

This is the IUBMB

International Congresses of Biochemistry—Personal Recollections

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International Congresses of Biochemistry have been held every 3 years without a break since the first in Cambridge, U.K., in 1949. Thus the Congress in Birmingham, U.K., on July 16–20, 2000 is the 18th of the series and the 2nd to be held in the U.K. I have attended all except the 17th in San Francisco.

FIRST INTERNATIONAL CONGRESS OF BIOCHEMISTRY

The origins of the first Congress are well documented (1), most recently by Kamminga (2) and Whelan (3), who also attended this meeting.

Fifty years ago, International Scientific Congresses were different in many respects from those held today. Most importantly, they were attended by the leaders in the field who used the Congresses to announce their latest findings. The attendance list at the Congress in Cambridge reads like a list of Who's Who in biochemistry in 1949 or, indeed, in the third quarter of the 20th century. The "Abstracts of Communications" includes the names of no fewer than 21 holders or future winners of the Nobel Prize in Chemistry or Physiology or Medicine.

The first Congress was not held in a Congress centre or hotel complex, as is usually the case nowadays, but on a University campus. Most of the participants lodged in rooms in the colleges and the talks were given in various lecture rooms around the University. Although with 1700 registrants from 33 countries, the Congress cannot be considered a small meeting, there were no professional organisers. Everything was taken care of by the Honorary Officers of the Biochemical Society and the staff of the Biochemistry Laboratory under the leadership of Ernest Baldwin.

The format of the Congress also differed from that of current meetings. There were three Plenary Lectures, by Carl Cori (USA), Marcel Florkin (Belgium)—later to become the first President of IUB—and Robert Robinson (UK), but there were no symposia with invited speakers or poster sessions. All contributions were placed in the appropriate session. Of course, as today, there were a number of simultaneous sessions, but in the session on Biological Oxidations that I attended, the atmosphere was relaxed with 20 min allowed for each presentation. This was

the only time I saw my teacher, David Keilin, at a meeting. He sat in the front row and had a question or comment for every speaker. The discussions were free from the confrontational atmosphere that characterised this field in later years. The only tense moment that I can recall was between Keilin and Hugo Theorell, during the discussion of a paper by Chen-lu Tsou, over the question of the molecular mass of cytochrome *c*.

When the first Congress was held, the 1939–1945 War had ended only 4 years previously and the desire to renew contacts was an important reason that so many countries were represented at the Congress. Notably, however, there were no abstracts from Germany or the USSR, but four German biochemists did attend the Congress.

1952–1958

The next three Congresses were all also held in Europe.

Paris was the natural choice for the Second Congress in 1952, because the Société de Chimie Biologique had organised a series of Congresses, the most recent (the 8th) in 1947, to which many foreign participants were invited and which could be considered the forerunners of the International Congresses of Biochemistry. The chief organiser of the Second International Congress was Jean Courtois, who had organised the 1947 Congress of the Société de Chimie Biologique.

The meeting was held in the Sorbonne, with a most impressive Opening Ceremony in the Amphithéâtre. Gabriel Bertrand, a figure out of the 19th century and originator of the word "oxidase" gave the opening talk. There were four Plenary Lectures (Conférences), given by J. N. Davidson (UK), A. L. Oparine (USSR), S. Ochoa (USA), and K. Linderstrøm-Lang (Denmark), and seven symposia, including one entitled "Tricarboxylic Acid Cycle," in which Hans Krebs (UK) tried unsuccessfully to persuade his audience that the Krebs cycle is not operative in yeast. During this symposium I. C. Gunsalus (USA) announced the structure of lipoic acid and its function in the oxidation of pyruvate and 2-oxoglutarate. Another notable symposium was on the Biogenesis of Proteins with L. Pauling and K. Linderstrøm-Lang as Presidents and Jacques Monod as Secretary. Unfortunately, Monod did not supply a report of this symposium for the

Comptes Rendus, so we are deprived of reading the state of the art in this field one year before the double helix. In addition to the symposia, there were no fewer than 31 sections for shorter communications. The total registrants were 2357 and included, now that the political situation was becoming more normal, 166 from Germany and 17 from Eastern Europe, including 6 from the USSR.

