

Restructuring IUPAC at the Turn of the 20th Century

by Edwin D. (Ted) Becker
interviewed by Brigitte Van Tiggelen

Around the turn of the century IUPAC undertook a major restructuring. Commissions, which had been the heart of IUPAC's scientific work for most of its 80-year history, were virtually eliminated and largely replaced with a system of peer-reviewed projects [1-3]. Brigitte Van Tiggelen asked Ted Becker, Secretary General in that key transition period (1996-2003) and a central figure in the restructuring effort, to reflect on the rationale for this significant change and to describe just what was done.

Brigitte: So, what was wrong with commissions?

Ted: In principle, nothing! My experience was that most commissions worked very well, with really dedicated members who worked hard. I was a commission chairman for six years, and I was pleased with what we and other commissions accomplished. The problem was that the entire system of commissions, as it had evolved, was unsustainable in terms of (i) number of commissions; (ii) financial resources devoted to maintaining commissions; and (iii) methods for selecting commission members. In addition, the actual projects to be undertaken by a commission were chosen by the commission members at each meeting without much real thought—often because a single member was enthusiastic and volunteered to do the work. At any given time, there were nearly 500 “active” projects, some of which dragged on for 8 to 10 years.

Brigitte: Will you elaborate on these issues.

Ted: First, about the numbers. In 1997 there were 37 commissions, each devoted to a particular aspect of chemistry—e.g., organic nomenclature, spectroscopy, analytical reagents, clinical toxicology—but there were many more emerging areas of chemistry not represented. There was understandably constant pressure to create new commissions, but it was almost impossible to disband an existing commission because that was tantamount to declaring that particular chemistry specialty no longer of any importance—a conclusion that was usually incorrect. IUPAC presidents had long voiced concern about the increasing number of commissions. As early as 1955 President

Arne Tiselius (1951-1955) pointed to the problem of continuing commissions devoted to continuous surveys of a particular field [Fennell, ref. 2, p 142]. In 1973 President Jacques Bénard (1971-1973) said that “it is easy to obtain general approval for the creation of new bodies, but it is difficult to decide to abandon existing ones.” [Fennell, ref. 2, p 222] Such comments were echoed almost every year.

Reflecting about the financial resources and the support of members. Each commission was composed of titular members (TMs)—initially 10 per commission, later cut to eight. IUPAC agreed to pay travel expenses for TMs to the biennial General Assembly and often to a commission meeting in intervening years. Commissions also elected associate members and national representatives, who were able to cover travel expenses outside IUPAC, but TMs were at the heart of commissions and the number of TMs became a kind of “currency” within IUPAC because each TM involved a considerable financial commitment.

TMs were selected by each commission to fill vacancies, as they occurred, from experts in the field, with particular concern about geographical distribution and often concern about sub-specialties. This worked well to bring together knowledgeable people to assess issues in a field and to decide how IUPAC could contribute. However, the result was a small number of “insiders” for a given subject. In fact, in 1981 President Heinrich Zollinger (1979-1981) complained about “the involvement of too small a circle of chemists in IUPAC work—a reporter in Davos [30th General

Assembly] even called this circle a ‘charmed circle.’” [Fennell, p. 293] A reform effort was initiated by President Allen Bard (1991-1993), beginning in 1993. The size of commissions was further reduced, and a “pool” of TMs created that would, it was hoped, be assigned temporarily to a commission to work on specific high-priority projects. Allocation of the pool TMs each year was the responsibility of the IUPAC Officers and Division presidents collectively.

Brigitte: How did you become involved?

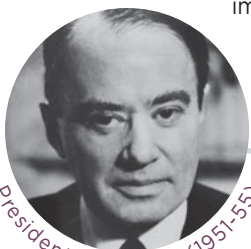
Ted: As the new Secretary General, my first encounter with the pool TM process was in 1996. I found it frustrating! A dozen officers spent hours debating potential specific projects that most of us knew little



President J. Benard (1971-73)



President H. Zollinger (1979-81)



President A. Tiselius (1951-55)



President A.J. Bard (1991-93)

about. In the end, a few TMs were allocated to temporarily enlarge some commissions. Collectively, the Division Presidents (DPs) recognized the problems of too many commissions and too many projects that were not always well thought out and often dragged on for years. However, each DP understandably defended the commissions within his Division. Most DPs seemed willing to consider changes, and they reacted favorably to my brash suggestion that we use the budget, rather than number of TMs, to set priorities. The result was a special meeting of all DPs, their Division vice-presidents, and the IUPAC officers in Frankfurt in March 1997.

