News of Science

International Council of Scientific Unions

Between the second and the sixth of October there was held in Washington a session of the highest significance to the international scientific community. This was the eighth triennial General Assembly of the International Council of Scientific Unions, widely known as ICSU, which met at the National Academy of Sciences–National Research Council. Lloyd V. Berkner, president of the International Council, presided.

At the opening session of the assembly on 2 October, Detlev W. Bronk, president of the National Academy of Sciences, welcomed the delegates and congratulated ICSU on its signal success in furthering international cooperation among the scientists of the world. He spoke of the International Geophysical Year (IGY) as one example among many of the important activities going forward under ICSU sponsorship. He noted with appreciation that several of the significant research programs initiated as part of the IGY would be continued. Following Bronk's remarks, Berkner delivered his presidential address, and the secretary-general and the treasurer presented their reports. Succeeding sessions of the assembly were devoted to consideration of items on the agenda. Special events included an evening reception tendered by the Deputy Under Secretary of State and Mrs. Robert Murphy, a reception and buffet supper by the President of the National Academy of Sciences and Mrs. Bronk, tours of scientific laboratories in the Washington area, and an all-day excursion to the Blue Ridge Mountains of Virginia on Sunday, 5 October.

Well over 100 delegates participated in the assembly, representing all 13 of the member scientific unions and 30 of the 45 adhering countries. The United States was represented by the following delegation: Detlev W. Bronk, honorary chairman; W. Albert Noyes, Jr., chairman; Wallace W. Atwood, Jr., secretary; Wallace R. Brode, Ralph E. Cleland, Hugh L. Dryden, A. Baird Hastings, Joseph Kaplan, Otto Struve, and Alan T. Waterman.

It was especially fitting that the National Academy of Sciences be host to this assembly, because the academy serves as the adhering organization for the United States, sponsoring national committees for each of the constituent international unions and coordinating their activities through the academy's Office of International Relations.

Organization of ICSU

Nearly all scientists have heard of ICSU and many thousands of them have participated in the work of one or more of ICSU's member unions, joint commissions, or special committees. However, very few scientists, numerically, are familiar with the organizational structure of ICSU. For this reason it may be useful to describe briefly the pattern of organization which makes ICSU unique among international councils and which has brought to ICSU the responsibility of initiating and carrying through important scientific programs requiring international cooperation.

The basic organizational structure of ICSU was adopted in 1931 when the International Research Council, which had been in existence since the close of World War I, was reconstituted as ICSU. Since that time, a few minor changes have been introduced, but the fundamental features of the ICSU organization have remained unchanged. Figure 1 shows the present pattern.

The strength of ICSU is found in its two categories of membership—scientific members and national members. The scientific members are autonomous international unions, each concerned with a particular scientific discipline; the national members are normally the leading academies of sciences or research councils in the countries concerned. The role of ICSU is that of a coordinating body. It does not direct the activities of its member unions. The bureau, executive board, and assembly are the administrative bodies of the organization.

In furthering international scientific research, ICSU relies upon its member unions and its national adhering organizations. Relations with governments are arranged through the academies and research councils which serve as the national adhering organizations. In this manner ICSU has obtained the assistance of governments in the furtherance of important scientific investigations.

Best known of ICSU's activities is the International Geophysical Year. Scientists and laymen alike are familiar with this vast international cooperative research operation. They know that the exploration of Antarctica by scientists of 12 nations is part of the IGY and that the instrumented earth satellites now circling the earth are IGY vehicles gathering data for the scientists of the world.

During the last 10 years, ICSU has received substantial support from UNESCO. This support, amounting to nearly $200,000 annually, has helped ICSU and its member unions to reestablish themselves following World War II and to greatly extend their important cooperative programs. A formal agreement between ICSU and UNESCO provides for a continuing relationship wherein mutual assistance is assured. This agreement contributes significantly to the work of both organizations.

In addition to the support mentioned above, ICSU and its unions receive special contributions from foundations and from national adhering academies. In recent years support from these sources has increased substantially.