The Third Congress in Brussels in 1955, organised by Claude Liébecq, was in 17 sections, each composed of "reports" (pre-printed) by invited speakers, followed by invited discussants and free communications, either presented in 20 min or read by title only. There were also seven "conferences." Apart from Plenary Lectures by C. Martius (Germany) and V. du Vigneaud (USA) at the opening and closing ceremonies given in the Palais des Beaux Arts, all lectures were given in lecture halls of the University of Brussels.

I do not have figures for the total number of registrants. Up to 3 months before the Congress was held, ~1100 had registered, suggesting that the total number was less than in Paris. A notable late arrival was Yin-lai Wang from China, who announced simultaneously with Tom Singer that succinate dehydrogenase is a flavoprotein. I was mainly preoccupied with my own "rapport" on respiratory-chain phosphorylation. I have no recollection of any outstanding announcements at this Congress. Crick's name appears among the registrants but not among the authors. Except for O. Maalø, who gave prominence to Watson and Crick's "suggestive model" in his paper on "the genetic significance of viral DNA," the papers on protein synthesis at this meeting indicate that the genetic implications of their model had not yet penetrated this field.

When it was decided to hold the Fourth Congress in Vienna in 1958, this city was still divided into different sectors under the control of the occupying powers from the end of the War, made famous by the film "The Third Man", which would have made it more difficult to organise a large Congress. However, by the time the meeting was held in 1958, the city had been handed back to the Austrian authorities. The Congress, organised by Otto Hoffmann-Ostenhof, contained 12 symposia, 6 colloquia, and 18 sections for short communications held in different buildings of the University near the centre of Vienna. At the opening and closing sessions, respectively, Plenary Lectures were given by E. Chargaff (USA) and A. E. Braunstein (USSR), respectively. About 2500 full members had registered 2 months before the meeting, making it probable that the total attendance was in the vicinity of 3000, the largest to date. What stands out in my memory is the simultaneous announcement by chemists at Merck and Hoffmann-La Roche of the structure of ubiquinone, since these announcements were made during the discussion of my paper!

The complete Proceedings of the Congress, including the full papers presented at the symposia and colloquia, the Plenary Lectures, and the abstracts of the sectional papers were published in 15 volumes by Pergamon Press.

This was the first International Congress of Biochemistry where what was becoming known as molecular biology was well

represented. The symposium called simply "Proteins" chaired by H. Neurath and H. Tuppy contained contributions from J. C. Kendrew, M. Perutz, F. Crick, V. M. Ingram, and H. E. Huxley.

FIFTH INTERNATIONAL CONGRESS OF BIOCHEMISTRY

The Fifth Congress held in Moscow in 1961 was remarkable in several respects. Although biochemists had by now become world travellers, the Soviet Union was still new territory for many. During the week preceding the Congress, the IUB Bureau (as the Executive Committee was then named) and many European biochemists travelled in the USSR liner *M.V. Estonia* from London to Leningrad. There they were greeted wharfside by the organiser of the Congress, Professor N. M. Sissakian, and by Professor V. A. Engelhardt, whose name is enshrined in the history of biochemistry as the discoverer of the main (quantitatively) pathway of ATP synthesis (oxidative phosphorylation) and of its hydrolysis (myosin). An overnight train journey brought them early in the morning to a Moscow decked with flags and banners, not in honour of the world's biochemists, but in celebration of the successful journey of the USSR's second astronaut, Titov. Some of us were able to slip into the parade of Muscovites just as it was entering Red Square to pass under Titov, Yuri Gagarin, Krushchev, and other dignitaries standing on the balcony of the National Memorial.

The coincidence of the two events caused some problems with the hotel accommodation, despite earlier reservation, and later in the week the proceedings of the Congress were enlivened by a press conference, given by Titov, presided over by Professor Keldysh, President of the Academy of Sciences, in the hall of Moscow University, which interrupted the sessions of one of the symposia of the Congress being held in the same hall.

