

Clean Air Misunderstanding

Of the many types of pollution that are now befouling our environment, pollution of the air seems somehow the most menacing. As it spreads to all parts of our country, whether urban or rural, each one of us will be faced with continual exposure to a hazard that is as impossible to avoid as it is to avoid breathing.

There is a solution to the air-pollution problem: replace all fossil-fueled power plants in the country with nuclear plants. Moving as rapidly as possible to nuclear power is the most important single action that can be taken at this point to clear up the air we all have to breathe. The three major sources of air pollution nationwide are conventional power plants, automobiles and home heating plants. Nuclear power plants could help eliminate all three of these sources — by replacing the fossil-fueled plants and supplying enough extra electricity to power electric autos and heat most homes.

How ironic it is, then, to find that the plans of electric utilities to construct nuclear power-generating plants are now coming under increasing attack from various sectors of the public on the grounds that such plants would be hazards to the local populations.

The situation is especially ironic because the nuclear power plant is the first major technological development for which there has been a thorough and responsible effort to assess potential harm to the environment or people. As a result of more than 20 years of intensive investigations, we now know much more about the effects of low levels of radioactivity on the environment than we know about the effects of, say, chemical pollutants released in the smoke from coal plants.

It is most distressing then at this time to see city councils (see page 36) and state legislatures considering legislation to ban forever the construction of nuclear stations. It does not seem to be so much that the public doesn't understand the reasons that utilities give

for wanting to build nuclear plants. The real problem is that too many of the public simply do not believe the experts when they testify about the safety of power reactors.

As Walter Jordan points out (page 32) most people who have a thorough knowledge about the facts in this field would agree that the experts are correct in asserting that (1) the risks to a local population from an accidental power excursion, given the quite conservative design of the modern nuclear plant, are smaller than risks already presented by existing technologies, and (2) that the release of radioactive material to the environment during routine operation of a nuclear plant is easily monitored and held to levels far below the natural background level. (The problem of "thermal pollution," which is a problem for both nuclear and fossil-fueled plants, is largely a problem of economics — providing a heat sink large enough that the temperature of the sink, in the case of a natural river or lake, is not drastically changed.)

Why does the public refuse to believe such explanations? Perhaps the distrust we see here is simply one example of the more general suspicion and rejection of science and technology that seems to be taking place. Also, there is a long-standing suspicion about the atomic energy field on the part of the public, because of its connection with the atomic bomb.

But it is certainly clear that part of the reason for the public mistrust, and perhaps even the major reason for the current uproar, is that scientists in our midst have too often been less than fully responsible in statements and claims they have made in public.

In the most recent example, John Gofman and Arthur Tamplin have attracted widespread attention from public media by their claims that the AEC's allowable dose to the general population from industrial sources of radiation (including power reactors)

is unsafe and should be reduced by a factor of ten. Their specific claim, that if the entire US population were exposed to the AEC's allowable annual dose (0.17 rad) 32 000 additional cases of cancer each year would result, is obtained by extrapolating from data at much higher doses.

Most radiation-effects authorities believe that the assumptions made by Gofman and Tamplin are unnecessarily pessimistic and that their methods of analysis and their resulting claims are highly questionable.

Even so, there is no question that individual scientists have a right to challenge agencies like the AEC over matters like allowable doses. But what too often happens in such debates is that the challengers fail to place their points of disagreement in proper perspective before the public. In this instance, although Gofman and Tamplin protest that they are not "anti"-nuclear energy, their testimony before the Joint Committee on Atomic Energy and elsewhere has failed to make clear to the public that:

- Power reactors now routinely operate at two orders of magnitude below the 0.17-rad level, and no one has been able to suggest how any future nuclear energy-producing system could ever lead to population doses this high.

- The 0.17-rad dose itself corresponds only to about what the general public already receives annually from natural sources and also from medical x rays, and no one has been able to produce evidence demonstrating that a case of serious injury or death has resulted from radiation from these sources at these levels.

But, most important, in their testimony Gofman and Tamplin failed to compare the hypothetical risks they are concerned about with the decidedly real benefits that nuclear energy can offer in doing away with the existing, quite unhypothetical hazards of air pollution.

—Harold L. Davis