General Assembly Actions

In the succeeding paragraphs the more significant actions taken by the delegates to the Eighth General Assembly of ICSU are recorded. These include adoption of a policy statement reaffirming the purely scientific character of ICSU, establishment of new committees and services to carry forward important international cooperative research programs, launching of a quarterly journal, and actions on a number of administrative and financial matters.

Political nondiscrimination. Because of the many problems of a political or jurisdictional nature which have appeared on the horizon to hamper travel of scientists and their participation in international activities, the assembly delegates believed it necessary to reaffirm the purely scientific character of ICSU. Accordingly they approved the following statement:

"To ensure the uniform observance of its basic policy of political non-discrimination, the ICSU affirms the right of the scientists of any country or territory to adhere to or to associate with international scientific activity without regard to race, religion or political philosophy.

"Such adherence or association has no implications with respect to recognition of the government of the country or the territory concerned.

"Subject only to payment of subscriptions and submission of required reports,

the ICSU is prepared to recognize the academy, research council, national committee, or other bona fide scientific group representing scientific activity of any country or territory acting under a government de facto or de jure that controls it.

"Meetings or assemblies of ICSU or of its dependent organisms such as its special committees and its joint commissions should be held in countries which permit participation of the representatives of every national member of ICSU or of the dependent organisms of ICSU concerned, and allow free and prompt dissemination of information related to such meetings.

"ICSU and its dependent organisms will take all necessary steps to achieve adherence to these principles."

Collaboration in geophysics. The International Geophysical Year has provided an outstanding example of the accomplishments made possible by ICSU procedure under which each country plans, through its own academy or other national scientific organization, its research program; and ICSU through its special committees arranges the coordination of efforts, simultaneously assuring insofar as possible that gaps do not occur in the program.

Thus, for example, in the preparation of antarctic weather maps so vital to all antarctic operations, American and Russian scientists and those of other nationalities have been enabled to work in harmony. Similarly, all the observations and discoveries of the IGY are made available through world data centers in the U.S.S.R., in Western Europe, and in the United States.

With the observation stage of the IGY due to end on 31 December 1958 and with the Special Committee for the IGY going out of existence on 30 June next, the assembly took positive steps to guarantee continuance of international geophysical collaboration and of the work begun under the IGY. It provided for a successor group called the Special Committee for Inter-Union Cooperation in Geophysics, to be known as SCG, which will begin functioning as soon as the Special Committee for the IGY ceases. There will thus be on hand a unit commissioned to deal with the varied aspects of the closing stages of the IGY. Among its activities will be the publication—largely in the *Annals* of the IGY—of the data collected during the 18 months of IGY observations. The SCG will also undertake to organize thoroughgoing cooperation on the international level in the use and analysis of these data through the World Data Centers, the International Scientific Unions, and the World Meteorological Organization, and in any other way suited to this purpose.

Oceanic research. There was established a Special Committee on Oceanic Research, to be known as SCOR. This body is charged with furthering the coordination of scientific activity in all branches of oceanic research, with a view to framing a scientific program of worldwide scope and significance.

Antarctic research. A Special Committee on Antarctic Research was also established, to be known as SCAR, for the stated purpose of furthering the coordination of scientific activity in Antarctica.

International Service for World Days. Another significant result of the IGY was recognized with the establishment of the International Service for World Days, or IWDS. This service will carry forward the World Days cooperation, which has greatly facilitated simulta-

