

not at all. It is the universities', the science community's operating arm in atmospheric research. Nevertheless, there will be \$12 million next year of NSF funds devoted to its program; that is, to supporting its research and providing much of its personnel.

Mr. DADDARIO. Do you include industrial participation in research activities because problems of pollution have their origin in industry? You don't mean to limit this Research Center to just the academic community, I would hope?

Dr. DEEVEY. No.

Mr. DADDARIO. I would hope that you in fact have strong participation by the industrial community because they are not only tremendously concerned, but consumer goods can be produced which can then motivate a great deal of other activity.

Then this is again a management question. How do you feel about it?

Dr. DEEVEY. The instrumentalities for managing large research schemes of this sort are still being developed, just as the idea of the consortium as a managerial device is undergoing rapid evolution. We, at this table, I am sure, do not pretend to be expert in managerial science. That is the kind of "ecology of ecologists" that goes well beyond our competence, but we are willing to help. We simply have some germ of an idea that an adequate managerial science can be developed *pari passu* with the breathtakingly large-scale, high-quality research on environment, because it must.

Dr. DARRARIO. Gentleman, we have to go to answer a quorum call.

I certainly appreciate your coming here and your cooperation. We have learned a great deal this morning.

(The prepared statement of Dr. Edward S. Deevey follows:)

(PREPARED STATEMENT OF DR. EDWARD S. DEEVEY, HEAD, ENVIRONMENTAL AND SYSTEMATIC BIOLOGY SECTION, DIVISION OF BIOLOGICAL AND MEDICAL SCIENCES, NATIONAL SCIENCE FOUNDATION:)

Mr. Chairman and Members of the Subcommittee. I am Edward Deevey, Head of Environmental and Systematic Biology Section, National Science Foundation and am on leave of absence as Professor of Biology, Yale University. I am deeply honored by the invitation to speak to this subcommittee on the status of ecology as a science and as a profession. Although I am temporarily on official duty, I have been an ecologist for over thirty-five years and expect soon to return to academic life.

To establish what kind of ecologist I am, I have practiced limnology and paleolimnology—the study of lakes and the history of environment as recorded in lake mud—and I believe the term *historical ecology* best describes my long-term interests. Although I have not checked the history of the word, I suspect that I was the first to use the word *eutrophication* in English. I did not invent it. My science was mainly written in German when I was a student, in my doctoral thesis I simply translated *Eutrophierung*, something that seemed very academic at the time. I mention these points of reference, because ecology is rather hard to define, and a forest ecologist or a population biologist or an environmental physiologist would probably give you a slightly different perspective on his kind of ecology. But only slightly different, for ecology is concerned with complex living systems, and forests, populations, and lakes can all be thought of as living systems. Having mentioned *eutrophication*, however, I trust I shall not have occasion again this morning to use a word longer than four syllables.

Let me first try to define ecology. It is the study of life in environment. So much that is specifically human—sociology, social psychology, urban ecology, etc.—is included within this definition, and so much that is also called "environmental science" might also be included, that I hasten to draw more narrowly the limits of competence usually drawn by those who call themselves ecologists. As biologists