

Congress, the Federal agencies, State and local governments are all seeking advice and they are getting mixed signals.

Mr. DADDARIO. Maybe he was just trying to stir people up, that is all.

Dr. CANTLON. He succeeded.

Chairman MILLER. Doctor, how are you going to do this when scientists themselves or people who are accepted in a discipline make mistakes, or make statements that you would expect a layman to make. I am a layman. During the war when food was scarce there was great pressure on us to increase the amount of fish that could be taken off the Pacific Coast and no less than a dean at the now University of California, at Davis—then the farm school—made a very dogmatic statement that you could produce so much food per acre on lands, you could produce so much food out of each acre of the ocean.

Do you agree with that?

Dr. CANTLON. It depends on the piece of ocean.

Chairman MILLER. That is it, but he didn't say that. It was just so many millions of acres of ocean and what we could take out of it. He knew more about that than perhaps a good fisherman.

Dr. COLE. This is why we are trying to tell you to come to the ecologists for advice.

Mr. DADDARIO. That is the point. We would like to know what the prescription is, rather than the warning about these things. How do we put it all in place? Do we have enough ecologists, and education? What is the program? What do you suggest?

Dr. CANTLON. Let me move ahead then since you are already aware of the need for improvement.

First of all let us look at public education, it is here I think we have to start. It is worthwhile noting that every State to my knowledge, requires that every student in the public schools be required to take a course that tells him how his Government works. These are courses in civics, American Government, or whatever. Most public school curricula also require, for example, either in physical education, hygiene, or other courses, instruction in how his own body works. These are essential things, but to my knowledge there isn't a single State in these United States that requires a course that instructs the student in how the systems that sustain him work—not one State. This is a rather remarkable thing, a glaring gap in a modern urbanite's education.

Now currently there is in operation around the country some attempts to instill a sort of conservation ecology in the grade schools and there are various kinds of training programs in this regard. While I think these are rather useful, I think that we may in fact be making another rather serious blunder.

If we are going to communicate to the urban dominated population of this country at the moment, we have to give him a systems view of his world and give him some comprehension of how this "complex machine" works that gives him his food and his water and removes his wastes. He doesn't get that. You can't give it to him by taking him out and showing him a beautiful, pristine brook or lake or waterfall or a forest. He has to learn it in terms of the system he knows, which is his home. There is no reason in the world why you couldn't instill a fairly adequate systems knowledge in a youngster in terms of how his home works, considering what it takes to sustain it. How much watershed, how much agricultural land, how much energy, transportation, oxygen, and so forth.