

those that have demonstrably bad effects on people at large. The importance of biological variability in sensitivity has long been clear in so many instances that we shall have to plan to allow for it everywhere where we are concerned with pollution.

There are, of course, exceptions where we already know enough to identify important sensitive groups, as in the production of methemoglobinemia in infants when drinking water contains too many nitrates (see p. 180 of the PSAC report.).

In speaking of an "illness equivalent" of environmental contaminants, we must be very careful as to how we evaluate "illness." The clinical concept is clearly inadequate for many of our environmental problems. How sick is a man who is continually bombarded by unnecessary noise? Physiological and performance tests will uncover some degradation of his performance, but they will probably grossly undervalue what such noise has done to the quality of his life. We can begin and make some useful progress with "illness equivalents" of pollution, but it will be important to keep the deficiencies of such a yardstick clearly in mind.

Question 48 from paragraph E(3) :

Is area industrial development distorted by a preference for clean industries over presently known or potential polluting industries?

I would be much more concerned over distortions of environmental quality caused by fears of displacement of industry to other competitive areas when I would about distortion of area industrial development by preferences for clean industries.

Question 49 from paragraph E(4) :

To what extent should zoning or selected industrial location with respect to population be used to decrease the need for effluent treatment?

The use of zoning in pollution is essential. The establishment of zones will have to be guided by differences in physical situation, differences in biological exposure, and by differences from place to place in the human purposes we want served. I would hate to see zoning regarded either as merely a means to decrease the need for effluent treatment or, at the other extreme, as only a means for setting extremely high standards almost everywhere. The purpose of pollution zoning should be to let us make a much better balance between broad public needs for a generally improved environment and the costs of extremely thorough treatment of many necessary effluents.

Mr. DADDARIO. Dr. Tukey, does that go back to one of your earlier references in which you refer to the development of a system of standards rather than a single standard? We ought not to be looking for zoning regulations which are stiff but rather those which would have some flexibility, depending upon our knowledge of the various standards and the goals that we were shooting for.

Dr. TUKEY. I think I might go a little further with that. I have prepared some comments on some of the other questions that I did not mean to read here. Let me pass on to one of those.

Mr. DADDARIO. Fine.

Dr. TUKEY. This was a very incomplete answer to question 46, the second question of E(1) about—

How can the training and equipping of local officials be coordinated with industrial pollution control personnel?