

The President's Report

The report of the President, Professor R.A. Ricci, that was sent to Group Members, Associate Members and the Delegates to Council of the IOM's, so that all delegates could consult with their members before the next Council Meeting which will now be in Zürich on 24/25 May 1991.

We were not yet directly concerned about the escalation of the Gulf crisis while preparing the next EPS Council Meeting last December, following the EPS-8 General Conference in Amsterdam and the Executive Committee meeting in Geneva. Subsequent events prompted us to consult Council Members and conclude that the Meeting would be postponed until 24/25 May 1991 and held in Zürich instead of Athens. Although we could not know how the situation would evolve, as representatives of a scientific community we cannot avoid expressing our concern as a matter of responsibility.

This concern, of course, refers to the wish for a limitation to the tragic consequences of an armed conflict. However, such a desire should be accompanied by a rational understanding of the events, and by an awareness of the scientific community's duty to ensure a correct interpretation. Our traditions of cooperation and peaceful competition cannot be separated from our continuing efforts for freedom and justice everywhere against any intolerance or subjugation.

Three years ago, after my first election to the Presidency of EPS, I used the following words in my address published in *Europhysics News* 19 (May 1988) 90: "In accepting this charge I am witness to the richness of European culture, whose science, despite the widely different national backgrounds, contributes so much to peaceful competition and cooperation between peoples all over the world. European physics continues to play a fundamental part in this."

In leaving this charge at the next Council Meeting I shall be even more convinced that the EPS, like any other international scientific community, has a fundamental rôle to play, provided it continues to represent the traditional spirit of tolerance and collaboration in respecting individual, national and international rights.

Physicists in Europe should be aware not only of their work at the national level and within international programmes, but also of their potential as "European physicists". This begins with individual and national support for the activity and prestige of the "common house", which is effectively the EPS.

East-West Cooperation

It has been clearly demonstrated during the last year through the various Divisional meetings and conferences, and by the different activities, contacts and common actions pursued by the organizations and

representatives of EPS, that the rôle of a scientific community sometimes goes beyond simply providing a forum for cultural and professional cooperation. The heritage of interchanges between eastern and western Europe has yielded a solid basis for transforming "European visions" into concrete actions and "realities". Such transformations continue to represent the major "political" tasks of EPS in the near future. One approach will be to stimulate, on the one hand, the interest and the support of western Europe's institutions, and on the other, a better understanding of the European ideal by the east, especially the Soviet Union.

The former aspect will involve increasing efforts towards concrete actions within the framework of the CEC, the ESF and the regional offices of UNESCO. It must be emphasized more and more that not only should the various proposals and offers for collaboration originating from EPS be taken into serious consideration, but also that one has to obtain the recognition of representative associations such as EPS, which constitute permanent consultative bodies for technical and scientific initiatives in Europe, whenever the various fields of physics are involved. Clear examples of successful results include the collaboration with the ESF in running the European Research Conferences (ERC) in Physics through an official EPS representative (Prof. K. Bethge, Chairman of our Action Committee on Conferences) on the ERC Steering Committee, together with the actions undertaken by the EPS President and the Secretary, Prof. M. Jacob, for improved cooperation with the CEC for Divisional conferences and activities. Moreover, the fully operational UNESCO — EPS Advisory Committee for Energy Storage and Saving will open up a new way to collaborate with UNESCO.

With regard to the latter aspect, following discussions and meetings throughout 1990, the general framework for concrete initiatives was set up during EPS-8 and reformulated as guidelines for a specially constituted task force chaired by Prof. O.G. Folberth (see page 49). Real progress can be made by considering the possibility for specific east-west partnerships, where national societies, institutions, research funding agencies and Associate Members should play a supporting rôle. An example is an increasing interchange, based on post-graduate scholarships and sabbatical positions, both for scientific activities of a high standard and for assistance leading to their continuous creation.



Professor R.A. Ricci, the President of EPS, speaking at the General Meeting in Amsterdam last September.