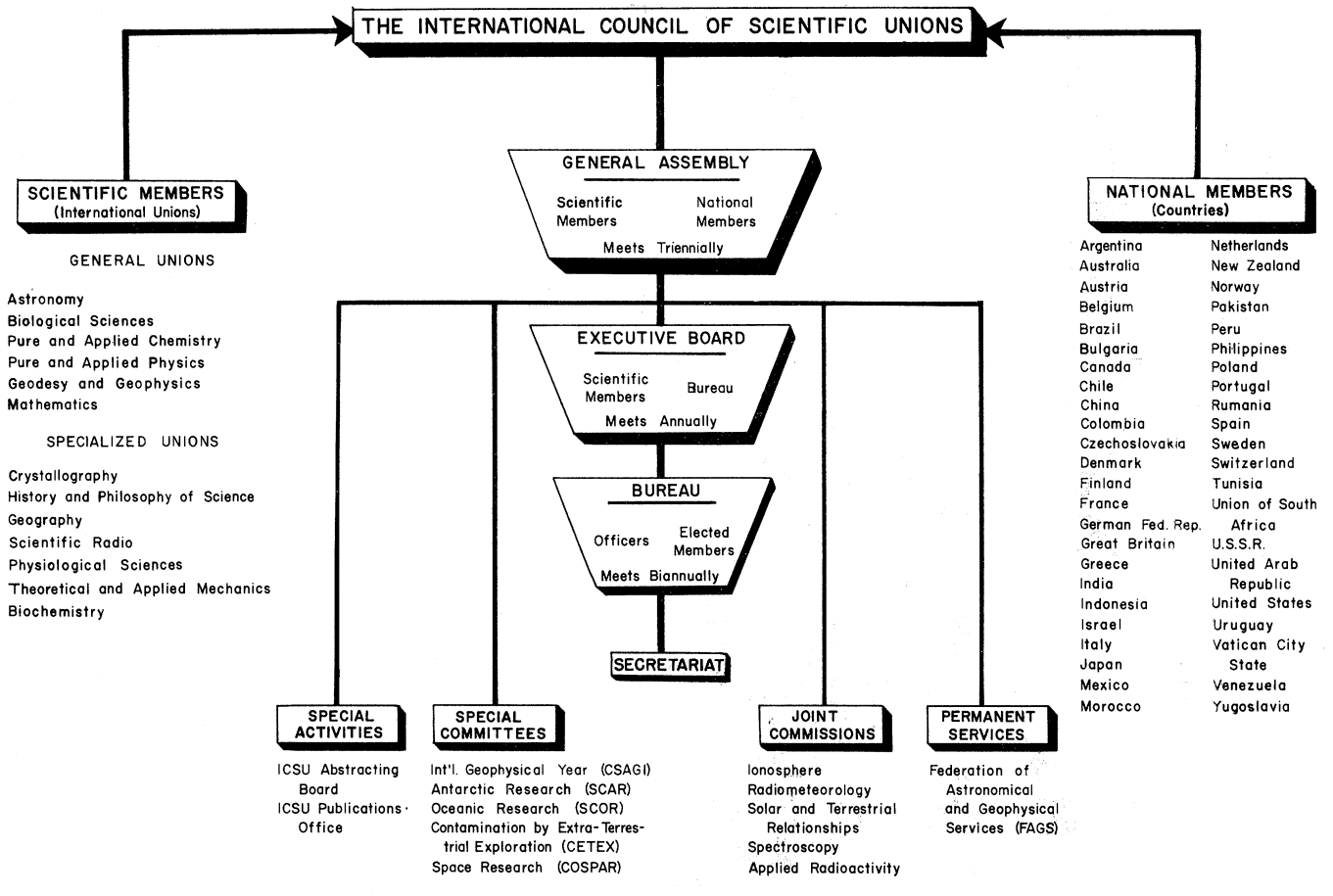

Fig. 1. The organization of ICSU as visualized by the author; no official chart exists. The general assembly is the top administrative body composed of delegates appointed by the scientific and national members. The bureau and executive board conduct the affairs of ICSU between triennial assemblies. The secretariat, with offices at The Hague, consists of the administrative secretary, the accountant, and secretarial assistants.

neous IGY observations of atmospheric and other phenomena at many localities over the globe. In addition to permitting advance planning, the continuance of the IWDS will perpetuate the warning-alert communications system that makes possible simultaneous observations even of phenomena that develop at the last minute.