Owing to the general news blackout, most of the participants at the Congress were unaware that while they were in Moscow, relations between the USSR and the West had reached a critical point with the erection of the Berlin Wall. Some of us returning to London on the *S.S. Baltica* with a stop in Rostock (then in DDR) were aware of this, which made for a somewhat tense passage. Several found that their return flights had been cancelled and had to stay an extra night in Moscow.

Amid all the excitement, the Congress followed a more or less normal course. The Opening Ceremony, which was held in the enormous Lenin Stadium, included a Plenary Lecture by D. E. Green (USA). A second Plenary Lecture was given by F. Sorm (Czechoslovakia) at the Closing Ceremony. Uncorrected proofs of all symposium talks were distributed as preprints and the edited talks together with discussion comments were published by Pergamon Press in separate volumes, following the same pattern as in Vienna. The subsequent discovery that some of the uncorrected preprints had been published in a Pergamon journal, without permission of either the author or the editor of the symposium proceedings, caused IUB to break off relations with Pergamon for many years.

The scientific highlight of the Congress was the announcement by M. W. Nirenberg (USA) that the addition of poly(U) to a cell-free protein-synthesising system led to the synthesis of

polyphenylalanine, a discovery that opened up the elucidation of the genetic code.

THE SIXTH AND SEVENTH CONGRESSES—THE LAST OF THE MAMMOTH CONGRESSES?

In 1964, the Congress moved across the Atlantic to New York. The meeting was held in two modern hotels with Congress facilities, a departure from the practice hitherto of holding the scientific sessions in University lecture rooms. Also, for the first time, the organisers gave generous grants to help the attendance of young foreign biochemists, and about a dozen of my graduate and postgraduate students took advantage of this offer to make their first visit to the USA. This, combined with the relative prosperity of the USA, its leading role in biochemistry, and the efficient organization of the meeting by Stanford Moore ensured a large attendance (about 7000).

The number of Plenary Lectures at this congress was increased to six, four at the Opening Ceremony and two at the closing. These were given by L. F. Leloir (Argentina), O. Hayaishi (Japan), S. E. Severin (USSR), E. Lederer (France), E. Katchalsky (Israel), and F. H. C. Crick (UK).

The programme was the usual mixture of symposia and free communications covering the whole field of biochemistry and molecular biology. The logo of this Congress was the double helix.

The Seventh Congress, held in Tokyo in a very warm August in 1967, was organised very much on the lines of the Sixth Congress. It was also held in large modern hotels. Plenary Lectures were given by H. G. Khorana (USA), F. B. Straub (Hungary), E. P. Kennedy (USA), and D. C. Philips (UK) in the Tokyo Metropolitan Festival Hall and the National Theatre. David Philips described the X-ray structure of lysozyme, the first enzyme for which a three-dimensional structure was determined. About 4000 active members attended this Congress, including 2600 from abroad.

THE EIGHTH CONGRESS—AN ALPINE RESCUE

At the end of the Seventh Congress, Professor Cerletti invited the participants to the Eighth Congress in Rome in 1970. It was at that time thought by many that this would be the last large Congress (see below). In any event, it did not take place. Owing to the disruption in European universities by the students' activists in the late 1960s, the organisers were unable to proceed with the preparations for a Congress in Rome. Frank Young, then the Treasurer of IUB, persuaded the Swiss biochemists, at only 1 year's notice, to fill the gap. Because no single centre could cope with the large numbers expected, the Congress was held in three centres—Interlaken, Lucerne, and Montreux—linked by television. Four symposia each were held in Interlaken and Montreux and two in Lucerne. Owing to the circumstances, there were no Plenary Lectures, nor, so far as I can remember, were any short communications given outside the 10 symposia.

Although it was not ideal to have to split the Congress into three centres, it was a great achievement of the Swiss biochemists to have organised a successful Congress at such short notice and with limited facilities and finance. I for one enjoyed it tremendously. Apart from participating in the then vigorous discussions in my own field, I remember watching in Lucerne on the television link Max Perutz in Interlaken showing the ligand-induced movements in haemoglobin. This was the first occasion when, to help the start-up of the Congress, IUB advanced a loan out of its small funds. It was also the first time that Statute 8.6,¹ intended to deal with a crisis occurring between General Assemblies, was invoked. I do not have any figures on the number of participants.

