

The Role of American Biologists in International Scientific Meetings and Projects

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That biologists have been inveterate travelers because of the nature of their science is well known. But now the new dimension of international professional meetings has been added. The author is a member of the Department of Biological Sciences and is well known for his interest in international education.

American biologists, as well as American scientists in other fields, have greatly increased their activities on the international level in recent years. This trend will undoubtedly continue, and will become accelerated in future years. This brief sketch of recent international activities of biologists will be limited to academic biology, i.e., basic research in biology, and will not include the applied fields such as agriculture, forestry, fisheries, conservation, medicine, public health, etc. In point of time, we shall consider essentially from late 1958 to the present, and into the immediate future. We shall be concerned with international meetings, congresses, publications, and research projects.

Until recent years international activities of biologists consisted chiefly of the meetings for and publications of the International Code of Zoological Nomenclature, prepared by the International Commission on Zoological Nomenclature, and the International Code of Botanical Nomenclature, prepared by special committees of the International Botanical Congress, along with an occasional international meeting of some specific society or discipline. In 1946 the American Philosophical Society held a "Symposium of the American Philosophical Society on America's Role in the Growth of Science." Dr. Edward G. Conklin presented a paper at this meeting on "The American Philosophical Society and International Relationships." In this he outlined the role of America's oldest learned society in the development of international cooperation. Published with this symposium is a record of the "Symposium of the International Academy of Science on Present Trends and International Implications of Science" and "Symposium of the National Academy of Science in Problems of International

Cooperation in Science." In recent years biologists representing many specialties have blossomed forth with international activities with strong support from the United States.

Of long standing has been the International Commission on Zoological Nomenclature, which is now headed by Prof. James C. Bradley of Cornell University. Four members of the commission are from the United States. In 1951 the International Association for Plant Taxonomy was established and its official bulletin *Taxon* was first published. Dr. R. C. Rollins of the Gray Herbarium at Harvard University is the Regional Treasurer for the United States. The bulletin is edited and published by the International Bureau for Plant Taxonomy and Nomenclature with Headquarters in the Netherlands. The committee which prepared the International Code of Botanical Nomenclature, adopted by the Ninth International Botanical Congress meeting in Montreal in 1959, included Dr. A. C. Smith of the Smithsonian Institution and Dr. James M. Schopf of the Ohio State University.

Dr. Bentley Glass of Johns Hopkins University is on the Board of Editorial Consultants for *Isis*, "An international review devoted to the history of science and its cultural influences" founded in 1912 by George Sarton of Harvard University

International meetings of biologists in recent years include the following selected examples. The 8th Triennial General Assembly of International Council of Scientific Unions met at Washington, D. C., in October of 1958. Over 100 delegates, representing 13 of the member scientific unions and representing 30 of the 45 adhering countries attended. Dr. Alan T. Waterman of the National Academy of Science was one of the U. S. delegates. This assembly established a

“Special Committee on Oceanic Research” which will be mentioned later in this paper.

At the second International Conference on Peaceful Uses of Atomic Energy, held at Geneva, Switzerland, in September of 1958, as guests of the United Nations, there was an extensive series of biological exhibits. Six research laboratories and seven universities from the United States contributed exhibits illustrating the uses of atomic energy in biological research. At the University of Malaya, (now the University of Singapore) an International Biological Congress was held in December of 1958. This was a centenary celebration of the theory of evolution as announced by Charles Darwin and Alfred Russell Wallace, and at the same time a bi-centenary celebration of the publication of Linnaeus' 10th edition of *Systema Naturae*. Twelve countries participated with the reading of 68 papers. Dr. Dwight Davis represented the Chicago Natural History Museum. The 10th International Congress of Genetics met in Montreal in August of 1958, and was attended by many from the United States.

