and their ecological programs. They in turn I am sure will move in this direction, and the scientists from the academic community will work with them on major problems, looking at total ecosystems.

Mr. DADDARIO. Will you go into just a little bit of depth on this baseline point you raise and man's ability to destroy it and the reason why you believe it is important to give some push to other countries to participate in a program of this kind.

Dr. CARLSON. Mr. Chairman, can I call on the expert to touch on that, and then I will try to go into it.

Mr. DADDARIO. Certainly. Dr. Smith?

Dr. CARLSON. And then I have some talent behind me also.

Mr. DADDARIO. Let's get all the talent we can to participate.

Dr. SMITH. I would like to point out we have been talking about two rather different levels of ecology so far this morning. One concerns physiological ecology, or life history ecology and this is a subject which is well developed in this country and in many others, but is almost totally absent in the undeveloped countries. This is the kind of ecology we can extend around the world at a relatively low cost and rapidly with an adequate organization.

The other level that we have been talking about is the ecosystem, and this is not an aspect of a subject the way ecology is. This is a human study itself. It is a whole new scientific level, like a molecule or an organism.

An ecosystem is a physical entity which can be studied. And I think it is fair to say that in all of the developed countries the functioning of ecosystems has become a matter of national concern in terms of the environment; certainly the semipopular literature of Russia is aware of the problem; they are concerned with water pollution, air pollution, and the destruction of environments. And it has become very evident now that man has become so ubiquitous that he is influencing all natural systems whether he knows it or not. The tragedy is that we do not understand natural systems.

If we put together what we do know or think we know, we produce models that in fact don't operate.

So there is an awful lot that we know we don't know. And these are primarily concerned with the checks and balances in natural systems that allow them to persist. We move into these and the systems are changing. We can see them change, but we don't know how far they are going to go on changing; we don't know what we could do to bring them back where they were if we wanted to, or how to control their change in the future.

It is for these reasons that we need these very intensive analyses of whole ecological systems.

Now, included in these we will have to have natural systems—quote, "less disturbed ones," to find out as best we can how the whole process of evolution solved these problems and then also study some that we could upset pretty badly to see what we have been doing to them.

Mr. DADDARIO. Natural systems less disturbed so you can develop an understanding about the nature of the change because the change is less in certain places than others? Is that the reason?

Dr. SMITH. Well, certainly some regions of the earth are far more disturbed than others. If we study a spectrum of these we can get a better understanding of what man has done.