BACK TO NORMAL

The Ninth Congress in Stockholm returned to the normal pattern with about 4500 participants. It was the first to be held in a Congress Hall. For the first time, IUB provided funds to enable 14 young biochemists to attend the Congress. I was taken aback by a delegate who, instead of praising this initiative, criticised us for providing so few. Support from IUBMB funds for young scientists to attend the Congresses has been repeated at every Congress: at the 18th Congress, the Federation of European Biochemical Societies (FEBS), the Biochemical Society, and IUBMB are jointly funding 120 young scientists. A part of this programme is financed by the interest from a fund bearing the name of Hugo Theorell, President of the Ninth Congress, donated to IUBMB from the profits of the Congress and held in IUBMB's Endowment Funds. Starting with the 12th Congress in Perth, Australia, on the initiative of Peter Campbell, those receiving the awards were brought together a few days before the Congress to meet together, present their work to one another, and attend lectures by senior biochemists.

In addition to four Plenary Lectures given by B. S. Hartley (UK), G. E. Palade (USA), E. C. Slater (The Netherlands), and S. Spiegelman (USA), two evening sessions with the title *Frontiers in Biochemistry* were held, intended to inform nonbiochemists of the developments in the field; the speakers were C. Weissmann (Switzerland), E. L. Smith (USA), A. L. Lehninger (USA), and H. L. Kornberg (UK). A similar programme has since formed a part of a number of the subsequent Congresses. What also became a permanent feature of IUBMB Congresses was the programme on Teaching and Careers in Biochemistry, arranged by P. N. Campbell (UK). A third novum was the replacement of short communications by posters, by then a common practice at scientific meetings,

The programme of the 10th Congress, held in a Congress centre in Hamburg in 1976, was similar to that of the 9th Congress. Plenary Lectures were given by P. Reichard (Sweden),

¹The President may decide, after consultation with other officers as may seem to be desirable, upon matters within the competence of the Union in order to ensure the smooth development of the day-to-day activities of the Union. Such decisions shall be reported to the next meeting of the Executive Committee.

G. M. Edelman (USA), D. C. Philips (UK),² and J. Adler (USA). Although I have no information about the number of participants, the more than 3000 abstracts in the Abstract Book indicates that it was also a large meeting.

The 11th Congress was held in five downtown hotels in Toronto connected by a frequent shuttle bus service. This was the first occasion when IUB sponsored a Plenary Lecture, namely, the Chester Beatty Lecture financed by an Endowment Fund set up by a gift from Mr. Alfred Chester Beatty of London. This lecture was given at the Opening Ceremony by P. Handler, President of the US National Academy of Sciences. Other Plenary Lectures were given by A. Kornberg (USA), E. Katchalski-Katzir (Israel), V. P. Skulachev (USSR), and G. Schatz (Switzerland). This Congress was about as large as the 9th and 10th Congresses with nearly 4000 abstracts.

For the 12th Congress, IUB moved south of the equator to Perth in Western Australia. Because Congresses are always held during the University summer vacations in the northern hemisphere where the large majority of biochemists live, it was a new experience on this occasion for them to meet among the early spring flowers, many unknown in the northern hemisphere, for which Perth is famous. Partly owing to the great distance of Perth from all parts of the world, including even the most populous parts of Australia, but also because of the economic recession in 1982 in the Western world, attendance at this Congress was lower than at the previous Congresses. Sessions were held in a downtown hotel and at the University of Western Australia where a large tent was erected for the exhibition area.

A feature of this Congress was the expansion of the number of Plenary Lectures to seven. One of the main purposes of the Congresses is to give the opportunity for young biochemists to see and hear the leaders in their science, and a Plenary Lecture is an excellent medium for this. IUB had by now received endowments to support two more lectures to add to the Chester Beatty Lecture, namely, the Osamu Hayaishi Lecture endowed by Suntory Limited and the Severo Ochoa Lecture endowed by Hoffmann La Roche Inc., in honour of two former Presidents. In addition a Feodor Lynen Memorial Lecture was sponsored by the Gesellschaft für Biologische Chemie and the German pharmaceutical industry, and additional lectures for the 12th Congress were sponsored by The Rural Industries Bank in Australia, the Australian Biochemical Society, and the FAOB. Unfortunately, for reasons described below, Y. A. Ovchinnikov (USSR) was unable to deliver his lecture. The other six were given by P. Leder (USA), J. R. Knowles (USA), S. Numa (Japan), M. D. Hatch (Australia), K. Yagi (Japan), and C. Weissmann (Switzerland).