In 1959 the 9th International Botanical Congress, which was also held in Montreal, was very well attended by American botanists. At the same time the International Oceanographic Congress was held at the United Nations Building in New York City. This was sponsored by the American Association for the Advancement of Science, UNESCO, and the International Council of Scientific Unions. Dr. Mary Sears of the Woods Hole Oceanographic Institution was Chairman of the Committee on Arrangements. American participants in the field of biology included Prof. G. E. Hutchinson of Yale University, Dr. L. A. Walford of the U. S. Fish and Wildlife Service, and Dr. B. H. Ketchum of the Woods Hole Oceanographic Institution. Approximately 1,200 scientists representing one-third of the nations of the world attended the two-week meeting. As an outgrowth of this meeting, UNESCO and the International Council of Scientific Unions have organized the “International Indian Ocean Expedition 1959-64.” Preliminary proposals had been made at the meeting of the Special Committee for Oceanic Research held at Woods Hole in August, 1958. This committee had been established by the International Council of Scientific Unions.

Some 40 research vessels with representatives from more than 20 countries will participate in this gigantic international project. The United States will furnish 10 ships and \$150 million in funds. The Indian Ocean covers one-seventh of the earth's surface, and it is believed to be one of the most productive oceans. It will be studied from every scientific point of view, including marine biology. A biological center will be established for shoreline study and as a base for oceanic operations. One major objective is to find new sources of food for the rapidly growing world's population. The United States will also furnish one specially equipped vessel for research in biological oceanography over a period of two years, beginning in 1963. At least four 10-week cruises and several short cruises from two to four weeks are planned. Two years of shore operations will begin next summer. The United States program is being planned and supervised by Dr. John H. Ryther of the Woods Hole Oceanographic Institution.

The *International Review der Gesamten Hydrobiologie* has recently resumed publication following suspension for 15 years. Dr. D. G. Frey of Indiana University is the American representative on the Editorial Board. In 1959 the International Society for Tropical Ecology was organized. Its first publication, a semi-annual bulletin, was first issued in 1961. Dr. F. R. Fosberg, of the Pacific Vegetation Project supported by the National Research Council, represents the U. S.

The 11th International Congress of Entomology was held in Vienna, Austria, in 1960. Some 1600 entomologists from 56 countries, including about 200 from the U. S. formed the largest gathering of entomologists ever held up to that time. The Congress was divided into six divisions representing different aspects of entomology. The Second Scientific Congress of the International Society of Bioclimatology and Biometeorology was held at the National Society of Medicine in London in September, 1960. A total of 172 members from 26 countries assembled in four sessions. Two of these sessions were addressed by speakers from the U. S. Dr. Frederick Sargent, II, on the staff of the University of Illinois, was elected president of the Society. A Symposium on Plant Productivity was

organized at the Stuttgart-Hohenheim Agricultural School—Botanical Institute, in May, 1960. Some 25 investigators from nine countries assembled to hear research papers presented by 17 delegates. The U. S. was represented by Dr. Lawrence C. Bliss on the faculty of the University of Illinois. The collected papers are being published under the title *Die Stoffproducton der Pflanzen-decke*. In September, 1960, the International Society for Biological Rhythm, which has a membership of over 225, representing 24 countries, met in Italy for its biennial meeting.

Dr. E. R. Hall, University of Kansas, represented the American Society of Mammalogists at the International Symposium on Theriological Methods held in Brno, Czechoslovakia, in 1960. A new international scientific journal entitled *Crustaceana* was organized in 1960 as an international journal for crustacean research. Dr. A. G. Humes, Boston University, is the American editor on a board of seven editorial advisors.

The 13th International Phytogeographic Excursion took place in Finland and Norway in the summer of 1961. These excursions were organized in 1911 by British and Swiss biologists and have been operated by a permanent Swiss Committee. These field trips bring together biologists, ecologists, and phytogeographers for the study of vegetation in some particular area of the world and for the exchange of information among such scientists. In 1961 there were 25 foreign participants from 14 countries, in addition to 15 members of the local committee. Three delegates represented the United States. The group traveled by bus through the two Scandinavian countries to study the vegetation and its distribution.

The 10th Pacific Science Congress of the Pacific Science Association was also held in the summer of 1961. Hosts were the National Academy of Science, the Bernice P. Bishop Museum, and the University of Hawaii. Over 2,600 attended from 61 countries and territories. There were 25 representatives from various international organizations. Over 1,500 scientific papers were presented. Included was an evaluation of efforts to promote international cooperation within the Pacific Science Association. There was also a separate section devoted to the biological

sciences for study of biological problems in the Pacific area. This is one of the oldest international organizations, having held meetings over a period of 41 years. The history of this international body has recently been published by A. P. Elkin (*Bull. Bernice P. Bishop Museum*. Publ. 48: 1-80. 1961). This reviews a series of 19 International Pacific Science Congresses from 1920 to date.

