

International Council of Scientific Unions: 60th Anniversary (*)

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Your Majesties,

Sixty years ago, on the initiative of the "Classe des Sciences de l'Académie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique", the International Research Council was invited to hold its Constitutive Assembly in Brussels. During the inaugural Plenary Session, which was honoured by the presence of His Majesty King Albert, one of my predecessors recalled the remarks which the King had made in his address of welcome:

"For my part, I shall always be ready to support the efforts of those who work for the greatness of our country and who, imbued with the spirit of social harmony and advancement, seek to raise the intellectual and moral capacities of the nation by developing education and training, and who thereby contribute to improvements in the welfare of our people".

Today, in welcoming the General Committee of the International Council of Scientific Unions, the "Classes des Sciences des Académies Royales" recall these remarks of King Albert, and they would like to say to Your Majesties how greatly they appreciate Your personal interest and Your continued support.

Your Majesties, Ladies and Gentlemen,

Within the sciences, the arts and literature, there is a convergence of points of view which leads, among other things, to the creation either of several Academies, combined under common auspices or, alternatively, of several different divisions within the same Academy. However, although certain differences have gradually developed over the centuries, they have

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become fully apparent only during the present century. These differences are related to the characteristic but different ways in which science on the one hand, and the arts and literature on the other, have evolved. Today we can only envy those thinkers of the past, whose encyclopaedic mental capacities can not be paralleled in the context of present-day science. But it is still possible today to find a painter or a composer whose artistic creations are truly his own, and which owe nothing to his predecessors. In the field of science, however, an author is obliged to add to the account of his work a list of references. In all branches of science, the accumulated mass of information and knowledge, accumulated on a world-wide scale, is now so great that it can be fully assimilated only by groups of sufficiently well-informed people. This is the very essence of the idea which led to the formation of the International Research Council in 1919, and which provides the basis for the International Council of Scientific Unions.

It is perhaps worth recalling here that earlier attempts to achieve some grouping of the different branches of science were only temporarily successful, or they related only to restricted specialised fields. If we look at a problem as simple as that of steam, and its treatment over the centuries, we find that Hero of Alexandria, in spite of his treatises on mechanics, left to posterity only the so-called "Hero's Fountain", and perhaps also an interesting toy, his "éolipyle": in fact the first known steam-engine. The architectural genius, Anthemius of Tralles, although he has left us the church of St-Sophia in Constantinople, did not provide posterity with information on the use of his steam engine. Indeed, at the beginning of the 17th century, the French engineer Salomon de Caus was confined to the Bicêtre Asylum by Richelieu because he had shown that it was possible to use steam as a driving force. At the beginning of the following century, Denis Papin was obliged to watch the destruction, by the sailors, of the ship he had built, because its four paddles were driven by steam. It was only in the 19th century that George Stephenson arrived with his steam locomotive, at a time when the earliest groups were being formed of astronomers, geodesists, geomagneticians, meteorologists and so on: for example, the Magnetic Union established by Gauss at Göttingen in 1832; and 50 years later in 1881, the Astronomical Congress which founded the Central Office for Astronomical Telegrams. Finally, it is worth recalling that in 1882-1883, nearly 100 years ago, several countries participated in the First Polar Year, which was devoted to geophysical studies following proposals made by Weyprecht. In the autumn of 1874, Lieut. K. Weyprecht had returned to his country after the Austro-Hungarian Expedition to the Arctic regions. He was already convinced that the expense necessary to mount such expeditions, combined with the work involved and the dangers encountered, did not lead to the results expected, namely useful scientific data which would provide the basis for

further progress. During a lecture on 18th January 1875, at the Academy of Science in Vienna, Weyprecht expressed, among others, the following opinions:

“ However interesting our observations may be, the long series of numerical data do not have the scientific value that can be achieved in other circumstances. They give us, in effect, a picture of the extremes of the natural forces present in the Arctic regions, but they tell us nothing about their causes. In fact we know no more than we did before because of the absence of observations made simultaneously, which would allow us to make comparisons. Not until we are in possession of comparable data will we be in a position to draw the first valid conclusions about the origins and the fundamental causes of the phenomena of the Far North. The key to many of the secrets of nature which have remained hidden for centuries — and I need only mention terrestrial magnetism, earth currents, and parts of meteorology — is to be found in the polar regions.

So long as polar expeditions are regarded as participants in an international race for the honour of a national flag, so long as the main objective is to advance a few more miles farther north, we can be sure that the secrets of nature will remain undiscovered.

Geographical discoveries and Arctic topography, which have been given first priority in all polar expeditions up to the present, must give way before the great questions of science. But it will not be possible to realise this goal until all nations which pride themselves on being at the forefront of intellectual progress decide to work together to the exclusion of national rivalries.

In order to obtain significant scientific results, it will be necessary to organise a number of simultaneous expeditions, the objective of which must be to make comparable observations during one year, at a number of locations in the polar regions, using the same apparatus and following the same instructions. In this way we shall acquire the data necessary for the resolution of the great problems of nature, and we shall reap the benefits of the enormous capital of work, hardship and money which has, up to the present, been wasted in the polar regions. ”

Weyprecht's idea survived the calamities of war, national disagreements, the hindrances arising from personal jealousies, and even the death of its author in 1881, just a year before the beginning of the First International Polar Year.