The 13th Congress in Amsterdam shares a special place in my memory, together with the 1st in Cambridge (where I was then working) and the 12th (in the country of my birth), in that the last day of the meeting marked my retirement after more than 30 years from my chair at the University of Amsterdam.

²He and E. Katchalski-Katzir are the only speakers to have given two Plenary Lectures at IUB(MB) Congresses.

I do not remember and I have no data to calculate the figures for the total attendance, but it was certainly a large meeting, held in a Congress centre at the southern edge of the city, organised in 12 symposia and 12 colloquia, as well as the by now usual poster sessions. To mark the occasion, Elsevier Science endowed an additional IUBMB-endowed Plenary Lecture, named in my honour. This, together with the Feodor Lynen Memorial Lecture and the FEBS Lecture, now a permanent feature of the Congresses, made a total of six Plenary Lectures, given that year by R. A. Weinberg (USA), D. E. Koshland (USA), P. Borst (The Netherlands), G. K. Radda (UK), T. Sugimura (Japan), and H. G. Wood (USA).

Reflecting the interest of young biochemists in The Netherlands with the social consequences of scientific research, three meetings were held open to the public: Impact of Recombinant DNA Research on Man and Society; The Long-Term Biological Consequences of Nuclear War; and an Open Meeting to form an International Committee Against the Military use of Biological Warfare.

There was also a large Educational Programme, including the demonstration of computer-aided instruction and a film and video show.

For the 14th Congress, IUBMB moved for the second time east of what was still the Iron Curtain, to the Palace of Culture in Prague. It was a very large Congress with nearly 5000 names in the list of participants. Its organisation was similar to that of the 13th Congress, although with a somewhat smaller number of symposia and colloquia. In addition to the six named Plenary Lectures given in Amsterdam, two locally supported lectures in honour of J. Hevrovský and J. E. Purkyně were added. The eight speakers were R. J. P. Williams (UK), K. Martinek (Czechoslovakia), T. Murachi (Japan), D. Oesterhelt (Germany), G. Semenza (Switzerland), H. M. Temin (USA), T. R. Cech (USA), and A. N. Bystrov (USSR).

During the meeting, a panel discussion on "equal opportunities for women" (a recurrent theme at international Congresses since the Ninth in Stockholm) was held, and a reception was given by the International Association of Women in Biochemistry in honour of Elizabeth Neufeld (USA) and Sarah Ratner (USA). Included in the symposium programme was one on new concepts in the teaching of biochemistry.

The 15th Congress in Jerusalem was the second one that nearly did not happen, in this case owing to the outbreak of hostilities in the Gulf region during which missiles were fired at Israel. I was then President of IUBMB and, as I stated at the Opening Ceremony:

It is more than a usual pleasure to be able to welcome all of you to this 15th Congress of the International Union of Biochemistry, since for some time since last summer and particularly earlier this year, it seemed likely that the Congress would have to be at least postponed or moved to another location if not cancelled. Happily, the situation improved sufficiently and in time for the preparations to go ahead for the Congress here in Jerusalem at the time originally fixed.

Were it not the unflagging steadfastness and optimism of Dr. Littauer and his colleagues, apparently in defiance of all reason but

justified by events, it is not unlikely that this Congress would have been prematurely postponed or cancelled. We owe them a special debt of gratitude for their fortitude in trying circumstances and for preparing such a feast of biochemistry for us.

