

COMMENTS ON REACTOR SAFETY FROM LEADERS OF THE MANHATTAN PROJECT

In 1979, Los Alamos National Laboratory began interviewing scientists who were part of Project Y, the Los Alamos effort to produce the first atomic weapons. The interviews form the basis of the Laboratory's Historical Perspective Film Series. Excerpted here are comments from eight interviews, all apropos of the subject of this issue—reactor safety and the accident at Three Mile Island. The producer and interviewer for the films is the Laboratory's Mario Balibrera.

"No accident is beneficial. Three Mile Island was a tragedy. I think the report of the Kemeny Commission has been a very important contribution in trying to run down the real reasons for it. . . The equipment operated better than the people. If they'd left the plant alone, it appears that the accident probably never would have happened. . . No one was hurt and no one got an overdose of radiation, that is true, but it still was a tragedy in the sense that the people there had great psychological difficulties. For the next 10 or 20 years we are going to depend on nuclear energy in very considerable measure. . . I think we'll need the breeder, but not until after the turn of the century. . ."

Robert F. Bacher, Emeritus Professor of Physics
California Institute of Technology
Bacher directed the Experimental Physics Division and, later, the Bomb Physics Division of Project Y.

"Nuclear power is a necessity for all industrial countries. Safety, of course, is tremendously important, and we have to learn from our mistakes. In fact, I don't believe that one can improve safety without having some minor accidents because they will tell you what's wrong, what has to be improved. The Three Mile Island accident

was very unfortunate, but we can learn a great deal from it. . . Operators have to be much better trained. . . The controls have to be changed. . . Edward Teller has some other very important suggestions that I think should be incorporated. . . As for the waste, there are many ways to dispose of it, and I am happy that in the last few years, this has received much more attention than it did before. . . Sweden has, in fact, adopted a very reasonable plan. . ."

Hans A. Bethe, John Wendell Anderson
Professor of Physics
Cornell University
Nobel laureate Bethe was head of the Laboratory Theoretical Physics Division during the Manhattan Project.

"I'm not an activist, so in principle I'm not in favor of movements for anything. I think public opinion should be expressed through more knowledgeable channels than organized movements. On the other hand, I'm not a proponent of nuclear power. I think there are very real hazards in large-scale development of nuclear energy, the greatest being the matter of proliferation, which maybe we can't stop, anyhow, but I think it's so important that one should try to slow it down. I'm not antinuclear, but I'm not in favor of crash programs or rapid development. The hazards are real, and the thing has to be approached carefully. There are other hazards. . . than proliferation. . . Anything man makes has failed sometimes. . . There's Murphy's Law, which hasn't been repealed yet, as far as I know. The other hazard is waste disposal; there doesn't seem to be a good solution to that yet, so I think there are several reasons why one should use some caution, much as we need power. . ."

Edwin M. McMillan, former Director
Lawrence Berkeley Laboratory
Nobel laureate McMillan was a prominent participant in planning and recruiting for the Los Alamos Project.

"I'm astonished that so much attention—to the point of conflict and mass demonstrations—has gone on around a few reactors when there are 30,000 bombs which nobody seems to want to talk about. . . I find that a curious disparity. . . Three Mile Island was sloppily done. . . I hope there are more severe and sensible licensing and operational procedures in the future. . . I think there will be. My own view is that (the reactors) should be operated on a Federal basis, like airports. . ."

Philip Morrison, Institute Professor
Massachusetts Institute of Technology
Morrison was a group leader in experimental physics at Los Alamos from 1944 to 1946.

"All I can say about the antinukes is that I'm flabbergasted because here you have a technology which has a marvelous (safety) record compared to any other technology, whether it's steam engines, railroads, or airplanes. . . It's the safest so far, but the public imagination has been caught by it. The remarkable thing is that in spite of the mistakes made at Three Mile Island, nothing happened, except that the company lost millions of dollars and there was a great show (that was) wonderful for television and the newspapers. My own feeling is that if people don't want nuclear energy, they don't have to have it. . . We can shut down the nuclear plants, and about 10 to 15 years from now, when we miss them, all will not be lost: we can buy plants from France, from Japan, Germany, England. . . It'll cost us more but look at the pleasure we'll have had in not having nuclear energy. . ."

I. I. Rabi, Emeritus University Professor
Columbia University
Nobel laureate Rabi served as a consultant to the Los Alamos portion of the Manhattan Project.

"One of the major problems of nuclear power is to get the public to understand the

