Post World War II Activities: From Paris to Lyngby

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Science knows no national boundaries. International contacts have always existed between scholars and scientists in various countries. The First World War interrupted much of this fabric. It took time for bitterness and distrust to disperse. Gradually the wounds were healing. The successful International Congresses of Applied Mechanics, arranged at four year intervals, had established a tradition to be followed in years ahead. At the 5th Congress, held in Cambridge, Massachusetts in 1938, it was decided to hold the next congress in Paris in 1942.

A. The Union is Formed

The disruption of international scientific cooperation caused by the Second World War was deeper than that caused by the first war. The need for reknotting ties seemed stronger than ever before when the mechanics community reassembled in Paris for the Sixth Congress in 1946. Several countries were absent, as was true of the congress two years later in London. By 1956, practically all the traditional participating nations were united again in Brussels.

As in various other branches of science, international unions had been formed for promoting cooperation in astronomy, chemistry, crystallography, geodesy and geophysics, geography, physics, scientific biology, and scientific radio. The International Council of Scientific Unions (ICSU) was created to coordinate various activities

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among the unions and to form a tie between them and the United Nations Educational, Scientific, and Cultural Organization (UNESCO). Paris was the site of ICSU as well as of UNESCO.

Under these circumstances, it seemed an obvious step, at the Sixth Congress of Applied Mechanics in Paris, to strengthen bonds by forming an international union on the same patterns as those already existing. Hence, IUTAM was created, statutes were adopted, and the union was admitted to ICSU in 1947.

Whereas the International Committee for the Congresses of Applied Mechanics (ICCAM) consisted of individuals representing only themselves, the union was formed by organizations active in scientific work in theoretical and applied mechanics. The ICCAM itself was one such organization; others were national bodies representing scientists in theoretical and applied mechanics.

The nucleus of the Union Council later named its General Assembly, naturally consisted of ICCAM members because very few national organizations were in existence at the formation of IUTAM. The executive body (Bureau), elected in 1948, consisted of:

J. Pérès, France, President
R.Y. Southwell, England, Vice President
J.M. Burgers, Holland, Secretary
H.L. Dryden, USA, Treasurer
F.H. van den Dungen, Belgium, Member
J. Nielsen, Denmark, Member
H. Favre, Switzerland, Member
G. Colonetti, Italy, Member

One of its first duties was to encourage colleagues in various countries to form national organizations that might join IUTAM as Adhering Organizations. In the first five years of the union, the following national organizations were admitted:

1948 The Royal Society of London
The Hungarian Academy of Sciences, Budapest
1949 Le Comité National Francais de Mécanique, Paris
The National Committee on Theoretical and Applied Mechanics of the Czechoslovak National Council of Researches, Prague
The National Committee on Theoretical and Applied Mechanics of the Norwegian Academy of Science and Letters, Oslo
Consiglio Nazionale delle Ricerche, Rome
Le Comité National de Mécanique Theorique et Appliquée de la Classe des Sciences de l'Académie Royale de Belgique, Brussels
The U.S. National Committee on Theoretical and Applied Mechanics, New York
The Academy of Technical Sciences of Denmark, Copenhagen

1950 The Swedish National Committee for Mechanics, Stockholm
The Turkish Society for Pure and Applied Mathematics
The Ministry of National Resources and Scientific Research, New Delhi
L'Ecole Polytechnique Fédérale, Zurich
Die Gesellschaft für angewandte Mathematik und Mechanik, Stuttgart
Israel Society for Theoretical and Applied Mechanics, Haifa
Instituto Nacional de Tecnica Aeronautica, Madrid
1951 Die Österreichische Akademie der Wissenschaften, Vienna
The National Committee for Theoretical and Applied Mechanics of the Science Council of Japan, Tokyo
1952 Le Comité National de liaison avec l'IUTAM du Conseil des Academies de la RFP de Yougoslavie, Belgrade
De Nederlandes Commissie voor Theoretische en Toegepaste Mechanica, Delft
The Finnish National Committee on Mechanics, Helsinki
Polskiej Akademii Nauk, Warsaw

In 1984, the number of National Adhering Organizations was thirty-six.

The General Assembly was to be composed of representatives of the National Adhering Organizations and also of personal members elected by the General Assembly itself. This somewhat unsymmetrical arrangement caused much discussion in the first years, and during its meeting in Pallanza, Italy in 1950, the General Assembly made an amendment to the statutes to the effect that only one Adhering Organization be recognized for each country, and that personal membership be reserved for exceptional cases only.

