The President's Report

Albert E. Fischli

It has been a very busy presidency up to now and I am convinced that it will remain so until the end of the year. In these days of rapid globalization, we can readily perceive the effects that the high-speed changes taking place around us are having on IUPAC. Yet globalization is not new to IUPAC: looking back over the Union's history, we see that globalization was an important topic as early as 1919 and that it was the driving force behind the creation of IUPAC just after the First World War. Globally accepted standards, codices and nomenclature for chemicals had the same prime importance for academia and industry then as they have now. This being said, however, I have to add that IUPAC's objectives, as set out in our Statutes, give the Union a much broader mandate.

Today, the rapid pace of growth and change in the basic experimental sciences of biology, chemistry and physics is apparent to all. Looking at the information explosion in these areas, our attention is frequently drawn to the crossover between the sciences and to the fact that Nature is—alas—not organized like our universities. Adaptation and flexibility are needed in academia as well as industry.

Moreover, it is our responsibility as scientists to ensure that both government and the public at large are made aware of scientific progress at an early stage. In particular, our task as chemists is to put over the message that chemistry is already very important today and that it will go on to be a key science in the world of tomorrow, with a tremendous outreach into sister sciences, the environment, industry and the economy as well as into our everyday lives.

Achievements

Administration and finances

As you are aware, Dr Mo Williams, who was head of the IUPAC Secretariat from 1968, retired this year at the end of April. You will also be aware that our new Executive Director, Dr John W. Jost, took up his post at Research Triangle Park (RTP), NC, USA, at the beginning of April. The transitional period, during which there will be two Secretariats, will last until September 1997. In October our Oxford office will ship documents to RTP and then close down.

At this point in my report I feel privileged to have the opportunity to express my sincere thanks to Mo Williams for his long and outstanding service, and for his loyalty during his time with IUPAC. He personified stability for a substantial part of IUPAC's existence and

was also the leading authority on all matters relating to IUPAC. At the same time I also want to extend my very best wishes to our new Executive Director, who is building up our new USA Secretariat into a globally active Secretariat, devoting special care to emphasizing activities which will ultimately enhance IUPAC's visibility.

As part of this process, our web site (current Home Page address http://chemistry.rsc.org/rsc/iupac.htm) will be further enlarged and made more accessible by setting up a main site at RTP with the domain name of iupac.org. The current site, hosted by the Royal Society of Chemistry, will become our European mirror site. We expect soon thereafter to have also an Asia/Pacific mirror site. It is intended that the site should become the chief channel of communication with the community and especially with those engaged on IUPAC projects.

Our finances are now in good shape, thanks to the work of our Treasurer, as well as to the Finance Committee and the new USA banker taking care of our securities. These have been supplemented by windfall money from Barings Bank. The Executive Committee decided that the Treasurer should set up a new endowment fund to harbour our surprise resources.

Congresses

I would like to pick out just three of the many IUPAC-sponsored conferences that have taken place or are still to take place this biennium.

This year, for the first time since 1967, the IUPAC Congress and General Assembly (GA) have been scheduled to take place in the same city in two successive weeks—'back to back', so to speak. The venue is Geneva, Switzerland, and the two events will be taking

place in the last two weeks of August; the Congress first, then the GA. The same pattern will be repeated in 1999 in Berlin, Germany, after which IUPAC will be able to take proper stock of the new combined event. Holding the two events in successive weeks obviously increases the organizing committees' workload substantially, and I would like to express my thanks to the two organizing bodies in Switzerland and Germany who have taken up the challenge.

In fall 1996 the CHEMRAWN IX Conference took place in Seoul, Republic of Korea, under the heading 'The Role of Advanced Materials in Sustainable Development: Use, Disposal and Recycling of Materials'. Thanks above all to a magnificent effort by the South Korean industry, the event was a great success. Incidentally, this was the third time that IUPAC has had the pleasure of holding a CHEMRAWN Conference in the Asian/West Pacific Rim region: the other two were 'Chemistry and World Food Supplies' in Manila in 1982 and 'Advanced Materials' in Tokyo in 1987.

