

A European Forum Aims to Unite Efforts

G. Tibell who chairs the EPS Forum on Education outlines the background to the Forum's initiatives to promote physics among young people.

One hears from many different countries in Europe about the difficulty to interest young people in the natural sciences. Things do not look the same everywhere, of course, and there are also differences between topics within the sciences. Closer connections to environmental problems might, for instance, give biology and chemistry a greater significance in the minds of young people. At last year's Thematic Conference *Physics Studies for Tomorrow's Europe* in Ghent, many examples were given of the declining interest in physics at the secondary school level, and as a consequence, also at the university level. In an attempt to analyze the situation more closely, some possible causes for the trend were indicated at the Gent meeting:

- physics is considered difficult;
- in some countries the teaching in schools seems to have lagged behind modern developments in physics which, in turn, could point to a third comment,
- physics teachers are not given the opportunity to continue their own education, or they do not take up existing opportunities.

The exchange of students and teachers on the European scale will be supported by the European Union's new Socrates programme. In Comenius, the second of its three chapters, attention is focused on pre-university education, whereas Chapter I will continue with the present Erasmus programme in a slightly modified form. Other parts of Socrates will promote European contacts in the school sector. As an example, mention is made in Chapter III of support for projects developed by European associations operating in the various educational areas covered by the programme. Also mentioned in the same Chapter are visit schemes for education decision makers and European cooperation in open and distance learning.

National Societies Play a Vital Role

However important these international exchanges may be, there are certain things which can also be done within each country. In this respect, the national physical societies could play an important role to

encourage contacts between academia and schools. Such measures are already undertaken in many countries, but there are others in which improvements could be made. An inquiry made during 1994, under the auspices of the EPS Forum on Education, clearly shows that there is room for a further development along these lines.

A table on page 216 of the November/December 1994 issue of *Europhysics News* shows the results of the Forum's inquiry, in a very condensed form. It can be seen that almost two-thirds of the EPS member societies replied. The questions asked were geared towards information on contacts between teachers and university personnel, thought to make up the majority of physical society members. This assumption turned out to be wrong for some countries where the majority consisted of school teachers. In countries where few teachers are society members, and therefore few society activities concern school education, there may instead be frequent contacts with teacher associations.

Many physical societies have sections for education or teachers as part of their structures which run activities of various kinds. Many of the societies engage themselves in the Physics Olympiads, and help organize preparatory competitions within their school systems in order to select the best national team. Continuing education for school teachers is another activity of great concern to some of the societies which were surveyed. Some also include educational matters in their regular meetings as well as in their publications.

Possible Initiatives

More intense and more frequent contacts between academic researchers and physics teachers working in primary and secondary schools might be one way to help cure the last two causes mentioned above for the diminishing interest in physics. The aim would be to keep up or even raise the level of competence of school teachers which is acquired after finishing university training. Of course, the way future teachers are prepared for their jobs



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Promoting physics in schools. G. Tibell, on the left, and L. Sammuellsson, on the right, the Editor-in-Chief of the *European Journal of Physics*, the EPS journal for physics education. They are seen here with H.U. Bengtsson who was also a member of a jury which judged a physics competition organized in 1994 among 2200 Swedish secondary school students that was sponsored by a Swedish newspaper.

in schools could also be the subject of discussion. However, it seems reasonable to believe that even experienced teachers would be stimulated if, for instance, they are informed about new results in physics research, if they received help in designing demonstration experiments in physics, if discussions on the contents of courses at all levels were encouraged, and if there was collaboration in organizing competitions on problem solving and performing model experiments in physics.

In most secondary schools in Europe, pupils must choose which line to follow in the last few years of their schooling, whether the school be called a *gymnasium*, *lycée* or something else. In order to recruit more of these students into physics one could encourage the pupils to visit research laboratories or physics related industry, or at least have them exposed to some inspiring presentations of modern physics and its applications in everyday life. For a few years CERN has been very helpful in this respect by inviting young people or, beginning last year, teachers to spend a few days in the very stimulating environment of an active research laboratory.

Regarding the imbalance between boys and girls in physics classes, it was recog-

nized at the Ghent conference that this might appear to be different in different countries. Very roughly speaking, Northern Europe seemed to be lagging behind the South, perhaps owing to cultural differences. It was felt that ensuring a good example was set should be an important issue, and in this regard countries such as Italy, Spain and France had an advantage over, for instance, the Scandinavian countries. There are, relatively speaking, more women working in physics in the former countries than in the latter, whereas in the latter it is unusual to find a female physics professor in, for instance, a university.

Forum on Education

The Forum on Education recently set up a Board to discuss ways to proceed with activities on the European scale. An immediate task is to help organize a session on physics education at the next EPS General Conference *Trends in Physics* (Seville; September 1996). The Forum must also contact other organizations with similar goals such as, for instance, the IUPAP International Commission on Physics Education, the American Physical Society's Forum on Education and GIREP, the International Research Group on Physics Teaching. It was also proposed at Ghent to call on the Forum on Education to help establish the European Physics Education Network (EUPEN). The main lines of action of this network have been formulated and an application for financial support is to be sent to the European Community under the Socrates framework. It is noted that EUPEN plans to have a broader range of activities than the Forum on Education, for it would also assume responsibility for issues on university teaching as well as student and teacher exchange programmes.

