An American Bridge To World Science

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BOTH THE SCIENTIFIC AND THE GENeral press have been strangely neglectful of what is potentially a major opportunity to advance American science and, through it, to contribute to world peace. Indeed, there is considerable danger that, because of lack of action on the part of American scientific organizations, the opportunity may be sharply curtailed.

Senator J. William Fulbright introduced into the 79th Congress a bill to amend the Surplus Property Act of 1944. This bill, which was subsequently passed as Public Law 584, states in part:

In addition to the authority conferred by section 15 of this Act, the Department of State may dispose of surplus property located outside the continental United States, Hawaii, Alaska (including the Aleutian Islands), Puerto Rico, and the Virgin Islands, for foreign currencies or credits, or substantial benefits or the discharge of claims resulting from the compromise, or settlement of such claims by any Government agency in accordance with the law, whenever the Secretary of State determines that it is in the interest of the United States to do so and upon such terms and conditions as he may deem proper. Any foreign currencies or credits acquired by the Department of State pursuant to this subsection shall be administered in accordance with procedures that may from time to time be established by the Secretary of the Treasury and, if and when reduced to United States currency, shall be covered into the Treasury as miscellaneous receipts.

In carrying out the provisions of this section, the Secretary of State is hereby authorized to enter into an executive agreement or agreements with any foreign government for the use of currencies, or credits for currencies, of such government acquired as a result of such surplus property disposals, for the purpose of providing, by the formation of foundations or otherwise, for (A) financing studies, research, instruction, and other educational activities of or for American citizens in schools and institutions of higher learning located in such foreign country, or of the citizens of such foreign country in American schools and institutions of higher learning located outside the continental United States, Hawaii, Alaska (including the Aleutian Islands), Puerto Rico, and the Virgin Islands, including payment for transportation, tuition, maintenance, and other expenses incident to scholastic activities; or (B) furnishing transportation for citizens of such foreign country who desire to attend American schools and institutions of higher learning in the continental United States, Hawaii, Alaska (including the Aleutian Islands), Puerto Rico, and the Virgin Islands, and whose attendance will not deprive citizens of the United States of an opportunity to attend such schools and institutions: *Provided, however*, That no such agreement or agreements shall provide for the use of an aggregate amount of currencies, or credits for currencies, of any one country in excess of $20,000,000 or for the expenditure of the currencies, or credits for currencies, of any one foreign country in excess of $1,000,000 annually at the official rate of exchange for such currencies, unless otherwise authorized by Congress, nor shall any such agreement relate to any subject other than the use and expenditure of such currencies or credits for currencies for the purposes herein set forth: *Provided further*, That for the purpose of selecting students and educational institutions qualified to participate in this program, and to supervise the exchange program authorized herein, the President of the United States is hereby authorized to appoint a Board of Foreign Scholarships, consisting of ten members, who shall serve without compensation, composed of representatives of cultural, educational, student and war veterans groups, and including representatives of the United States Office of Education, the United States Veterans' Administration, State educational institutions, and privately endowed educational institutions: *And Provided further*, That in the selection of American citizens for study in foreign countries under this paragraph preference shall be given to applicants who shall have served in the military or naval forces of the United States during World War I or World War II, and due consideration shall be given to applicants from all geographical areas of the United States.

In other words, surplus tractors, jeeps, LST's, etc. remaining in Australia, Siam, Holland, and other countries may make possible cultural interchanges between those countries and the United States, much as the Boxer Indemnity Fund was used to provide fellowships in American universities for many young Chinese. How much money will be available under the bill is not yet clear, although present indications are that it may total several score of millions of dollars. Neither is it clear what proportion of the funds is to be available for science; this will depend, in part, on the interest and activity of scientists themselves.

If this opportunity is well handled, its value to science, and to American world relations through science, will be enormous. Eight years of work in foreign countries, in constant contact with scientists in many fields, have made three conclusions compellingly clear to me.

The first is that no channel for international communication offers such complete freedom of movement as scientific interchange. No matter what the tongue of the scientist, his mathematical, physical, or chemical formula says the same thing the world over. The biome, the life history of the bird, the analysis of social organization of wandering monkey tribes, may be approached through similar thought processes. The genetics of corn in Minsk, Córdoba, and Iowa City follows the same laws. The scientific worker, no matter what his discipline,

finds a common bond with his co-worker on whatever side of the politician's "iron curtain." Furthermore, true internationalism, a feeling of mutual respect that transcends political limits, has existed for decades in the laboratories, libraries, and field stations. Houssay and Cannon, Shapley and Jeans, Leopold and Kashkorov, have never considered that a veto power might be necessary. Because of its international character, scientific aid is given and received freely and without thought of patronizing or being patronized; scientific aid is acceptable without question, and the giving of it is an accepted responsibility. Men have been united by science since the time of the Renaissance, and political internationalism can learn much from the scientific pattern.