Space research. Recognizing the need for an international committee to deal with problems of space research and considering that the ICSU should continue its work of coordination in this field, the assembly authorized the establishment of a Committee on Space Research, to be known as COSPAR. The assembly specified the terms of reference of the new committee as follows:

"The primary purpose of the Committee is to provide the world scientific community with the means whereby it may exploit the possibilities of satellites and space probes of all kinds for scientific purposes, and exchange the resulting data on a cooperative basis. It shall further report to ICSU these measures needed in the future to achieve the participation in international programs of space research of all countries of the world with those which are already actively engaged in research programs involving the use of instrumented earth satellites and space probes.

"The Committee shall hold as a primary objective the maximum development of space research programs by the international community of scientists working through the ICSU and its adhering national academies and unions. Recognizing, however, the need for international regulation and control of certain aspects of satellite and space probe programs, the Committee shall keep itself fully informed on United Nations or other international activities in this field, in order to assure that maximum advantage is accorded international space science research through such regulations, and to make recommendations relative to matters of planning and regulation that may affect the optimum program of scientific research."

By this resolution, the assembly signified the intensity of the hope in the international scientific community that such a committee, or any successor it may have, will in fact be the international scientific body to further space research on the part of all nations; this will guarantee that the goal will always be the free and unhindered expansion of knowledge. The new committee held its first meeting in London in November, less than 6 weeks following the close of the assembly in Washington.

On a related matter, the Committee on Contamination by Extra-Terrestrial Exploration (CETEX) was instructed to draw up a code of conduct for interplanetary exploration and to report its conclusions to the Committee on Space Research [see *Science* **128**, 887 (17 Oct. 1958)].

Freedom of scientific research at sea. Lest the new Convention on the Continental Shelf, adopted by the United Nations Conference on the Law of the Sea, become a source of possible interference with the freedom of oceanic research, the assembly requested its national members