In fact it was the 20th century which was to see the genuine development, after World War I, of the concept of international associations.

In Brussels in July 1919, following preparatory meetings in London and Paris, the representatives of 12 Academies from the Allied countries and of 12 scientific groups constituted an International Research Council whose

main aim was to coordinate international activity in the various branches of science and its applications.

In order to summarise the conclusions, I need only extract some remarks from the closing address of the President:

“ Among the means which the International Research Council must use in the achievement of its objective, first priority must be given to the creation of International Unions corresponding to the principal branches of science. The Unions will have their own budgets and administrations; they will be free to create autonomous Sections which can themselves decide how to use the financial resources placed at their disposal by the Executive Committees of their parent Unions; these Sections, in their turn, will be authorised to subdivide into permanent or temporary Commissions.

It appears that the contemplation of the stars tends to bring men together more effectively than does the study of phenomena and objects closer at hand. In fact the number of astronomers present here is greater than the total of all the others; for their own Union, they brought carefully prepared Statutes which were soon adopted as a model for more general use. Then other groups were formed to meet the needs of the geodesists and geophysicists, the chemists, and the radio scientists.

Several other Unions have been envisaged or actively planned, and their final constitution will be a matter for the future.

In spite of the similar organisational structure imposed on all the Unions, each of them, as an independent daughter of the International Research Council, retains considerable freedom. Thus the Astronomical Union has not exercised its right to form separate Sections; it remains a single body, within which it has created about 30 Commissions. On the other hand the Union of Geodesy and Geophysics has recognised six Sections ”.

Today the Astronomical Union still has the same structure, although the number of Commissions has increased from 30 to about 50. The remarkable precocity of this Union is illustrated by the fact that in Brussels, at the plenary Session of 26 July 1919, it presented the membership of its 32 Commissions of which the first, on Relativity, had Eddington as its President and the 32nd, on the Reform of the Calendar, was presided over by Cardinal Mercier.

In contrast, the Union of Geodesy and Geophysics has hardly changed its structure, apart from the addition of hydrology to the six original Sections which have now been transformed into Associations: Geodesy, Seismology, Magnetism and Terrestrial Electricity, Physical Oceanography and Volcanology.

The international Union of Pure and Applied Chemistry, which replaced the International Association of Chemical Societies, founded in Paris in 1907, has developed considerably and has extended its interests in so many

directions that I can not list them here; it has six Divisions and more than 30 Commissions.

The International Union of Radio Science (URSI) was born under favourable auspices for it had at its disposal, from the start, the sum of 40,000 francs, the balance of a donation made by Robert Goldschmidt who was responsible for the creation, in 1913, of the International Commission on Scientific Wireless Telegraphy. In fact Goldschmidt had placed at the disposal of this Commission the sum of 50,000 francs, together with his powerful radio station and laboratories situated here at Laeken. King Albert took a detailed interest in this station and, in the Proceedings of the first meeting of the Commission, it is recorded that " His Majesty King Albert of the Belgians has agreed to be Honorary President of the International Commission on Scientific Wireless Telegraphy ".

It is worth noting here that URSI is a Union which has been able to modify its original structure in such a way as to meet the changing needs brought about as a result of scientific development.

These four Unions were then the first to be federated within the International Research Council in 1919; they were followed in 1922 and 1923 by the Unions on Pure and Applied Physics, on Biological Sciences, and on Geography.

The International Research Council, with its eight Unions, held a series of meetings in Brussels in July 1922, 1925 and 1928. In 1931 it was transformed into the International Council of Scientific Unions which welcomed the adherence of representatives of all countries. But it was only after World War II that the International Council of Scientific Unions underwent progressive changes following the adherence of other Unions. In 1947, the Unions on Crystallography, Theoretical and Applied Mechanics, and the History and Philosophy of Science joined the eight earlier Unions. Today the number of Scientific Unions, which has risen to 18, has already led to modifications in the original character of the Council. Its structure has been changed and we find, after the creation of the Special Committee for the International Geophysical Year in 1953, the formation of permanent committees which have only very loose links with the Unions.

However the aim of my remarks is merely to explain the reasons for holding the present meeting in Brussels, 60 years after that of July 1919, and I shall not try to make a critical assessment of past events; rather I shall leave it to the representatives of the various Unions to appreciate for themselves the fact that what has been accomplished by their predecessors has not been without value.

Yours Majesties,

Before I conclude, may I refer to part of the address of the President of ICSU during the closing Session of the Council in Brussels in 1934. First of all, his opening remarks:

“ Gentlemen. Since the last meeting of the Council three years ago, the accidental death of the King of the Belgians has brought grief to the entire world. No present-day monarch was more widely loved and respected than he. On behalf of the Council, may I offer to the Royal Family and to the Royal Academy of Belgium our condolences and our deep sympathy ”.

After referring to the work that had been done, the President ended:

“ At the present time the conditions for international cooperation are particularly difficult because of the increasing tendency for countries to isolate themselves. At the same time, this situation increases the importance of the Council, but science by itself can not bring nations together. However, at a time when there are increasing numbers of barriers between peoples, it is important that scientists who have common objectives should continue to collaborate; it is important to give the example of disinterested scientific work, of the efforts of a lifetime devoted to goals far from the day-to-day preoccupations of life. Scientists too can be passionate but their passion is love of the truth ”.