In fact, after the start of the land war in the middle of January 1991, after consultation with my colleagues, I told Uri Littauer that if the shooting had not stopped before February 1, the Congress would have at least to be postponed. In the days before e-mail (only 9 years ago!), urgent discussions had to take place by telephone, one at least during a SCUD missiles warning. Fortunately, developments outside our control were such that the deadline was met with days to spare and a happy and successful Congress ensued in Jerusalem—although, under the circumstances, it was not surprising that the attendance was down compared with the previous two Congresses. The meeting was held in the Jerusalem Convention Centre and the Jerusalem Hilton. The programme included the same six named Plenary Lectures that formed part of the 13th Congress, which were given by P. Berg (USA), T. L. Blundell (UK), A. E. Clarke (Australia), Y. Nishizuku (Japan), B. Sakmann (Germany), and R. Tjan (USA). Seven satellite meetings were held before and after the Congress, one in Moscow, one in Sweden, and five in Israel.

An especially successful meeting of the IUB travel fellows was held in Jerusalem just before the Congress.

For the 16th Congress in 1994, the now-renamed IUBMB turned once again to Asia, namely, to New Delhi. I was personally much less involved in this Congress than in the previous 15. It was already 9 years after my retirement and, as I thought, my days of involvement in IUBMB were over. However, Professor Appaji Rao kindly invited me to attend the Congress and to participate in the pre-Congress meeting of the IUBMB travel fellows. I thoroughly enjoyed what I thought a very successful Congress attended by a large number of young Indian biochemists. To me, it resembled the earlier Congresses and I mean that in a positive not a negative sense. The six named Plenary Lectures were given by I. M. Verma (USA), T. Taniguchi (Japan), E. G. Krebs (USA), M. Salas (Spain), N.-H. Chua (USA), and R. Huber (Germany).

The 17th Congress was held in San Francisco in 1997. Because this was the only Congress that I did not attend but many readers had done so, I shall not include this Congress in my account, except to record that, for the first time, the Congress was held in conjunction with a meeting of the local biochemical society, the American Society of Biochemistry and Molecular Biology. The 18th Congress will also be a joint meeting, this time with the FEBS, the regional associated organisation of IUBMB. It is expected that this pattern will be followed at the 19th Congress in Toronto (jointly with the Pan-American Association for Biochemistry and Molecular Biology) and the 20th in Kyoto (jointly with the Federation of Asian and Oceanian Biochemists and Molecular Biologists).

Between 1949 and 1994, 16 Congresses were held in different countries: two in North America, two in Asia, one in Australia,

one in the Middle East, and 10 in Europe. None was held in Central or South America or in Africa. In 1997, IUBMB entered new (or old?) ground by turning for a second time to the USA, a pattern of “the second-time round” that will be repeated in 2000 (UK), 2003 (Canada), and 2006 (Japan). The decision to accept an invitation to host a Congress is taken de facto 7 years before the Congress. Those who wish to issue an invitation for 2009 should begin to make their preparations quite soon.

RELATION BETWEEN IUB(MB) AND THE INTERNATIONAL CONGRESSES OF BIOCHEMISTRY

Role of IUB(MB) in Organisation of the Congresses

All International Congresses of Biochemistry after the first one have been held under the auspices of the International Union of Biochemistry, whose role was initially restricted to accepting the invitation of the host Adhering Body (or to choosing between different invitations). Apart from providing its Plenary Lecturers and travel fellowships for young scientists to attend the Congress, IUBMB has not normally financed the Congress. Exceptions have been a small start-up loan to the organisers of the 8th Congress in Switzerland and, together with FEBS and the Biochemical Society, a substantial grant to the organisers of the 18th Congress, returnable out of any profits.

Until 1979, the organisation of the Congress was left entirely in the hands of the host country. IUB started to take a more direct interest in the programme when the Executive Committee learned of the very large proportion of speakers invited to the 11th Congress in Toronto who were from the United States. Given the preponderance both quantitatively and qualitatively of the USA in biochemistry, this was understandable, but it went counter to IUB's aim of a more equitable representation in its affairs of biochemists from all over the world. In this instance, the problem was alleviated by additional invitations, but it has remained a potential source of tension, reaching its climax in 1997, when one Adhering Body threatened to withdraw from the Union over this issue. A member of the Executive Committee is now charged with liaising with the organisers, and guidelines have been issued describing the obligations of the two parties.