A decision taken at Paris in 1946 to hold the next Congress four years later was changed when it became known that the next International Congress of Mathematicians would be held in 1950. An invitation from Great Britain to host the Seventh Congress in London in 1948 was then accepted. Since then, the Congresses have been held in Istanbul (1952); Brussels (1956); Stresa, Italy (1960); Munich (1964); Stanford (1968); Moscow (1972); Delft (1976); Toronto (1980); and Lyngby, Denmark (1984).

Since 1972, the title has been International Congress of Theoretical and Applied Mechanics, to conform with the title of the Union.

From the creation of IUTAM, the International Committee for the Congresses of Applied Mechanics, which was formed during the First Congress in Delft in 1924, had existed as an independent body. It was an autonomous member of the IUTAM General Assembly with voting rights. This arrangement was terminated in 1964 when the International Committee was dissolved. Instead, IUTAM established a standing Congress Committee within the Union, which was given responsibility for arranging future Congresses. Members of the Congress Committee were appointed by the General Assembly.

B. IUTAM Symposia

One of the reasons for forming the Union in 1946 was the desire to increase cooperation in mechanics research. The financial means of the International Committee for the Congresses of Applied Mechanics had been extremely limited, and no activities outside the quadrennial Congresses were possible. With regular annual payment of national membership dues, and with a subvention from UNESCO, there followed the possibility to arrange various specialist meetings between the Congresses. Such "colloquia", later named IUTAM Symposia, have subsequently become a dominating part of the union's activities. The first such meeting, on "Problems of Cosmical Aerodynamics," was arranged jointly with the International Astronomical Union in Paris in 1949. Such cooperation with other unions within ICSU has proved to be beneficial on many later occasions.

The number of IUTAM Symposia held every year has gradually increased from two or three in the first twenty years to about eight in the 1980s.

In an early period of the Union, subjects for symposia originated within the Bureau, but as the symposia activities expanded, the General Assembly began to exert increasing influence on the process. The number of proposals for IUTAM Symposia increased steadily and, in 1977, two panels were set up to scan proposals made by members of the General Assembly in the fields of fluid and solid mechanics. Through the work of these two panels, the General Assembly has an efficient means of creating suitable symposium programs.

In contrast to the International Congresses of Theoretical and Applied Mechanics, the IUTAM Symposia have been reserved for invited scientists only. This has made it possible to limit the number of participants, ensuring efficient work and lively discussion. The scientific committee appointed for each IUTAM Symposium has the duty to edit and publish proceedings from the symposia, making the results known to all experts in the field. In spite of this, certain criticism has occasionally been aired at the closed shop system from scientists not invited.

C. The Circuit Widens

In 1969, two international organizations (the "International Centre for Mechanical Sciences" and the "International Centre for Heat and Mass Transfer") approached IUTAM proposing that they be affiliated with the Union.

Because the statutes of IUTAM at that time neither contained nor excluded the possibility of affiliation of other scientific organizations, an amendment of the statutes was required. The Bureau received the inquiries with great interest and decided to propose changes in the statutes to the General Assembly that would define conditions for such affiliation.

In 1970, the General Assembly amended the statutes by an article defining the conditions for other international organizations engaged in scientific work closely

related to that of the Union to be affiliated with IUTAM. Since then, the following organizations have been affiliated:

International Centre for Mechanical Sciences (CISM), 1970
International Centre for Heat and Mass Transfer (ICHMT), 1972
International Committee on Rheology (ICR), 1974
European Mechanics Committee (Euromech), 1978
International Association for Vehicle System Dynamics (IAVSD), 1978
International Society for the Interaction of Mechanics and Mathematics (ISIMM), 1978
International Congress on Fracture (ICF), 1978
International Congress on Mechanical Behaviour of Materials (ICM), 1982
Asian Fluid Mechanics Committee (AFMC), 1982
International Association for Computational Mechanics (IACM), 1984

D. Closure

From its birth in Paris in 1946 to the 16th International Congress in Lyngby in 1984, IUTAM has shown a steady growth and is now of worldwide extent. Despite this expansion, IUTAM has managed to be a forum for fruitful person-to-person contact and scientific exchange, largely due to the careful observation of article IV of the Statutes according to which the General Assembly shall be guided by the tradition of free international scientific cooperation, developed in the International Congresses for Theoretical and Applied Mechanics. It is hoped that this spirit of cooperation will continue in the future, and IUTAM will operate solely for the advancement of mechanics and the good of mankind.