For countries with physical societies or equivalent organizations such as The Institute of Physics in the United Kingdom which are already very active in promoting interest in physics at all levels (schools, universities, the general public, etc.), an EPS effort may seem superfluous. However, it is my belief that information about activities within these countries could serve as examples for others, and thus help increase efforts to pursue the important task of promoting an interest in physics among young people throughout Europe.

General Meeting of EPS Members

Seville, Spain – 11 September 1996 – Agenda

- 1 Report of the President
- 2 Report of the Secretary
- 3 Report of the Treasurer
- 4 Proposals from EPS Members

Mulhouse and Beyond

The EPS Executive Committee and the EPS Council made the following decisions at meetings in Lisbon on 21-23 March 1996.

Executive Committee

- **Strategy Plan** – To seek Council approval for a *Strategy Plan for EPS* which in addition to routine tasks, emphasises issues of professional physics, care for the next generation of physicists, east-west cooperation, and public awareness and information dissemination.
- **Implementation** – To recommend to Council that proposals for activities encompassed by the *Strategy Plan* be submitted to the Secretary General by 1 October 1996 so that they can be considered for the plan's implementation.
 - To recommend to Council that activities be contracted out to national societies and other bodies wherever possible in order to limit the amount of EPS administration.
- **Unit Fee** – To seek Council approval for changing the unit fee from Swiss francs to the ECU based upon the average rate of exchange for the period 1 January – 1 April 1996. This stems from the Executive Committee's decision (announced to members in December 1995) to move the Secretariat to Mulhouse with the Budapest office remaining for at least two more years.
- **Europhysics Letters** – In agreement with the Management Board of *Europhysics Letters (EPL)*, to separate the EPS and EPL managements so that some EPS staff members no longer work for both EPS and EPL. This decision should have no effect on the journal's scientific direction whereby EPS nominates the Editorial Board and the Editor-in-Chief.
- **Secretary General** – To create a task force charged with identifying a candidate for Secretary General who would start working on 1 January 1997 with the object of taking office when the present Secretary General retires.
 - To seek proposal for candidates from National Member Societies.

- **Finances** – To propose that Council accept the audited accounts for 1995 seeing a net profit for the year of 62.5 kSFR, after the attribution of 59 kSFR to the Special Development Fund, that would eliminate the Society's accumulated deficit.
 - To propose to Council a budget for 1996 that envisages a surplus of 29.8 kSFR.
 - To present a budget for 1997 that would be broken down according to activities.
- **Funds** – To approve the Conference Committee's recommended criteria for Solidarity Fund grants to conference participants.
 - That decisions on requests for allocation of monies from special funds be jointly decided by the Treasurer, the Secretary General and the chairman of the appropriate EPS body.
- **Committees** – To appoint J. Nadrachal as the Chairman of a task force that would coordinate east-west initiatives at the national level.
 - To appoint J. Charap as the Chairman of the Physics and Society Action Committee.
 - Following the call for nominations to expand the Editorial Board of *Europhysics News*, to appoint D. Haarer, the German Physical Society's nominee.
 - To appoint the Internet Coordination

Group's nominees for National WWW Coordinators put forward by national societies.

- **Honourary Members** – To accept a proposal by the task force charged with nominating new Honourary Members, who must be living persons, that a replacement for A.R. Mackintosh (who died in December 1995) should, as a mark of honour, not be put forward.
- **European Union** – To delegate D.L. Weaire, the proposed President-Elect, to promote the Society's contacts with the European Union.
- **EPS Prizes** – That the Executive Committee consults with Divisions and Groups before creating special prizes.
 - To harmonise, with Divisions and Groups, the rules for EPS prizes, including a possible rule requiring that awards be ratified by the Executive Committee.
- **Register Commission** – To accept the nomination of 10 new applicants for admission to the Register of European Physicists (*Eur Phys*). In the case of applicants from less-favoured regions who have difficulty paying the fees, to ask the Chairman of the Register Commission to seek EPS support on an individual basis.
 - To pay, for one year, for the distribution of *Europhysics News* to members joining the Register who do not receive the bulletin.
- **European Mobility Scheme for Physics Students** – To accept 4 new participating institutions, bringing the total number to 178.
- **Conferences** – To extend the deadlines for registration and abstracts for the *EPS-10 General Conference* and to seek clarification of payment arrangements and hotel prices.
 - To seek proposals from national societies for hosting the next international conference on *Research and Communications in Physics (RACIP-3)* in Europe in the year 2000.

Council

- **Constitution & By-laws** – To accept the changes announced to members that the EPS be incorporated in Alsace/Moselle, France, with its seat in Mulhouse.
- **Unit Fee** – To change the currency of the unit fee from Swiss francs to the ECU.
 - To reduce the unit fee from the Executive Committee's proposed average rate of about 9.7 ECU to 9.1 ECU.
 - That the Executive Committee considers proposing a unit fee increase within 2 years.
- **Strategy Plan** – To accept the *Strategy Plan*.
 - To encourage National Member Societies to incorporate the plan in their own plans.
 - To include in the plan's implementation proposals put forward by EPS bodies and a budget based on activities.
- **Finances** – To approve the 1995 accounts, the 1996 budget and the proposal that the 1997 budget be broken down according to activities.
- **Members** – To appoint S.R. Edwards, E. Heer and H. der Waard as Honourary Members.
 - To accept 123 new Individual Ordinary Members (IOMs), bringing the total number of IOMs to 3579 (3927 at the end of 1994).