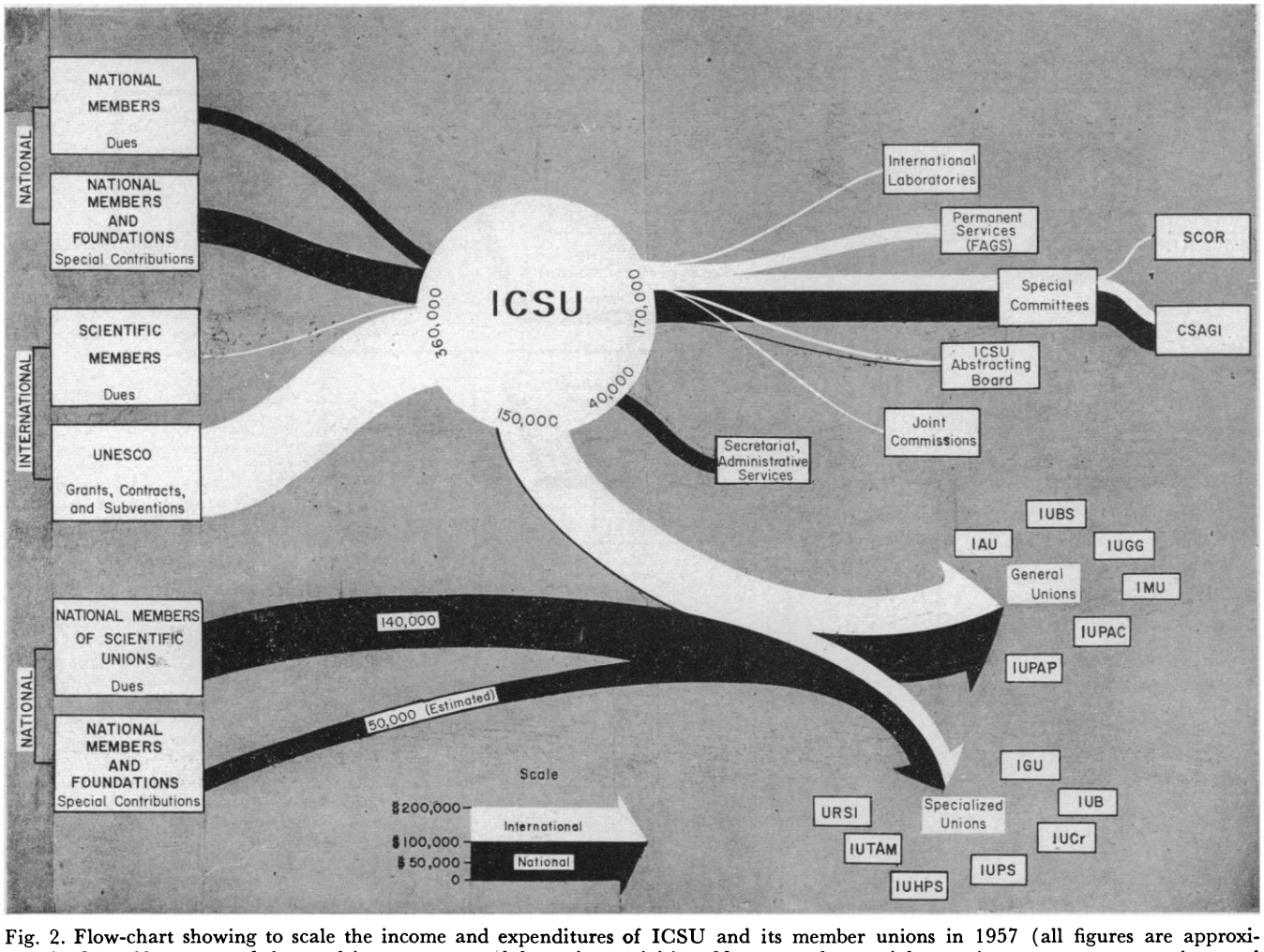

Fig. 2. Flow-chart showing to scale the income and expenditures of ICSU and its member unions in 1957 (all figures are approximate). Over 62 percent of the total income was used for union activities; 30 percent for special committees, permanent services, and related projects; and about 7 percent for secretariat and administrative services. The unions and special committees identified by initials only are named in Fig. 1.

to ask their separate governments, when ratifying the convention, to signify that they therewith grant general permission to any scientific research vessel to conduct investigations of the bottom and subsoil of the continental shelf, provided that the program is specifically approved by ICSU and that the results of the investigations will be published openly for the benefit of science. It was recommended that the coastal state concerned should be notified far enough in advance to enable it, if it so wishes, to designate a representative to take part in the work. In this way, it is hoped that governments will be substantially assisted in identifying bona fide scientific research projects and that diplomatic delays which might jeopardize many types of oceanographic investigations may be avoided.

Publications. Starting in 1959 a new quarterly international journal to be known as the *ICSU Review* will be published, to cover all significant activities of ICSU and its member unions; it will also assure the regular appearance of a current bibliography of ICSU publications.

And, because of the special demand stimulated in large measure by the IGY activities, there is to be established a new ICSU Publications Office. Among the several functions of this office will be (i) publication of the *ICSU Review*, (ii) production of a self-consistent series of volumes of high standard in the fields of activity of ICSU and its dependent organisms, (iii) provision of editorial and publication assistance to scientific groups associated with ICSU, and (iv) financing, promotion, and distribution of ICSU publications.

UNESCO relations. In recognition of the close and mutually advantageous relationship between ICSU and UNESCO, the assembly expressed its deep appreciation for the latter's significant support of the work of ICSU and its associated scientific unions and noted with pleasure that ICSU programs have, in turn, materially furthered the objectives of UNESCO. The hope was expressed that UNESCO would undertake a major expansion of its Marine Sciences Program and that it would aid the countries bordering the Indian Ocean to take an active part in the international investigation of that ocean planned by SCOR.

It was also urged that scientific members be included in each national delegation to general conferences of UNESCO in order to insure full consideration of the program of the Natural Sciences Department, which in recent years has received a smaller and smaller percentage of the total UNESCO budget.

Financial matters. As controller of its own financial affairs, the assembly passed a resolution strongly endorsing the establishment of a capital fund and instructing the treasurer to invite each council member to take early and vigorous action to secure appropriate donations. Such a fund, preferably aggregating $1 million, is needed to permit ICSU to meet its steadily growing responsibilities and to move swiftly when significant developments in international science demand immediate and positive action.

