and concept building, computers and new instruments in education.
- Up-dating of knowledge, the role of international bodies in the transfer of knowledge from North to South.
- Exchanges of knowledge with special attention to industry-education exchanges, the role of the "centres d'entreprise et d'innovation", the problems of technological research and of the transfer of technological knowledge.
- Popularization and dissemination of knowledge.

Send your order and payment cheque to: J-M. Dusseau, ANTHENA 89, Case 074, GES, USTL, Place E. Bataillon, 34095 Montpellier cedex 5, France.

4) Physics Education, Publication Division of The Institute of Physics, London.

The Institute of Physics offers the subscription to Physics Education to GIREP members at the special price of £st 14.50 a year (6 issues). Members whose fees are paid up to this year (1990) can either send a cheque for the amount of £st 14.50, made out to "IOP Publishing Ltd", to the GIREP Treasurer Brian Davies (see address at page 7), or they can send the Treasurer their credit card number and expiry date. American Express, Visa, Access and Diners Club cards are currently accepted.

5) Hungarian Mathematical and Physical Journal for High School Students, KÖMAL

KÖMAL was founded in 1894 and nowadays appears in 9000 issues every month. It publishes the best problems in mathematics and physics made by hungarian mathematicians, physicists, researchers and students. A few problems are contributed from other countries too. The solutions are published one month later. The journal organizes a competition among the student-readers who send their solutions. They are graded and their names are listed at the end of the year.

Although only the texts of the problems are printed in english, many copies of KÖMAL are sold abroad. Now the editors are planning to publish a complete english version that would contain the same problems as the hungarian edition except those of local interest. They are also willing to enrich KÖMAL with problems coming from other countries.

If you are interested in the english version please write to: Dr. Erzsebet Lugosi, Közepiskolai Matematikai Lapok, Szerkesztoseg, Budapest 114, PF.68. 1525 Hungary, stating your interest in collaborating to KÖMAL and saying, if possible, how many schools, teachers or students you think would be interested in receiving the journal in your country.

6. Proceedings of the ICPE Conference on "Teaching Modern Physics - Condensed Matter"

The Treasurer of GIREP informs the membership that a few copies of the Proceedings are available in London. New members

can obtain them on a first-come, first served basis for the price of £st 7.50 which will cover packing and postage as well. Please send the amount directly to Brian Davies at the address printed at page 7 of the Newsletter, in the form of a Girobank cheque made out in english pounds only, to GIRO Account N.53 889 4806 "Brian Davies re GIREP".

## 5. HOW TO PREPARE TALENTED STUDENTS TO LIKE PHYSICS AND TO DO IT WELL, Summer Meeting for Physics Teachers, 15-23 July 1990, Jaszbereny, Hungary

At the time of writing this Newsletter this Summer Meeting, organized by Esther Toth, is taking place. The 1990 Physics Olympiads (Groningen 5-13 July) are just finished and it is a wonderful occasion for the teachers who trained the national teams to gather and exchange ideas and experiences.

Those who are not engaged in work with the most able and those who believe that a good education in physics is essential also for the bright students who will not eventually end up in physics hope that some of the ideas and discussions of this Meeting can be modified according to need and extended to other pupils as well. If you are interested in the topic, please contact Esther Toth, Dept. Atomic Physics, R. Eötvös Univ., Puskin u.5, PB 327, 1088 Budapest (Hungary) for further information on the Meeting.

## 6. FORTHCOMING CONFERENCES

1. The previously announced 3rd International Conference "Current Problems of Physics Education", which should originally have taken place in Prague from 28 to 31 August 1990, has been cancelled. The main reasons for this decision are the radically changed conditions in Czechoslovakia and the fact that in the last months the organizers were engaged full time in working out new curricula and programmes they want to implement from next year. The organizers intend to postpone the Conference to 1991. For further information please contact Prof. E. Svoboda CSc, Matematicko-Fyzikalni Fakulta Univerzity Karlovy, 12116 Praha 2, Ke Karlovu 3, Czechoslovakia.

2. History of Physics in Science Education, 28-30 August 1990, Cambridge (U.K.)  
contacts: A. Warwick, St. John's College, Cambridge - F. Bevilacqua, Dip. di Fisica "A. Volta", University of Pavia, Italy

3. ICASE-CEFIC Symposium on Industry-Education Liaison, 5-7 September 1990, Brussels (Belgium)

ICASE - Intl Council of Associations for Science Education  
CEFIC - Conseil Europeen des Federations de l'Industrie Chimique  
Organised by: Jan Hendriks, ICASE European Representative, Hans Hoekman, expert in science curriculum development, Marc Devisscher, Head of Communications, Information Dept, CEFIC  
Aim: To promote industry-education liaisons by: (a) providing opportunities for exchange of information and experiences on existing schemes, (b) developing models, (c) establishing, through ICASE, a network for information exchange for future develop-

ments, (d) publishing a resource book.

