

**Zeitschrift:** IABSE bulletin = Bulletin AIPC = IVBH Bulletin  
**Band:** 9 (1985)  
**Heft:** B-36: IABSE bulletin

**Vereinsnachrichten:** Observations on term as president 1977 - 1985

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## 2. Observations on Term as President 1977 – 1985

During the past eight years a considerable expansion of the technical activities and a corresponding increase in the number of publications took place. With the adoption of the revised by-laws in 1974 the scope of our activities was expanded to the entire field of structural engineering encompassing conception, analysis, design, construction, maintenance, repair and rehabilitation. This led to the creation of new Working Commissions:

- WC IV: Construction Management (1975)
- WC V: Design Methods and Process (1975)
- WC VI: Informatics in Structural Engineering (1981)
- WC VII: Building Physics (1981)
- WC VIII: Operation, Maintenance and Repair of Structures (1983)

With the organization of Colloquia and Workshops effective procedures for initiating new activities, collecting important international source material for state-of-the-art reports, emphasizing new trends and coordinating research efforts have been developed. The following list of Colloquia and Workshops shows the broad field of subjects and the international character of our operations (Symposia and Congresses are not listed hereafter):

- «Construction in Seismic Zones»  
Bergamo, Italy, 1978
- «Interface between Computing and Design in Structural Engineering»  
Bergamo, Italy, 1978
- «Plasticity in Reinforced Concrete»  
Copenhagen, Denmark, 1979
- «Advanced Mechanics of Reinforced Concrete»  
Delft, Netherlands, 1981
- «Fatigue of Steel and Concrete Structures»  
Lausanne, Switzerland, 1982
- «Health and Safety in Construction»  
Tokyo, Japan, 1982
- «Informatics in Structural Engineering»  
Bergamo, Italy, 1982
- «Ship Collision with Bridges and Offshore Structures»  
Copenhagen, Denmark, 1983
- «Quality Assurance within the Building Process»  
Rigi, Switzerland, 1983
- «Design of Temporary Works»  
Delft, Netherlands, 1984

I believe that these meetings of small groups of specialists have much helped to attract leading scientists and engineers to participate in our activities. They have also shown that ideas and initiative leading to such meetings are generated by individuals or small groups. An important task of the Working Commissions and the Technical Committee is to encourage such initiatives, to establish and coordinate international contacts, to make an appropriate selection and finally organize such meetings.

The highlights during my term as President were the 50<sup>th</sup> Anniversary Celebration in Zurich, Switzerland, 1979, the 11<sup>th</sup> Congress in Vienna, Austria, 1980 and the 12<sup>th</sup> Congress in Vancouver, Canada, 1984. These cities provided in a very distinct way a special cultural, architectural and natural background. Members and friends participating from all parts of the world showed the truly international character of our Association and also its social function to promote understanding, respect and friendship between our professional colleagues.

Membership in our Association has slightly increased over the past years reaching in 1985 a total of 3047, i.e. 2502 individual and 545 collective members. However, the considerable number of new and parting members per year shows a selective process. It is and should remain our aim to attract the leading scientists and engineers in the structural field such that our activities take place at the highest professional level. This in term implies that IABSE must provide an organization and facilities such that members interested in an active participation can find an appropriate position or activity. I believe that especially Colloquium and Workshop are excellent opportunities to attract and gain such members.

At this point, I would like to make some observations on developments in the structural field that need our critical attention. Structural Analysis per se has undergone an immense progress. Computer programs are available that enable us to analyse any type of structure. However, important problems concerning assumptions on material behaviour, modelling of structures, numerical convergence, adequacy of output, etc. remain that require knowledge, expertise and experience of the user.

On the other hand the conceptual design, i.e. structural concept of the basic structure, and the physical design and detailing, i.e. translation of forces and displacements into adequate physical elements and connections, have not kept pace with the analysis. As examples let me just mention the semi-empirical rules for shear and torsion design of R.C. and P.C. girders. Similarly the basic concept and lay-out of the prestressing reinforcement in bridges lacks very often structural insight. Even a high powered analysis will not reveal its inadequacy.

The more design and analysis become separate specialties the more inappropriate designs fulfilling a specification only to the letter and not to its meaning will evolve. Some of the recent structural failures indicate that this separation leads also to situations where essential problems may be overlooked or find improper attention. It should be realized that the numerical analysis is just one of the elements – certainly a very important one – in the design of a structure. Our profession should give careful consideration to this development before it gets out of hand.

Another potentially damaging development is over-regulations. There are a number of effects and/or causes leading to it. In recent years environmental concerns, political or social opposition to technical projects have developed. Unfortunately, the political authorities as well as part of the scientific and technical community believed the opposition could be overcome by scientific arguments and demonstration of the safety and reliability of such projects. This situation together with over-zealous scientists and functionaries has already produced regulations, safety requirements and limits that are not only unreasonable but in some instances prohibitive. The most spectacular case is the present situation of the Nuclear Power Industry in the United States. Over-regulations have made nuclear power plants completely uneconomical.

We should carefully watch that such developments will not take place in the technical field in general and the structural field in particular. The present system where the codes are produced by the profession in collaboration with public authorities and contractors should be maintained. Otherwise, we will be controlled by a

bureaucracy, unwilling to accept responsibility and reasonably calculated risks. This in turn will delay or stop progress.

The previous observations have shown that we cannot exercise our profession detached from our political and social environment. IABSE gives its members the unique opportunity to meet professional colleagues from all parts of the world, to learn about their professional achievements and problems and to gain a broader perspective on life and mankind. In my eight years as President I had the opportunity to meet many prominent colleagues, to work with a distinguished group of dedicated members in the Executive Committee, the Technical Committee and Organizing Committees of Conferences. To all of them I would like to express my deep appreciation and sincere thanks for their support, goodwill and friendship. I have put in a fair measure of my time and efforts. But I have gained much for my academic and professional knowledge and even more for my social and cultural understanding of our world.

Prof. B. Thürlimann  
President of IABSE



*Prof. Bruno Thürlimann*