On the other hand, one has to be aware of the persistence of political difficulties owing to several different reasons. The situations the physics communities in the various Eastern countries find themselves are not the same: what seems now to be well established in Czechoslovakia, Hungary and Poland is not yet clear in Romania, Bulgaria and the Soviet Union. The question of the representativeness of the various physical societies which have recently been founded or reconstituted in the USSR (notably in the Baltic region) is still open. The situation has not evolved substantially since our visit last August to Moscow to meet officials, except for continued official recognition of the Soviet Physical Society and an agreement to work together towards settling the problem of application for membership to EPS by the new societies. The official representative, *i.e.* the USSR Academy of Science which is a founder member of EPS, will for the moment look after representation on the EPS Council, taking into account the possibility of joint group memberships. In any event, we have decided to invite, if they agree, representatives of the new societies as observers to the next Council. The hope is that political evolution towards new forms of democratic cooperation in Europe will continue and help bring forth improved representation for all of Europe's scientific communities.

Secretariats

The decision of the Executive Committee of EPS to expand the Supplementary Secretariat in Budapest, by transferring an appropriate fraction of the administrative work, is not only related to financial problems but was also aimed at providing the basis for fully integrating our colleagues in eastern Europe into all aspects of the physics community's activities. My recent visit with G. Thomas and Prof. N. Kroo to meet some officials of the Government

and of institutions in Hungary aroused great interest in strengthening the effective presence and participation of the country's physicists in EPS. An important step is the fact that the CEC now has a permanent representation in Budapest which will allow us to establish fruitful contacts leading, it is hoped, to common initiatives. EPS may thus take part in the various scientific projects that are developing in the region.

In reviewing last year's activities it is important to repeat that our Society is a vital component of the physics community, and that it is unfortunate that financial problems still continue to be the crucial limitation for a proper expansion of our presence and work. The decision to move part of the Secretariat, namely the Executive Secretary, G. Thomas, to Budapest and some other measures proposed by the task force chaired by the President that were adopted by the Executive Committee permit balanced budgets for 1990 and 1991. The proposed increase in membership fees which will be presented at the next Council Meeting and donations by Associate Members are positive steps towards containing the situation. However, I think that one has to reconsider other specific alternatives relating to the Society's editorial activity and to links with European funding agencies. These questions remain open in order to better organize the work between Geneva and Budapest without demanding personal sacrifices for the sake of the Society.

The Society's activity relating to publications is of great importance in this context. The success of *Europhysics Letters* and its evolution as a self-supporting venture is a proof of what we can do, provided the interest of European physicists continues to grow, and the support of the various partners remains constant and even improved. The adiabatic expansion of *Europhysics News* to provide our community with a larger, more attractive bulletin still needs to be further examined with national societies. Additional discussions with other potential joint publishers and partners for new ventures should continue to be explored.

The activities summarized below derive from reports made by the Divisions and the Action Committees. But before continuing I should mention two important items. The first is the launching in September of the **Southern European School of Physics** in Spain to replace the one foreseen last year in Turkey. The school will be held in Avila on "Dynamical Processes in Molecular Physics" and is jointly organized by the Royal Spanish Physical Society and the Italian Physical Society, under the sponsorship of UNESCO, CEC, the Spanish Ministry of Education and Science,

the Spanish Council of Research and the National University of Education.

The second is the proposal to discuss the problem of professional **qualifications** stemming from an EC Directive on mutual recognition in each of the EC Member States. As pointed out by our colleagues in the Institute of Physics, it is important that an interchange of information relating to the employment of physicists in the Common Market is promoted within the framework of EPS.

Divisions

Astronomy and Astrophysics: The foundation of the European Astronomical Society is the most significant event and one which could have a strong impact on the activity of the Division. The possibility of a joint division between EPS and EAS, leaving, however, the Solar Physics Section within EPS, is a matter of discussion in Council.

Atomic and Molecular Physics: ECAMP IV will be held in Riga (Latvia). The Division is handling, among many other conferences and specialized meetings, the 1st Southern European School in Spain.

Condensed Matter: The 10th General Conference was held in Lisbon in April 1990 with great success (there were about 700 participants); the next takes place in Exeter next month. A first general conference on liquids was held in Lyon in July 1990. The composition of the Board has been enlarged and contacts with the European Materials Research Society are being strengthened.