Industry has traditionally shown great interest in the science education provided in schools. With the changing patterns of science education, the lack of interest in science subjects on the part of many students and the increase in technological developments taking place, it is appropriate to take a look at the ways industry has been involved in science education in industrial countries and to evaluate areas of success.

Costs: 5000 FrB (approx. US\$ 125), all inclusive.

Contact: J. Hendriks, Konijnenpad 3, 7921 BM Zuidwolde (DR), The Netherlands

4. International Seminar on Teaching Physics, 27.12.90-1.1.91, Karachi (Pakistan)

contact: Aziz Fatima Hasnain, Physics Dept., College for Women, Karimabad, Karachi 38, Pakistan

5. GIREP '91 Conference on teaching about Reference Frames: from Copernicus to Einstein, 22-27 August 1991, Torun (Poland)

contact: Jozefina Turlo, Instytut Fizyki UMK, PL-87 100 Torun, Poland

6. EPS Conference on Scientific Education and History of Physics, 28-31 August 1991, Cambridge (U.K.)

contact: Ms. Ch. Blondel, Cité des Sciences et de l'Industrie, Centre de Recherche en Histoire des Sciences et des Techniques, 75930 Paris Cedex 19 (France)

7. ICPE Conference on Teaching Modern Physics: Statistical Physics and Thermodynamics, August 1992, Bajadoz, Estremadura (Spain)

contact: Manuel Velarde, Physics Dept., UNED-Ciencias, POB 60-141, Madrid 28071, Spain

8. GIREP '93 Conference on Teaching Optics and Communication (intended) - Summer 1993, University of Minho, Braga (Portugal)

contact: Brian Davies, The Institute of Physics, 47 Belgrave Sq, London SW1X 3QX (U.K.)

## 7. GENERAL INFORMATION

### GIREP COMMITTEE

President Paul Black, Centre for Educational Studies, King's College London (KQC), 552 King's Rd, London SW10 0UA, UK (tel 071/3512488)

Vice-presidents George Marx, Dept Atomic Physics, R. Eotvos Univ, Puskin u.5, PB 327, 1088 Budapest, Hungary (telex 225459, tel 361/131843)

Joseph Depireux, Institut de Physique, 4000 Sart-Tilman (Liege 1), Belgium (tel 3241/563612, fax 3241/562355)

Secretary Silvia Pugliese Jona, via San Nazario 22, 10015, Ivrea (Torino), Italy (tel 0125/49869)

Treasurer Brian Davies, The Institute of Physics, 47 Belgrave Sq, London SW1X 8QX, UK (tel 071/2356111, fax 071/2596002)

## FEES

The accounting year runs from January 1 to January 1. Fees paid after September in any year will be credited on the following year, unless the applicant specifies otherwise.

The current fee (Jan 1990) is 10 £st, preferably paid into one of the two London accounts or, if that is not possible, the equivalent of 10 £st in the currencies and into the accounts indicated below. The rate of exchange will be that existing on the day of application for (or renewal of) membership, with members paying their own bank charges and mailing costs. In cases of real difficulty of payment please contact the Secretary who will be able to advise whether special arrangements can be made.

London accounts (a) GIRO: Fees in £st should be made out to "Brian Davies re GIREP" GIRO Account n° 53 889 4806. This number must be quoted and the money sent to GIROBANK, c/o The Post Office, Eccleston Street BO LONDON SW11 9LS, UK. At the same time, please send a note to the Treasurer confirming how much money you sent and when and for what years.

(b) Non GIRO: made out to "GIREP ACCOUNT N° 90301248" and sent to the Treasurer.

Italian Account Equivalent of £st 10 can be paid, in Italian lire only, made out to "Marisa Michelini" and sent to: Dr Marisa Michelini, Istituto di Fisica dell'Università, via Campi 213/A, 41100 Modena, Italy.

Swiss Account For historical reasons it is still possible to pay fees in S.Fr. to the equivalent of 10 £st, into "GIREP Account n°376089-91", Crédit Suisse, 1002 Lausanne, Switzerland. This is not a good method but if you must choose it, please send the Treasurer a letter with every possible detail of your banking transaction with Crédit Suisse. Failure to do so may, regretfully and through no fault of GIREP, mean that your payment will never appear in our databases.

Fees from countries where the above procedures are very difficult or impossible may be paid directly to George Marx after having agreed on a procedure with him.

## APPLICATIONS AND NEW MEMBERS

Applicants for membership should please require the Application Form from the Treasurer.

## INQUIRIES - CHANGES OF ADDRESS

Please address inquiries concerning fees to the Treasurer.

Other inquiries may be addressed to the Secretary or to any other member of the Committee.

Please send notice of changes of address to the Secretary.

## COPYRIGHTS ON GIREP MATERIALS

Reproduction of materials published in GIREP Proceedings or in the Newsletter is permitted free of cost, either in their original version or after translation, provided that the source is fully quoted and acknowledged.

This issue of the Girep Newsletter is printed by:  
Centro Stampa, I.T.I.S. "C. Olivetti" - Ivrea, July 1990