

kinds of biologists, the men and the women who have lived close to the earth, observing the environment, that the technologists do not have the answers to fundamental, urgent problems. They recognized that the problems will not be solved until we developed comprehensive, coordinated research programs. And what are the foundations for the program: The training of the right kind of scientists, adequate financial support to give them the opportunity to participate in a national program, and provision for an even and full flow of fundamental information from the basic sciences to technology.

Mr. BROWN. I find no disagreement there, but in looking back over the history of this country I find that we have always been sympathetic to the pursuit of science. Take the simple example of the Federal support of science and learning through the land-grant colleges beginning 100 or so years ago, which led, perhaps as much as anything, to the revolution in agriculture, which is a biological phenomenon. This was accomplished without in the same sense focusing upon the problem of agriculture or biological sciences. We didn't say that we needed a technological revolution in agriculture so we could raise the food with our Nation with 10 percent of the population instead of 80 percent and become a vast technological metropolitan civilization, and yet it occurred.

In looking at the IGY, for example, we focused attention here on an area of science which for a generation has had the most financial support and has drawn the most competent scientists. So it doesn't appear that we were filling an area of the greatest need at that particular point, at least in the sense that there hadn't been a great deal of resources already poured into that area. How do you react to that?

Dr. GALLER. Well, I react to it in the following way: First of all, I am not sure that the geophysicists would agree with you that prior to the IGY they had been receiving adequate support. In fact, I think I can speak confidently that they would disagree with you, Mr. Congressman. But I do feel that certainly oceanography, one area of geophysics that I have some familiarity with, physical oceanography certainly received more support than biological oceanography. That support originated during World War II, actually the terminal years of World War II. That support of geophysics was in retrospect a very sound investment not only because it helped solve urgent problems confronting military agencies, but because it facilitated the training of a cadre of scientists that grew until it had reached critical mass. By the fifties, we had developed enough interest, enough facilities, and a large enough nucleus of scientists to be able to launch an IGY. And the reason they were interested in launching an IGY is because collectively they had reached a point where they recognized that investigations of geophysical phenomena transcended political boundaries. More to the point—the geophysicists recognized that certain fundamental questions could be resolved by carefully planned, well supported, cooperative research programs carried out at the national and international levels.

So I would say that the concept of support of the IGY was quite different from the support of individual geophysical projects in the universities and private laboratories in the United States.