In October, 1961, the National Science Foundation and the Office of Naval Research supported a Shallow Water and Coastal Research Conference. Regional meetings were held at the Chesapeake Bay Institute of Johns Hopkins University, the Oceanographic Institute of Florida State University, and the Allan Hancock Foundation of the University of Southern California. Among other matters, five foreign scientists reported on their marine research. At about the same time the International Council for the Exploration of the Sea held its 48th annual meeting at Copenhagen.

Early in 1961, UNESCO arranged a meeting in Buenos Aires to make plans for an International Andean Year. Scientists from five nations met for this purpose. Among the first objectives to be investigated are the plant and animal life of the Andes. A second meeting was held in December and an opportunity will be open for anyone interested to join in the efforts to promote this program.

The Bird Banding Office of the U. S. Fish and Wildlife Service has been transformed into an International Bird Banding Center. This organization will coordinate all of the bird banding activities on the North American continent. A research study of bird banding recently published by Dr. Carl R. Eklund (*Bird Banding* 32(4):187-223. 1961) on the "Description and Life History Studies of the South-Polar Skua" was supported by funds from the United States National Committee-IGY of the National Academy of Science and the National Science Foundation. Persons from several countries assisted in this international program of bird banding.

The 7th International Ethological Conference was held in Bavaria in 1961. Nearly half of the 53 papers presented at the conference were given by scientists from North America. The journal *Animal Behavior*, now in its 9th volume, has been well supported

by American biologists. Four of them serve on the Editorial Board. A little over one-third of published articles by number of pages was contributed by American authors.

The International Cooperation Committee of the Biological Sciences Curriculum Study, a project of the American Institute of Biological Sciences, has received funds from the National Science Foundation to establish a program for biological education. Teams from five countries will be brought to Boulder, Colorado, for the Second Summer Writing Conference. Representatives from Argentina, Brazil, Colombia, Nigeria, and Thailand attended the 1961 Summer Writing Conference. They also visited a number of American schools in which the BSCS High School Biology Program was in operation.

In September, 1961, the 7th and 8th Conferences on Science and World Affairs were held at Stowe, Vermont. Among the joint projects discussed was one to survey the changing waters and life of the seas in various parts of the world by international cooperation. Forty-one scientists from 12 countries attended the 7th Conference. Twenty of these were Americans, including three biologists. The theme of this conference was "International Cooperation in Pure and Applied Science." The 8th Conference was devoted to "Disarmament and World Security."

In late September the International Council of Scientific Unions met in London for the purpose of implementing the objectives outlined at the Stowe Conference. Some 50 national academies of science and 13 international scientific unions are represented in the Council membership. Ten United States delegates attended the meeting in London. The group agreed to concentrate on an International Biological Program which would begin in 1963. One objective is to coordinate world-wide research on human food supplies and on human heredity. An effort will be made to study the manner in which civilization changes the relation of man to his environment.

The First International Conference on Protozoology was held in Prague, Czechoslovakia, in 1961. Some 200 protozoologists from 24 countries attended. The largest national group was from the United States.

Three Americans served on the Organizing Committee. The 3rd International Symposium on Comparative Endocrinology was held in Japan that same summer. Of the 161 scientists from 16 countries, there were 41 from the United States. The following international groups also met in 1961: The 16th General Assembly of the International Union of Biological Scientists and the International Congress on Animal Reproduction met in Amsterdam; the International Congress of Cytologists met in Vienna; the International Symposium of the Royal Microscopy Association met in London.