High Energy and Particle Physics: There will be only one large international conference in Europe in 1991 as a result of uniting the EPS and IUPAP conferences on lepton and photon interactions. The second EPS Prize in High Energy Physics will be awarded at the conference. In the context of developing collaboration with the American Physical Society, the Mediterranean Conference on Nuclear and High Energy Physics had to be postponed owing to the situation in the Middle East. Relationships with ECFA are excellent.

Nuclear Physics: To improve activities in eastern Europe, the 1991 Study Conference on nuclear shapes will be held at Lake Balaton in Hungary, while the 1990 Divisional Conference took place in Bratislav (the next one will be in Amsterdam). A journal (*Nuclear Physics News*) has been launched as a joint venture with NuPECC.

Optics Division: The fundamental decision was to merge the Division into an Optical Society, together with Europtica collaborating with SPIE, which may publish a specialist journal. The actual situation will be reported at the Council Meeting. The ECOOSA series of conferences has been successfully continued.

Plasma Physics: The primary programme of bringing the fusion and non-fusion

communities closer together has made further progress. The Amsterdam meeting (17th Conference on Controlled Fusion and Plasma Physics, 1990) was a success and the next equivalent meeting will be held in Berlin.

Quantum Electronics: The most important activities are participation in the International Council for Quantum Electronics and organization of the 3rd European Quantum Electronics Conference (EQEC 91, Edinburgh) and of the 18th International QEC (Vienna, 1992).

Interdivisional Groups

Accelerators: The 2nd EPAC held in June 1990 in Nice, attended by some 800 participants, demonstrates the great success of this new Interdivisional Group in providing a well established forum for one of the most significant experimental activities of contemporary physics. The next EPAC (in 1992 in Berlin) involves a merger with the IUPAP International Conference on High Energy Accelerators.

Computational Physics: Among the new initiatives, it is interesting to note the *Computational Physics Group Newsletter*, information on "The role of computers in teaching physics" and on a "Survey of parallel computing". The 1990 Europhysics Conference on Computational Physics, held in Amsterdam, was attended by 31 countries.

Experimental Physics Control Systems: After five years of existence, this Group is now well established as a forum for the exchange of information and experience, and for collaboration in the field of control systems for experimental physics. Some 39 laboratories from Africa, Asia, America and Europe participate in EPCS. The activities in 1990 included a study at JET, Abingdon, on the use of workstations for controls; the loan of EPCS workstations to the Czech Technical University, Prague, for educational purposes; the formation of working groups on control protocols; a special issue of *Europhysics News* on controls; and the publishing of a glossary of terms used in control systems. The next biennial International Conference on Accelerators and Large Experimental Physics Control Systems will be held at KEK, Tsukuba, Japan in November 1991.

Physics for Development: On-going activities included the satellite conference to EPS-8 titled "Physics and Physicists for Development". An important initiative arising from the conference is a Declaration (see page 49) clearly stating the need for a highly developed educational and research system in the basic sciences for social and technological development.

Action Committees

The work of the Action Committees has been of great help in establishing the policy of the Executive Committee. Contacts with industrial firms and Associate Mem-

bers via the industrial workshops and the many initiatives of ACAPPI has continued so as to expand interest in, and support for, EPS. The *Conference Committee* has played an essential rôle in the contacts with the ESF and the CEC in relation to the ERC and Europhysics Conferences. The *Physics and Society Committee* has reported on the Europhysics Study Conference on "Induced Critical Conditions in the Atmosphere" held in Turin (September 1989) and on the Heraeus Seminar on "Balances in the Atmosphere and the Energy Problem" held in Bad Honnef (February 1990). The east - west meeting held in Amsterdam at EPS-8 was also an ACPS activity. The next initiatives be will be a seminar on nuclear safety and a Study Conference titled "Science Policy and Management".

Science and technology are inevitably conditioned by the society in which they are immersed. The rôle of scientific communities therefore acquires a significance extending beyond the simple question of providing scientific research and information describing its results. The EPS's achievements over 22 years go a long way towards fulfilling the aims of its founders. Cooperation among national societies and individual physicists in eastern and western countries is now the basis for a real European future for our community. We have to consider the development of this cooperation as the major task for the new EPS which, provided every "European physicist" does not refuse personal support, can become yet another example of a revived scientific culture.