I thought we made some progress in Frankfurt. However, by the time that the concerns of all the Members of Commissions and Division Committees were taken into account, I realized we would have just about as many Commissions and just as many TMs. Moreover, superimposed on this structure would be the need to manage projects, allocate TMs and money, and argue over relatively small changes. We needed to change the focus by starting over—abolishing *all* commissions and establishing new commissions as needed. The Bylaws provide a means to do that: each biennium Council had to authorize the continuation of each commission, but that was almost always done as a routine matter for all commissions as a group.

The problem, of course, is that IUPAC's scientific work would virtually cease unless we could provide a better way of dealing with the actual projects themselves.

Brigitte: *How did you find a new approach to break the cycle without endangering IUPAC's productivity?*

Ted: The special DP meeting in Frankfurt was held on Monday, March 24, 1997. John Jost and I stayed in Frankfurt on Tuesday to prepare minutes. John had just been named as new Executive Director, and this was his first exposure to the IUPAC bureaucracy and procedures. That evening John and I had dinner with Vice President/President-elect Joshua Jortner and discussed ways to improve IUPAC projects and commission operations. Joshua and I asked John how industry would deal with projects. John had been VP for Research at a large petrochemical corporation. John told us that in response to a serious problem, a project team would be formed from people with relevant expertise in the corporation's various departments—for example, from Chemistry, Geology, Legal, Engineering, etc. When the project team finished its



President Prof A.E. Fischli (1996-97)

work, the team would be disbanded and everyone would continue work in the departments in which they were employed and got pay checks. We recognized the analogy to IUPAC, where the expertise was in the Divisions, but everyone was a volunteer—no pay checks—and no need to continue “employment.” Perhaps, we thought, we could form temporary commissions.



SG E.D. Becker (1996-2003)

Since the IUPAC Executive Committee (EC) was to meet in Jerusalem the weekend of April 5-6 April 5-6, my pre-arranged schedule was to go to Oxford Wednesday afternoon, spend a long week-end at the Secretariat, rather than returning to the US, then go on to Israel the following Tuesday. This turned out to be Easter weekend, but I got a key to the offices so I could do email and print documents from my computer. I also was able to consult Roger Fennell's *History of IUPAC* so I could be sure of facts. I prepared a long Discussion Paper for the EC meeting, proposing that the IUPAC organization would continue to consist of Council, Bureau, EC, Standing Committees, and Divisions (including Division Committees). However, the norm would be that Commissions should not be regarded as part of the “regular” organization but rather as the temporary working groups that carry out specific projects developed by the Division Committees with the help of the Governance and the Secretariat. Divisions should regard the entire worldwide chemical community as the resource for both ideas and for volunteers to carry out projects, not the “charmed circle” of IUPAC insiders. Likewise, ideas for projects should come from the worldwide community.

I proposed that in 1999 we cease the automatic renewal of commissions, effective in 2001. During the two-year “grace” period, Commissions would continue to work on existing projects, but each Commission would have to give thought to what projects, if any, that particular group would propose for the future. Meanwhile, the Division Committees could use whatever means are available to plan projects that would utilize new Commissions.

The EC agreed with all the concepts that I had proposed, and after considerable discussion, President Albert Fischli (1996-1997) immediately appointed a committee to develop proposals [4]. This committee



President J. Jortner (1998-99)



Secretary General Ted Becker (left) and President Joshua Jortner, during the meeting of the IUPAC Executive Committee held in Tokyo, Japan, 24-25 April 1999.

was very carefully selected to deal with restructuring and also with the development of goals and strategy related to VP Jortner's critical assessment of IUPAC activities. Hence, we chose the name Strategy Development and Implementation Committee (SDIC), and we had specific timelines for completing the work.

Brigitte: So, a new committee, but this time with a specific task!

Ted: Indeed. The SDIC met several times and worked extensively by email as well. It first completed the Strategic Plan, which was approved by the EC and published in January 1998. Then we laid out a complete scenario to convert to a project-driven system but deliberately avoided being too prescriptive, leaving it up to the Divisions to decide on many details [5].

The SDIC report was unanimously approved by the EC in April 1998, but I recognized that the big hurdle would be the Bureau in September. The Bureau had 22 voting members, of which the EC provided only eight. I felt that to make such radical changes, we had to have wider acceptance. I quietly set a goal of positive votes from at least 17 Bureau members, including at least five of seven DPs. To garner more support and to fill in more details, we set up yet another group—Committee on Project Evaluation Criteria, chaired by Bureau member Gus Somsen and comprised of five current, former or future DPs, and one former industry executive, who understood how projects should work. In addition, I took a lot of time while in Europe during the summer of 1998 to meet with almost all DPs individually. In September, after much discussion, the Bureau approved the restructuring proposal from the SDIC and EC by a vote of 20 to 0 with two abstentions [one from a DP, one an elected member of the Bureau].

The new project-driven system went into partial operation in January 1999, in conjunction with all the existing Commissions [6,7].