However, despite the great debt of the United States to the science of the rest of the world, American scientists during the past two or three decades have shown a disturbing tendency toward parochialism. There are so many of us and we have become so content with living on our own fat that in many fields we have lost the stimulating beneficence of contact with scientists in other parts of the world. A distinguished European ornithologist once said to me: "The trouble with American mails is that they move in only one direction—outward." In part because we have been too lazy to command foreign languages, thousands of us have little knowledge of important research that is being carried on abroad; a very general ignorance of Spanish and Portuguese cuts us off from investigations in Europe, Mexico, Uruguay, Argentina, and Brazil. Even were we better prepared in the use of languages, we should still need closer contact with co-workers about the world. Were it possible for more of us to work in foreign laboratories and field stations, to hammer out our ideas on other people's anvils, to sit down face to face with our scientific fellows, and, above all, to understand the opportunities and limitations of the environment in which our colleagues are working, it would give our own science a revivifying injection of adrenalin. To know, for example, that one of the world's most productive ecologists has less than $200 a year, apart from his own small salary, for all field and laboratory expenses should give an encouraging lift to any college professor trying to maintain his research program in the face of expenses that are mounting as rapidly as GI enrollments. To learn that the total budget of the Bureau of Animal Husbandry in an eastern European country is less than $400 a year should help our thinking about the problems of Greece, Turkey, and their neighbors. We are likely to identify other parts of the earth with the United States and try to make geography fit our premises rather than our premises fit geography! In foreign countries I have often seen American technologists feeling thoroughly abused because the entire complex in which they were working was so different from Kansas or Iowa; in Korzybski's useful phrase, their maps do not fit the territory in which they must operate.

In many fields, foreign experience would widen and deepen our own research potentialities. Our zoologists and botanists need to know the tropics. "To such students," writes Harold J. Coolidge, executive secretary of the Pacific Science Board (*Science*, January 31), in a personal letter to Senator Fulbright, "the possibility of working on ecological problems in New Guinea or zoogeography where Wallace did his field work represents nothing more than a naturalist's dream, far from any hope of realization." Our museums have great gaps in their collections. Our anthropologists can enormously lengthen their horizons by work around the fringes of the Pacific. As our scientists further develop the sense of political responsibility they have begun to show, and play an increasingly influential part in the shaping of America's national and international policies (which, we are beginning to realize, are inseparable), they will be far more valuable citizens for their understanding of foreign environments—in the broad sense that includes physical as well as intellectual and other cultural factors.

Finally, the American scientist abroad is one of the world's most useful citizens. Despite our many shortcomings, we have much that many other countries need. In dozens of nations, even university curricula do not include the teaching of basic sciences. In man's struggle to survive in environments that are rarely as favorable as those of the United States, the dice are loaded against him because of the lack of scientific information. On millions of overpopulated square miles living standards are dropping, often at accelerating rates, in large part because of man's failure to understand and abide by biophysical laws. A concrete example is the complete dependence of some 80,000,000 people in Latin America on wood for cooking, heating, and many industrial purposes. Yet there is not a Latin-American country that maintains a sustained-yield forestry program; nowhere in an area twice the size of the United States, with nearly as large a population, is there such a forest products laboratory as we have at Madison, Wisconsin. Scores of millions of acres of topsoil have been lost through cut-and-get-out forest exploitation methods; hundreds of people have been drowned by floods caused primarily by deforestation; silt from deforested slopes is ruining desperately needed agricultural land in a great area where less than 10, and perhaps not over 5, per cent of the land surface is suitable for agriculture. And not more than two Latin-American countries possess good forestry schools!

Diseases killing thousands of people a year are so little understood that not even the taxonomy of their insect vectors is known. Countries whose normal nutritional level (1947) is below that of German prison camps know nothing of their climatology, soils, and hydrologic regime, or such ABC's of the land manager as plant

associations, successions, etc.; nor has their nutrition been more than approximately studied. Not only do we not have information as to what species of plants and animals are threatened with extermination, in the case of threatened species we do not know enough of their biology to set up a restoration program. Mapping, basic to so much scientific research, is retarded in most of the world; one country recently discovered, by courtesy of the AAF, that, instead of having an area of 13,000 square miles, it possesses only a little over 8,000! The mere knowledge of indicator species of plants, were it available today, would *literally* be worth tens, and quite possibly hundreds, of millions of dollars to the single nation of Venezuela, which is confronted with one of the most difficult conservation problems now in existence. I have specifically mentioned Latin America because of firsthand acquaintance with a number of its countries; similar situations obtain, however, in most other parts of the world. The vast lacunae in land-use sciences also have counterparts in many other fields.

That the support of such scientific work was the intention of the author of the Fulbright Bill is made clear by further excerpts from the letter of Mr. Coolidge, quoted above, and Senator Fulbright's reply. Mr. Coolidge writes in part:

> I feel that there are two important kinds of help required to enable the qualified student to engage in field research. First, the assurance of a friendly reception and extension of certain facilities by the government of the foreign country concerned. This is a matter that can usually be arranged with the assistance of the State Department, and should not present great difficulties for Americans in most countries in the postwar world. Secondly, the highly difficult problem of finding funds to finance travel and field or laboratory research in the foreign country where the research is to be undertaken.
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> The Fulbright Bill makes it possible through the Board of Foreign Scholarships, with the assistance of the State Department, to solve this serious problem in a way that should not only greatly benefit the student, as well as the foreign country involved, but should likewise assure the possibility of great strides in the advancement of fundamental scientific knowledge and the training of competent men, particularly in the fields of the natural and related social sciences. . . .
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> I sincerely hope that provisions will be made to insure the participation of well-known scientists on your Board of Foreign Scholarships.

To this letter Senator Fulbright replied:

> I wish to acknowledge your very thoughtful letter of March 10. I am in accord with your views about the possibilities of the bill which I introduced.

The export of American science to other parts of the world, and the benefit to the United States through scientists participating in this export, such as would be possible under the Fulbright Bill, would probably contribute as much to a stable, peaceful world as could any human activity.

What the people of the United States get from their government depends largely on what they ask for. Despite the considerable sums we may hope for under the Fulbright Bill, these funds are, of course, limited. Many interests will be competing for them. Unless science speaks clearly, vigorously, and soon, it is not likely to participate to any considerable extent. It is to be hoped that the scientists from the United States will see the opportunity presented to them under this bill and insist, through their organizations, that science be given its full share.