

infinite variability of that estuary and possibly get 50 different species with a little more effort? It is not quite as economical. But how much more productivity? We don't know. Here is an ideal area for investigation.

Mr. DADDARIO. Mr. Brown.

Mr. BROWN. Mr. Chairman, I am being somewhat of a devil's advocate.

Mr. DADDARIO. You are doing a good job at it.

Dr. RAY. He sure is.

Mr. BROWN. Because I sense in the witness a nostalgia of the old days in which man and nature are in balance and everything right with the world. By pointing out from the standpoint of science that we could live in a completely artificial environment in which we synthesized our food, our shelter, destroyed all living objects and, as far as man is concerned, we might have a happy life. You could probably argue with that point. To determine that there is some natural balance as you seem to be hinting at is a highly philosophical question.

I am also bothered by the fact that the things you are pointing to as being wrong with our environment today is already exclusively the creation of science. The burning of fossil fuels, as an example, is a result of the tremendous technology created on the basis of the physical sciences.

Now what is science going to do? You are saying, I gather, to go back to some more natural state of mankind. I am asking you to consider what values you are using to set these goals so that we may weigh them in connection with other values in analyzing the situation.

Dr. RAY. I think we have one fundamental difference of opinion, perhaps, and that is science did not create these problems. Technology did. There is a vast difference between science and technology—the personnel who work in it, the training methods, and many other things.

Mr. BROWN. You are trying to do like the nuclear scientists. We created the bomb, but we are not responsible for its use, is that right?

Dr. RAY. No, I wouldn't go so far as to say that. I think all of us are united by the fact that we should have some responsibility as human beings. However, beyond that, as a scientist, the field of science is regulated by somewhat different rules in the field of technology. And I think the confusion between science and technology has been at least one of the stumbling blocks in solving problems. It is another thing we might think of tackling.

You do indeed detect a nostalgia. Not that all was ever right with the world, it seems to have changed too fast for that, but there are several biological things that appear to be pretty basic: variety, change. Human beings like to change things to suit their convenience and need and thence to standardize, to put walls around them, to get the status quo and keep it there. I think that the biology of change and standardization is subject to scientific enquiry; what kind of effect are we dealing with when we change the biota and change people in relationship to it? These are things that can be assessed biologically.