A third IUPAC workshop on Safety in Chemical Production was organized in April 1997 by our industrial wing COCI, the Committee on Chemistry and Industry. The workshop was held in San Francisco, CA, in conjunction with the American Chemical Society, the US Chemical Manufacturers Association and the US Environmental Protection Agency. The attendance of two 1995 chemistry Nobel laureates generated keen interest. After the first workshop, which was held in Basle, Switzerland (1990), and the second, which was held in Yokohama, Japan (1993), there is still continued interest in holding workshops in other parts of the world.

Nomenclature

I am happy that IUPAC is now able to submit a final list of names and symbols for elements 101–109 to the Council for approval in Geneva in August this year. As you are aware, the naming of the transfermium elements was a lengthy, controversy-ridden process. The three laboratories in Germany, Russia and USA which were involved in the discovery of the elements have been consulted at length and their comments solicited. Their input was most important, given that one of IUPAC's responsibilities is to formulate widely accepted recommendations capable of forming a basis for international communication in chemistry. A press release was issued in February 1997 and the final say rests with the Council. I should also mention that activities have been started to enable IUPAC to put forward proposals for the nomenclature of elements 110–112. The process will be conducted in accordance with our Bylaws and in close collaboration with the discoverers. Once these activities have concluded the final decision will once again be made by the IUPAC Council.

Collaboration with UN and ICSU Bodies

Collaborative efforts with UNESCO, UNIDO and WHO have been substantially intensified during the biennium.

CHEMRAWN IX was organized jointly by our CHEMRAWN Committee and UNESCO, while COCI continued its three-way collaboration with UNIDO and UNESCO. This gives safety experts from the Third World the opportunity to spend a period of approximately one month with IUPAC Company Associates and discuss existing safety measures in a direct hands-on fashion. The visiting safety experts, a substantial number of whom were government specialists, subsequently returned to their home countries. We are thus constructing a progressively expanding network of safety experts in chemical production and also bringing IUPAC into closer contact with the developing world.

All the programmes which IUPAC is undertaking in conjunction with UNESCO are supervised by the International Chemistry Council (ICC), a body comprising four chemistry Nobel laureates from Canada, France, UK and USA, one Japanese industrialist and three developing world representatives from Africa, Asia/Pacific and Latin America. The inaugural meeting took place in Paris in January 1997. The executive part of the programmes is in the hands of IUPAC and UNESCO Officers. The ICC will convene every second year to make a critical assessment of all joint IUPAC/UNESCO activities. We will also be inviting representatives of our Committee on Teaching for Chemistry (CTC) to take part in IUPAC's annual meetings with UNESCO. This is because CTC has been collaborating with UNESCO for quite some time in areas of key interest to the ICC. Furthermore, some of our Commissions have been enlisting UNESCO's help to have larger-scale programmes followed up. Such joint activity also presents an opportunity for us to strengthen our links with the International Organization for Chemical Sciences in Development (IOCD) and the Third World Academy of Sciences (TWAS).

The President of our Division on Chemistry and the Environment is acting as WHO liaison. He is representing our interests at the WHO-led International Forum for Chemical Safety (IFCS) and International Programme for Chemical Safety (IPCS). In the course of his duties, he will be maintaining very close contact with the President of our Division on Chemistry and Human Health. IUPAC together with IUPHAR, IUTOX and the International Life Science Institute (ILSI) constitute the scientific ICSU-NGOs in these UN bodies. IUPAC is currently acting as the group's spokesman.

Collaboration with ICSU executive bodies, a large number of sister unions, ILSI and the ICSU Scientific Committee on Problems of the Environment (SCOPE) has improved substantially in 1996–97.

Chemistry and society

In October 1996 COCI published its first White Book as a contribution from science to the debate on the effects of chlorine and chlorine-containing compounds on the environment. This 'White Book on Chlorine', published as a special issue of the IUPAC journal *Pure and Applied Chemistry*, is an independent and unbiased collection of original articles written by renowned scientists from all over the world, which critically evaluates various aspects of the subject. It has proven to be a success and of interest not only to academic institutions, industry, governmental agencies and environmental organizations, but also to the general public.