In 1961 there was published a Directory of Zoological Taxonomists which includes approximately 9,000 animal taxonomists throughout the world. This directory was supported by the National Science Foundation and published in this country. The editors were Dr. and Mrs. Richard E. Blackwelder of Southern Illinois University. A movement is now underway to organize an International Association for Systematic Zoology. An Organizing Committee will soon be formed in the Netherlands. A constitution will be drafted which will provide for a council of 15 members of which no more than four shall represent any one country. The publication of occasional newsletters is planned. It is hoped that this group will become as successful as the established International Association for Plant Taxonomy. The establishment of another international project is also under way in the proposal to found an International Journal of Malacology. Such a journal would publish papers in English, French, German, and Spanish, with a summary in one or more of the other languages. American malacologists are playing a prominent roll in organizing such a publication.

In the summer of 1962 the State University of New York sponsored an eight week study-travel course on "Science Research in Continental Europe." Those taking part will visit research institutions, oceanographic stations, museums, botanical and zoological gardens in Rome, Venice, Genoa, Monaco, Marseilles, Paris, Brussels, Hague, and London. The American Institute of Biological Sciences is planning support for the proposed International Biological Project. This would aim at a program similar to the Inter-

national Geophysical Year. Efforts in this direction would tie in with the plans being developed by the International Council of Scientific Unions.

An International Conference was planned for experimental biologists with special interest in taxonomy and evolution. This was held in September of 1962. The American Society of Mammalogists maintains a standing committee for international relationships which was established in 1960. An International program has already been outlined, and an International Congress of Mammalogy was planned to be held in Moscow in 1962 or 1963.

The 15th International Congress of Limnology was held at the University of Wisconsin in August, 1962. This is being sponsored by the American Society of Limnology and Oceanography, the National Academy of Science—National Research Council, the International Association of Theoretical and Applied Limnology, and the International Union of Biological Sciences. Scientists who attend will become members of the *Societas Internationalis Limnologiae*. Prof. G. E. Hutchinson of Yale University is the American representative in this society. In addition to the meetings at Madison, six excursions are being planned for foreign delegates to visit a number of limnology laboratories and projects in the United States and Canada.

The 13th International Congress of Ornithology assembled at Cornell University, Ithaca, New York, in June of 1962, and the following August the 10th International Congress of the History of Science also met at Cornell University. Programs for seven sections devoted to different aspects of the History of Science were planned. In 1963 the International Congress of Zoology was held in Washington, D. C. The theme of this congress was the "Unity of Zoology." Dr. Alfred S. Romer of Harvard University served as President of the Congress. Fifteen American societies in the field of zoology served as co-sponsors. At this meeting the International Association for Systematic Zoology, mentioned earlier, was formally organized. Arrangements were made for this by Dr. L. D. Brongerma of the Netherlands. The 11th International Genetics Congress met in the Netherlands in 1963.

Biologists have shown an increasing interest and activity in participating in international meetings, conferences, and projects over recent years. Undoubtedly this trend will continue to increase. American biologists are now playing a prominent role in these international meetings. Until recently, immigration laws have at times prevented or discouraged the arrangements for international meetings in the United States. Recent changes of policy and interpretation have made it possible to correct this difficulty. The government has made it more convenient for foreign delegates to obtain a visa. Unfortunately, there are still some countries where foreign travel is still difficult to arrange. For example, a letter recently received from an ornithologist in Budapest concerning the International Ornithological Congress to be held in this country contains the following message: "My visit to the Congress at Ithaca is hopeless. Mr. Mountfort has offered me all expenses for the journey, but I have no way to get a passport even to Poland where I was invited by the Polish Academy." Such restrictions will prevent attaining the goals of international meetings. In the United States, the National Science Foundation has created an Office of International Science Activities to provide groups with guidance on matters of international education, research, and meetings, and to develop cooperation for international projects.

These international meetings serve not only as a clearing house for the advancement of scientific research, but also lead to international understanding and appreciation. Dr. Arthur H. Compton wrote in the *AAAS Bulletin* in April, 1942, and reprinted in November, 1961, the following statement: "As men learn the lesson of science, of the value of unbiased and diligent search for the truth, may we not hope that scientific investigation may displace war as a method for solving our great human problems?" In the January 26, 1961 issue of *Science* Dr. Edmund W. Sinnott of Yale University wrote, "If the men of science from both east and west, could come together for a friendly conference on the problems, both scientific and political, that both groups face, the outcome, I am sure, would be a great gain in good will on both sides."