IUB(MB) Assemblies

The International Congresses of Biochemistry predated the formation of IUB, which was not admitted to the International Council of Scientific Unions (ICSU) until 1955 (4).

IUB's Statutes require that its Assembly, the meeting of the delegates from the Adhering Bodies, shall take place once every 3 years and shall normally be held in association with an International Scientific Meeting arranged under the auspices of the International Union of Biochemistry. All except the first of the 16 General Assemblies held to date have been in association with an International Congress of Biochemistry, usually on an afternoon in the middle of the Congress that was kept free from

the scientific meetings.³ Important decisions, including, for example, the locations of future Congresses, were announced at the Closing sessions.

IUB(MB) Conferences

During the Sixth Congress the IUB Committee on International Symposia (Chairman P. Handler), on the basis of recommendations from the US National Committee for IUB, proposed a new pattern of IUB-sponsored scientific meetings, in that they should be smaller in size and scope but more frequent than the triennial Congresses. Specifically it recommended that IUB should sponsor a series of annual symposia devoted to a specific coherent area of biochemistry. After referral to the National Committees and debate at the 6th General Assembly in Tokyo, it was decided that Congresses with unlimited numbers are acceptable where possible, and that the 3-year cycle should be retained so that the work of the General Assembly could proceed normally.

Handler's idea was revived but in a different form by A. W. Linnane in the late 1980s. His proposal, which was adopted by IUB, was to hold Conferences in non-Congress years. The scope of the Conferences was envisaged to be between those of Congresses, which should still cover the whole field of biochemistry, and the limited topic of a symposium. The first Conference was held in Nagoya, Japan, in 1992, and the most recent, the 6th, in Seoul in 1999. It has in practice been difficult to persuade the organisers to limit the scope of these Conferences and not turn them into mini-Congresses, and some have experienced financial problems.

International Politics

In its early years, IUB was confronted with problems arising from political disputes over the recognition of countries or of separate parts of a recently divided country. The first arose from the acceptance by IUB in 1961 of Taiwan as a member, which led to the withdrawal from the union in 1965 of the People's Republic of China. In 1964 in New York the Fifth General Assembly accepted the Democratic Republic of Germany as a member in addition to the Federal Republic of Germany. Since the reunification of those countries Germany is represented by a single biochemical society.

At the Sixth General Assembly in Tokyo in 1967, new Statutes were adopted in which an Adhering Body is described not as a country but as a "scientific community," applicable to the biochemists of a country or of an otherwise defined geographical area that has an independent budget for scientific purposes. This made it easier at the Ninth General Assembly in 1976 for IUBMB to accept South Africa as a member at a time when the country as a whole was boycotted by a large part of the world for its

policy of apartheid. In 1979, a way was found that allowed the two biochemical societies in the two parts of China separated by the Taiwan Strait to be represented in IUB (5). The agreement in principle was reported to the 10th General Assembly in Toronto in 1979, although it was not until the following year that names of the two Adhering Bodies were agreed.

The 11th Assembly was faced with a difficult problem shortly before the start of the Congress in Perth, Australia, when it was learned that the Australian Government had refused visas for the delegation from the USSR, including one of the Plenary Lecturers, Y. Ovchinnikov, in violation of the resolution of ICSU on freedom of travel for scientists. Vigorous efforts by the Executive Committee to obtain a reversal of this decision at the highest level in time for the delegation to fly to Australia foundered on the approaching weekend in Canberra and the fact that the Australian Prime Minister had just returned from China with a bad cold. The positive result of these efforts was that the Australian government later apologised to the USSR delegation and that other International Congresses scheduled for Australia did not have the same problem. In the meantime, the Ordinary General Assembly was faced with the question of whether decisions taken when the delegates of one of its members were prevented from attending the Assembly were valid. It was resolved that the votes on all resolutions be placed in sealed envelopes and that the Assembly not be closed in Perth, but adjourned and reconvened two weeks later in Moscow with the General Secretary representing those attending the Perth meeting. At this meeting, the delegates of the USSR voted on the various resolutions, and their votes, also in sealed envelopes, were added to those collected in Perth. Subsequently, these were opened and the results of the ballots communicated to all delegates.