The White Book is the first publication of this type and more are set to follow. IUPAC is thus able to use its special position as a science-based, non-governmental, non-industry foundation with a world-wide network of experts from various fields of chemistry and sister disciplines to offer a platform for publications.

State of the Union

Countries and companies

A glance at the world map of National Adhering Organizations (NAOs) and Observer Countries (OCs) shows that while IUPAC is represented in all but a few areas of the Americas, the West Pacific Rim and Europe, it has as yet failed to enlist broad participation from either the strip of countries stretching from Syria to Kazakhstan or the countries of Africa—with the exception of Egypt, the Republic of South Africa and Tunisia. Egypt and South Africa have both been affiliated to IUPAC for quite some time now. This year the Executive Committee will have the pleasure of submitting to the Council in Geneva the membership application of the Union of Yugoslav Chemical Societies as well as requests for upgrading from Pakistan and the Philippines, two of our Observer Countries. Let me add at this juncture that our well accepted voting system is special in that it reflects the countries' actual chemical turnover figures as published by the UN. As a rule, while NAOs with stronger chemical and pharmaceutical industries have a somewhat larger voting share in the Council, they also make a greater financial contribution to IUPAC.

The participation of single companies—IUPAC is the only scientific union with direct industry participation—is remarkable, and membership of the Company Associate scheme remains astonishingly stable given the conditions which industry has to contend with today. Top of the participating companies table in 1996 was Japan with 46 companies, followed by USA with 23 and Germany with 12. The EU15 have 44 altogether. Comparing financial contributions for 1996, USA is on first place, followed by Japan and Germany. The EU15 are on second place behind USA.

Adapting mission, goals and structures

My predecessors' State of the Union reports discussed the critical remarks voiced against some of IUPAC's activities in considerable depth. Incidentally, some of these criticisms are still the subject of discussion. I would like here to inform you about the actions taken in 1996–97 in response to valuable constructive criticism. I believe that the steps we have taken will result in goals and structures which reflect the tasks facing IUPAC in the next millennium.

Several brainstorming sessions took place during the biennium at which IUPAC Officers, all of whom were very much involved in the organization of the meetings, were able to discuss thoroughly IUPAC's current situation, mission, objectives and future. These always involved well-known chemists from academia and industry, plus representatives from inside and outside IUPAC. An initial meeting was held in Belmont, USA, during June 1996. A subsequent European one-day meeting was organized in London for February 1997 and a third brainstorming workshop for the Asia/Pacific region took place in Singapore during June 1997. All were very fruitful in clarifying IUPAC's mission and goals as it heads into the next millennium as well as in promoting an intensive and rewarding exchange of opinions about the strengths and weaknesses of the Union. The meetings reinforced the need for the changes being discussed in IUPAC. All were extremely valuable, instrumental even, in the formulation of new objectives and activities, and to increasing IUPAC's visibility.

The IUPAC Officers also held an extraordinary meeting with the Divisional Presidents/Vice-Presidents and Section Presidents in Frankfurt, Germany, in March this year. This meeting was an opportunity to go through each Division's restructuring plans. While the creation of the Divisions on Chemistry and the Environment and on Chemistry and Human Health at the last General Assembly represents a major step there are still some desiderata. We need to find ways of integrating both the area of materials and the major scientific activities taking place at the interface between chemistry and biology into IUPAC. With the Divisional Presidents' input, the Frankfurt meeting yielded proposals for solutions which should result in structural changes to eliminate overlap and provide IUPAC with the missing activities and structures. The meeting was also used for a thorough discussion of the Vice-President's Critical Assessment and to some extent for discussion of further proposals for structural change.