Brigitte: This seems to have moved swiftly by IUPAC standards and without many hurdles...18 months to set up a major restructuring which is unanimously endorsed!

Ted: Well the Council, which is the legal decision-making body of IUPAC, still had to validate the new organization. The final phase was two bylaw changes by Council in August 1999 to confirm and formalize the decision to move from a commission-centered system. This involved a lengthy, contentious, and quite "political" process for Council to endorse, rather than rescind, the entire restructuring. I recall this as very difficult, with daily pronouncements at the General Assembly leading up to the Council meeting and "policy statements" from the Bureau designed to counter specific complaints by opponents. At the Council meeting, President Jortner repeatedly had to publicly "guarantee" that nomenclature activities would be preserved. The key decision came on a UK resolution around which opposition had coalesced, which was treated as an amendment to a Bylaw change. It was defeated 33-74 with 24 abstentions—showing a clear majority basically in favor of the restructuring. A final vote on the restructuring proposal was then overwhelming.

Brigitte: You mention "nomenclature" as a core business of IUPAC to be preserved and maintained outside the new project structure. How was this specificity to be reconciled with the new structure?

Ted: Immediately after the Council meeting, we set in

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motion several actions to avoid what could have been the most serious shortcomings. President Jortner appointed the *ad hoc* Education Strategy Development Committee, chaired by Peter W. Atkins. The EC developed a budget that carefully reallocated to the Divisions and to a reserve fund the expected significant savings from full support of commission meetings. I undertook the special problems of chemical nomenclature. With the individual Nomenclature Commissions set to be abolished in two years, I thought that we needed outside advice on what IUPAC should do in nomenclature, and I worked with Alan McNaught, who had wide experience within IUPAC in the area of nomenclature and terminology, to hold a “roundtable” strategy meeting in Washington in March 2000. I deliberately did not invite any of the nomenclature experts on the current Commissions because I wanted to focus on what the broader “user community” needed in the future from IUPAC, not review the past accomplishments of the Commissions. We had participants from such organizations as Chemical Abstracts Service, the European Patent Office, the US International Trade Commission and others who really needed internationally agreed terminology in words, not only structural formulas. We also had computer experts, who were dealing with ways to connect the words and formulas by computer algorithms. Overall, I think the meeting was quite successful in assessing needs and defining general directions in which IUPAC might proceed [8]. One very important point was the [then controversial] proposal by Steve Heller (then member of the Committee on Printed and Electronic Publications and past chairman of the Committee on Chemical Databases) for IUPAC taking on a computer process being developed at the National Institute of Standards and Technology, which eventually became known as InChI, the International Chemical Identifier, and is widely regarded as one of IUPAC’s recent successes.

Over the next several months, I became convinced that we should try to form a new Division to bring nomenclature activities together. Alan wisely proposed the name “Division of Chemical Nomenclature and Structure Representation” to emphasize future directions and the integrated nature of the subject of nomenclature. The Division was approved by Bureau and Council in 2001, with Alan McNaught as initial division president (2002–2005), thus assuring that Jortner’s “guarantee” to protect nomenclature in the restructuring process was clearly fulfilled [9].

Brigitte: *What is your assessment of this substantial restructuring of IUPAC?*

Ted: I think that all of us advocating for restructuring

were convinced that it had to happen for IUPAC to retain the financial backing from our National Adhering Organizations that is needed to support the ever-expanding scope of “chemistry.” Also, it was necessary to counter the perception that IUPAC’s scientific work depended on only an elite “charmed circle.” Unfortunately we lost some thoughtful discussions without regular Commission meetings—only partially compensated by *ad hoc* advisory groups. I always regretted that some commission members, who had contributed so much to IUPAC over the years, probably felt unappreciated when their commissions were abolished, even though the restructuring was clearly not aimed at any individual commission.

The restructuring actions had exactly the desired effect. Each project would be carried out by a “task group”—a term chosen to emphasize the temporary nature of the group. Anyone in the world could propose a project, with the proposal given peer review via a system that Fabienne Meyers set up at the Secretariat. The proposal and reviewers’ recommendations then went to one or [often] more Division or Standing Committees for decision and allocation of funds. With all commissions terminated in 2001, the focus was on what new commissions should be formed [or re-formed] under more stringent guidelines. I was surprised that the Divisions proposed reinstating only two of 37 commissions, and that none have been formed since 2001. Some Divisions used a few subcommittees to carry out specific functions, and others used outside advisory groups to recommend areas for IUPAC work.

Brigitte: *Thank you so much Ted for having shared your knowledge of these important years from the history of IUPAC and clarified the process and the successive steps that led to a profound reorganizing of IUPAC at the turn of the last century. This successful restructuring in which you were deeply involved demonstrated the ability of a huge international body of chemists composed mainly of volunteers to restructure itself to keep in line with both its duties and challenges.* 🏆

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