Statutes

At nearly every General Assembly, changes were made in the Statutes originally adopted by the First General Assembly in 1955 (4). A major revision was made at the Sixth General Assembly in Tokyo in 1967 on the basis of the report of a committee led by F. G. Young. In 1973 or 1976 (I am not sure which), IUB was designated a legal entity with residence in Amsterdam in The Netherlands. Also in 1976, a new class of membership, the Associate Adhering Body, was introduced to permit biochemical communities who are not financially in the position to pay even a minimum subscription to join the Union.

The Officers, originally consisting of the President, General Secretary, and Treasurer, were expanded in 1961 to include a Vice President (later changed to President-Elect) and the immediate Past President. Until 1982, the work of the Union was governed by the General Assembly, a Council, the Executive Committee (composed of the Officers), the Officers, and the various committees. Statute 3.2 stated:

The work of the Union shall be directed by the General Assembly, which is composed of delegates appointed by the Adhering Bodies together with the Officers.

³The General Assembly was not created until after the Second Congress. Its first meeting was held in London on January 5–6, 1955, and the second during the Third Congress in Brussels later that year. Since then the *n*th Assembly has been held at the (*n* + 1)th Congress. Thus the 17th General Assembly is associated with the 18th IUBMB Congress in Birmingham in July 2000.

The Council was composed of the Officers together with not more than nine members elected by the General Assembly. It was required to meet, on summons from the Executive Committee, not less than once every 3 years, normally 1 year before the General Assembly. Its function was described in Statutes 3.3 and 3.4.

3.3. The Council of the Union shall be the body with continuing responsibility for the affairs of the Union and shall be answerable to the General Assembly in this respect.

3.4. The Officers, Executive Committee and all committees . . . shall in the first instance be answerable to the Council.

The second major revision of the Statutes was made at an Extraordinary General Assembly in Perth, Australia, in 1982. This revision encompassed a radical change in the method of governance by fusing the Council with the Executive Committee. At the same time, the post of Past-President was abolished and an additional five posts, with specific functions, were added to the Executive Committee. A new body, the Nominating Committee, was set up to prepare nominations to fill vacancies on the Executive Committee, a function previously performed by the now defunct Council.

The structure of the governance of the Union is, therefore, essentially that of a parliamentary democracy, where the Parliament is the General Assembly and the Executive Committee the Cabinet, with each member holding a specific portfolio, which are at present for Symposia and Interest Groups (Vito Turk), Education (Leopoldo de Meis), Publications (Angelo Azzi), Congresses and Conferences (William Lennarz), and ICSU (Yashiro Anraku).

In the 1982 Statutes, "Officers" in the old Statute 3.2 and "Council" in the old Statute 3.3 are replaced by "Executive

Committee" and Statute 3.4 is abolished. Apart from the collective responsibility of the Executive Committee to the General Assembly, the Treasurer has an individual responsibility to the General Assembly and the Executive Committee for all the financial affairs of the Union.

At the 16th Ordinary General Assembly in Jerusalem in 1991, it was resolved to change the name of the Union to the International Union of Biochemistry and Molecular Biology. Thus IUB became IUBMB. At the same time, in the interests of continuity of function, it was resolved to alter the date of the change in Treasurer and General Secretary from the close of the Ordinary General Assembly to January 1 of the following year.

REFERENCES

1. Thompson, R. H. S. (1963) The International Union of Biochemistry. *ICSU Rev. World Sci.* **5**, 142–146.
2. Kamminga, H. (1999) Internationalizing biochemistry: the 1949 Congress in context. *Trends Biochem. Sci.* **24**, 404–408.
3. Whelan, W. J. (1999) 50 years ago: the first International Congress of Biochemistry. *IUBMB Life* **48**, 5–6.
4. Slater, E. C. (1980) The uncertain birthday of IUB. *Trends Biochem. Sci.* **5**(7), vii–viii.
5. Slater, E. C., and Whelan, W. J. (1980) China to rejoin the IUB. *Trends Biochem. Sci.* **5**(2), iii–v.

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