COMMENTARY

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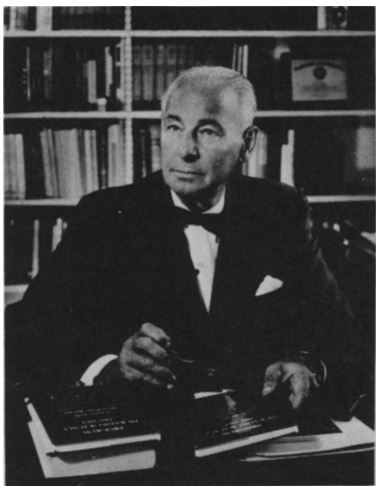
SOME INTERNATIONAL SCIENTIFIC OPPORTUNITIES



Throughout man's history, science has transcended national boundaries. It is said that when Rheticus traveled to Poland to receive the historic manuscript of Copernicus he was given safe conduct by both the Germans and the Poles, who were at war with each other. In modern times, the International Geophysical Year (IGY) worked with astonishing success at a time when the East and the West viewed each other coldly. Indeed, the intimate scientific collaboration and data exchange of the IGY played a significant role in warming relations of both sides, typified by the Antarctic Treaty and the recently initiated agreement on the Peaceful Uses of Outer Space.

Free exchange of ideas is a universally-accepted essential in scientific progress. No nation, however strong, can ever claim a monopoly on ideas. Yet, as science enlarges its sphere of knowledge and thought, the practical problem of interchange becomes ever more difficult. There is increasing probability of parochialism, whereby the broader and more important scientific insights may not be grasped for lack of reaction with independent minds everywhere.

About a century ago, the first formal international scientific organizations came together. The first such united effort occurred in the Earth sciences, in which independent observations at many places were essential to the first integrated view of our planet. This move toward international organization was a recognition that science was already too diverse to depend wholly on the casual correspondence or visits of individual scientists across national boundaries.

Following World War I, scientists came together to form the International Council of Scientific Unions (ICSU). The Council acted to bring together existing scattered independent international bodies to form the now 15 international scientific unions embracing most aspects of science. These unions foster scientific development on an international scale in many ways:

a) Their regularly planned assemblies provide meeting places where important questions can be discussed in a truly international atmosphere

b) Their organization permits formal consideration of common scientific problems, such as standards for measurement in new scientific fields, observations in diverse localities, and simultaneous measurements at widely-spaced stations

c) Their publications of international symposia have provided classic examples of breadth of perspective and depth of penetration into refractory scientific problems

d) The unions and ICSU frequently act as nongovernmental, nonpolitical scientific advisors to world organizations in protecting the resources required for furthering science and advancing human welfare generally (e.g., internationally-protected radio frequency channels for radioastronomy).

Basically, each union and the ICSU have their roots in the respective National Academies or National Research Councils of each adhering nation. This provides the financial strength and communication link essential to effective activities and agreements. The unions and the adhering academies are both represented in the ICSU. A rigid rule, rarely violated, provides that the entire structure remain nongovernmental and nonpolitical. Within the United States, the Foreign Office of our National Academy of Sciences under Professor Harrison Brown, provides the framework for the US national committees of the unions as well as for the United States' responsibilities in hundreds of scientific activities sponsored under the ICSU-Union structure. Thus, thousands of US scientists are formally involved in international scientific work of infinite variety. The strength of the international scientific organization to reach back into the scientific resources of its adhering nations cannot be underestimated.

Over its 47 years, the ICSU and its affiliated unions have grown stronger. The danger of domination by dotards has been successfully overcome in most cases by frequent reorganizing as the emphasis in science evolves, and by initiating a wide variety of exciting and vital programs, which constantly attract new blood. As this international tool of science gained experience, it assumed responsibility for ever more important programs.

ICSU and five interested unions sponsored and provided the framework for the IGY. It can be fairly said that this extraordinary international effort led to an entirely revitalized view of our planet. Less publicized, other equally important international programs sponsored by ICSU and undertaken jointly with interested unions, include the International Biological Program, the International Hydrological Decade, the Upper Mantle Program, and the International Committee on Atmospheric Sciences. The International Year of the Quiet Sun, the successor to IGY, has just come to a very successful close.

This international structure in science has acquired over the years a position of stability, respect, and influence. Of the great nations, only Communist China has remained aloof, and ICSU has played an important role in interesting newly emerging nations in science. Not the least of its roles is the guardian activity of ICSU in keeping open lines of communication, so easily closed by local super-national political attitudes. This international structure gives the scientist a framework within which a wide variety of essential scientific activities of international flavor can be readily initiated, either through his Union or his National Academy, and provides opportunity for continued easy colloquy with scientific colleagues everywhere.