

practice. It seems to me too that, while the public health aspects are important, they have been allowed to dominate. Dr. Wolman says this in this way—he says it is not unlikely that aquatic organs and fish would be harmed long before humans. Or, putting it in another way the psychological distress of filth around us, including noise—which Dr. Tukey mentioned—may be more severe than the physiological stress.

In other words, to put it in my terms, we might go nuts before we got physically sick.

And, then there is finally this very difficult question of the need for market appraisals of environmental quality including esthetics. This is very difficult. And, governmental bodies at whatever level, have not given much recognition to this. In the condemnation of land for highways for example, if the highway doesn't happen to go right through your home, but if it wrecks the view and your peace and quiet, by going along the edge of it, there is very seldom compensation for the esthetic devaluation of the property. So, we haven't begun to approach this.

Dr. Tukey made a very important point in his comments which can be generalized a little more. The preservation of human rights is not subject to market appraisal and as has been said by some, a clean environment, a luxury now perhaps, will become a human right in the future. Education was a luxury some years ago. It is a right today. And so as Dr. Tukey said this is not really subject to market appraisal. Well, the question is how do we go about it? Are there any practical ways we can go about this, and what I am going to say are just two pragmatic suggestions, but they may be two of many ways in which we might approach, get some data on these extremely difficult, less tangible questions. It has been remarked that legislation is directed to abatement *after occurrence* and not toward *prevention* of pollution. I think that has generally been true in the past. We have got to get away from that. It is also certainly true that the research and technology in the past has been directed to *treatment* after occurrence and not *prevention* in general.

Well, there are two things that I can suggest because I believe that your committee wanted to carve out some specific areas where something could really be done in science and technology.

One of the most important points is that up to the present time in all this discussion of pollution there isn't a clearly defined goal. There isn't an exciting goal. You talk about not being able to get workers into the field. You get workers into a field where they can see where they are going, not where there is a diffuse kind of an aim. We need to sharpen our goal.

Now, when I say what the goal should be, I do not mean that we shouldn't continue to work on the basis that has gone on in the past, which is really on a crisis basis from day to day, but we need as well to have a long-term goal to work toward, on a noncrises basis toward an ultimate solution. I believe that the only goal of this kind is to aim toward recycling rather than the so-called consuming and throwing away.

I think that a well defined goal is very important. For instance, in astronautics, if we had merely said we wanted to do science in