These proposals and the Vice-President's Critical Assessment were taken up again at the Executive Committee (EC) meeting at Jerusalem in April 1997. After detailed discussions the EC decided to establish a Strategy Development and Implementation Committee

(SDIC) to define the science policy of the Union and to examine the feasibility of converting the bulk of IUPAC's scientific work to a project-driven/project-financed system with time-limited Commissions, as described in the concept endorsed by the EC. The eleven members of the SDIC were appointed by myself following consultations. The Committee was placed under the chairmanship of Vice-President Joshua Jortner and it met for the first time in June.

Scientific work

I am delighted at the large number of committed volunteers who devote their time and scientific expertise to furthering the IUPAC cause. More than 1000 scientists are actively involved in IUPAC, an achievement which I strongly believe to be cause for congratulation. That this is an enormous strength goes without saying, and we have to safeguard its continuity under the best possible circumstances. It also goes without saying that the limited financial resources available to IUPAC and the small time window available for new scientific endeavours are forcing us to choose our projects carefully.

Future perspectives

As the only purely scientific global chemical organization mandated to undertake this kind of work, it is essential that IUPAC continues with its codification, nomenclature and standardization activities. It has to do so at a much faster pace than in the past and in close association with the professional bodies which are also involved in these activities. They are working rapidly using their excellent skills, and IUPAC should try to find a collaborative basis with them which is not only acceptable to all stakeholders, but which will also enable all parties to benefit from the special advantage which IUPAC derives from being a global, strictly scientific, non-governmental organization.

It is also my belief that collaboration with UN and ICSU bodies has to be intensified and focused. Here IUPAC has a special responsibility, arising from the immense outreach of chemistry into the other sciences and the remarkably close relationship which has existed for quite a long time between chemistry in academia and the now giant chemical and pharmaceutical industry. This relationship has no parallel in physics and has started to emerge in biology only relatively recently with the advent of small biotechnology companies, the first of which was set up in California in 1976. Chemistry is a pervasive part of our everyday lives and one that accompanies us throughout our lives.

For these reasons, IUPAC should also increase its activities in the field of 'Chemistry and Society'. Here again the Union occupies a very special position, maintaining as it does close contact with all the major stakeholders in innovation, i.e. academia, industry, government and society. We have been successful in strengthening our links with society, and through society with governments as well; nevertheless, I think, there is still a lot of room for improvement.

As always, there are still some issues to be resolved. One is that all of us in IUPAC have to make greater efforts to recruit the best scientists for our activities. This is extremely important to IUPAC since all our collaborators are volunteers. One of the advisors whom I had the pleasure of consulting during my period as Vice-President summed it up by saying that serving IUPAC comes under the heading of *noblesse oblige*.

A second unresolved issue is that we have to be very careful in selecting the activities in which we wish to get involved. We have to make sure that we are resolute in the pursuit of our goals once they are defined and that we come up with the desired result quickly. Let me also add that we have to remain true to our scientific base, unswayed by any pressure of a non-scientific nature, irrespective of whether it comes from academia, industry, governments or society.

Conclusions

Significant progress has been made, but a lot still remains to be done.

I have enjoyed having responsibility for a large number of teams, and I feel privileged to have been able to work with such colleagues as my fellow IUPAC Officers and the Members of the Secretariat, Executive Committee and Bureau as well as to have interacted with the Council, IUPAC's highest body. I am also very pleased to have been given the opportunity to establish contacts with our Divisional Presidents as well as with the Chairmen of CHEMRAWN, COCI, CTC, the Committee for Printed and Electronic Publications (CPEP) and the Committee on Affiliate Membership (CAM). If we look at CAM, it becomes apparent that, although progress has been made, there is still a need for further action. Additionally, CPEP is in need of a new policy on the submission of papers for publication in *Pure and Applied Chemistry*.

Let me close by thanking all members of IUPAC bodies for their efforts and the dedication with which they have worked for our Union over the last biennium in particular, even though I am aware that most of them have been working on IUPAC's behalf for substantially longer. It is due to them, their commitment, flexibility and creativity, that we can look with confidence to the future of IUPAC.