At the same time, thanks and appreciation were expressed for contributions totaling some $28,000 to the ICSU Special Fund made by the Sir Darabji Tata Trust of India, the Academy of Sciences of the U.S.S.R., and the National Academy of Sciences and National Science Foundation of the United States.

Figure 2, prepared by the academy's Office of International Relations, shows the "national" and "international" income of ICSU and its member unions in 1957. It also shows how these funds, approximately $550,000, were used by ICSU for specific projects, including the IGY, and by the unions for support of their activities. Secretariat and administrative services provided by ICSU amounted to a little over $40,000.

The assembly approved an annual operating budget of $58,000 for the next triennium. The allocation of ICSU funds to special projects and to the 13 member unions was reserved for action by the executive board, which meets annually.

Admission of new national members. The assembly admitted the National Council of Scientific and Technical Research of Argentina and the Bulgarian Academy of Sciences as new national members of ICSU.

Election of new bureau. The following officers and members of the bureau were elected to serve until the next triennial assembly: Sir Rudolph Peters (Great Britain), president; Lloyd V. Berkner (United States), retiring president; Reverend Pere Lejay (France), vice president; W. A. Engelhardt (U.S.S.R.), vice president; Colonel E. Herbays (Belgium), treasurer; Nicolai Herlofson (Sweden), secretary-general; and Arthur Stoll (Switzerland) and Seiji Kaya (Japan), members.

The new bureau lost a valuable member with the passing of Reverend Pere Lejay on 11 October during the return voyage to his homeland.

A special vote of appreciation for valued service to ICSU was extended to retiring members of the bureau: Bertil Lindblad (Sweden), Sir K. S. Krishnan (India), and Sir Harold Spencer Jones (Great Britain).

Summary

The preceding account of the Washington assembly of ICSU is for the most part factual. It is essentially a record of actions taken by the assembly. As such, it summarizes the work of the delegates and reveals the plans, hopes, and aspirations of the international scientific community. The importance of freedom of scientific research from artificial restrictions of any kind, political or otherwise, has been reaffirmed. The important types of research arising out of the highly successful International Geophysical Year will be carried forward on an international basis under ICSU auspices by groups newly constituted for the purpose. The necessity for continued international scientific cooperation, with a maximum of support from such kindred units as UNESCO, has been made clear, as has been the need for adequate funds for the work. New facilities for publication and dissemination of material will provide another step forward in what every scientist trusts is steady progress toward uncompromised, uncompromising, and recognized universality for science and scientific knowledge.

The accomplishments of the IGY have yet to be evaluated, and many another task remains to be completed. But plans already are being made for new and daring explorations into the unknown, always pushing forward the frontiers of knowledge. This is the spirit of ICSU and of all those who together constitute the ICSU family of scientific unions. As ICSU grows, so will our knowledge of nature and our ability to cope with the problems which currently beset the peoples of the world.

WALLACE W. ATWOOD
Office of International Relations
National Academy of Sciences–National Research Council, Washington, D.C.

Overseas Science Officers

The Department of State has announced the re-establishment of its overseas Science Officer Program with the appointment of seven distinguished scientists to serve in the U.S. embassies in London, Paris, Rome, Bonn, Stockholm, and Tokyo. The men selected are as follows: Thomas H. Osgood, physicist and dean of the School of Advanced Graduate Studies at Michigan State University, for London; Edgar L. Piret, professor of chemical engineering at the University of Minnesota, for Paris; Edward H. Cox, retired head of the department of chemistry at Swarthmore College, as deputy science officer for Paris; Walter Ramberg, chief of the Mechanics Division at the National Bureau of Standards, for Rome; Ludwig F. Audrieth, professor of chemistry at the University of Illinois, for Bonn; Julian E. Mack, professor of physics at the University of Wisconsin, for Stockholm; and Willis R. Boss, professor of zoology at Syracuse University, for Tokyo.