R.A. Ricci, EPS President

East-West Success

Professor O.G. Folberth, Chairman of the task force set up after the General Meeting in Amsterdam last autumn to coordinate east-west initiatives, reports two notable successes. They go some way to meeting the urgent needs that were singled out in the 1990 report on how to help physicists in eastern Europe.

The first is an agreement with IBM to create several academic computer centres in eastern Europe, each with an IBM 3090 machine, that will be linked to the EARN computer network. Plans are well advanced in Poland, Hungary and Czechoslovakia where some sites have already been designated in collaboration with government officials. Discussions are in progress in Yugoslavia but more work has yet to be done in the remaining eastern countries.

The other good news is a donation from the WE Heraeus Foundation to pay for 59 subscriptions of *Europhysics Letters* for three years. The EPS Action Committee on Publications is meanwhile carrying out a survey to establish which journals are needed and by whom.

Physics and Physicists for Development

IGPD, the Interdivisional Group on Physics for Development, of the EPS organized a meeting titled "Physics and Physicists for Development" at the University of Twente, Enschede, The Netherlands on 10/11 September 1990. It was attended by speakers from countries ranging from the least to the most developed. In summarizing discussions it was unanimously agreed that physicists must use all available means to point out the importance of basic science for development, and especially stress that "long term progress is only possible if a percentage of government funds, and in particular of the money available from development assistance, is used for teaching the basic sciences and for carrying out research".

In short, the message was that a sustainable technological development, not to speak of technology transfer, is dependent upon an awareness by the general public of principles of physics and technology. These are obtainable only through a proper education in physics, with experimental activities for pupils and students during at least the last two years of high school and beyond.

The participants agreed unanimously to have the conclusions of the meeting distributed as a Declaration.

DECLARATION

1) Any country, "developing" as well industrialized, wanting to secure a stable society in which industrialisation, public health care, advanced agriculture and all other fields using applied sciences can flourish, inevitably needs a highly developed education and research programme in the basic sciences.

2) The essential rôle of basic science is not generally accepted by politicians and the public, especially in Third World countries where so many urgent needs are felt. It is often assumed that applied sciences are sufficient. This is not true. The development or the attempted direct transfer of technology should be preceded by a build up from basic knowledge. As physics is the fundamental science for the greater part of instrumentation and technology, there is special need for physics research and education with the emphasis on experimental activities.

3) Although fundamental research may not always be immediately feasible, the aim should be to include it as an essential feature in every country, as a means to sharpen analytic power and to raise the quality of education.

4) An enormous amount of talent is wasted, especially in the Third World, since it is not developed. Building an adequate education system should be a political priority in every country. As far as physics is concerned, creative teaching and experimentation is needed first and foremost: costly equipment is not the prime necessity, al-

though it remains a significant problem as scope is widened.

5) Long term progress for sustained technological development is only possible if a percentage of government funds, in particularly monies from development assistance programmes, is used for teaching the basic sciences and carrying out research in these fields.

6) International cooperation is of the greatest importance, but it can only be successful if it is tailor-made. In-depth knowledge of local conditions, circumstances and culture is needed for those taking part in the development of an educational programme. An education system for the sciences leaning heavily on foreign experts may easily fail if this is not taken into account. The same also holds for research activities based entirely on expatriates and not properly anchored in the society.

7) The monitoring of cooperation projects is important for gaining an insight into the conditions for success and failure.

8) Given this background, we find that the world-wide community of universities, with a mission for all people, should see its duty as taking part in the development of adequate education systems and research activities, tailor-made for different local conditions, to give talents latent in every country the opportunity to reach their full potential.

E. Lillethun
Chairman, IGPD

Max Born Medal and Prize

The 1991 Max Born Medal and Prize awarded jointly by the Institute of Physics and the German Physical Society has been won by G.G. Lonzarich of the Cavendish Laboratory, Cambridge, for the development of techniques to study the De Haas-van Alphen effect.

Holweck Prize

The winner of the 1991 Holweck Prize of the French Physical Society and the IOP is Professor A. Aspect of the Laboratoire de Spectroscopie Hertzienne de l'Ecole Normale Supérieure in Paris, for theoretical and experimental contributions to the study of ultra-cold atoms.