It was commendable that scientists attempted to think through the social consequences of their work. It was commendable, but it was inadequate. It was inadequate because scientists alone decided to impose the moratorium and scientists alone decided to lift it. Yet the factors under consideration extend far beyond their technical competence. In fact they were making public policy. And they were making it in private.

The Asilomar conferees may have been making policy without broad public participation, but they were hardly making it in private. Sixteen reporters were taking down every word.

A very significant, and very troublesome, part of what promises to be a strong and enduring debate about public involvement in science is that no one is explicit about what public involvement means in a practical sense. That was apparent at the Senate hearing on Asilomar, which was one measure of how ill-defined the issues are.

A brief chronicle of events may be useful. It has been almost 2 years since members of the biomedical community first brought to public attention the potential hazards inherent in rapidly developing techniques for easily joining together genes in biologically functional combinations that do not naturally occur. By using a genetic element called a plasmid as a vehicle for linking genes in new combinations, it may be possible to produce hormones or enzymes or drugs that are currently difficult, or impossible, to synthesize. The potential benefits of the new technology for medicine and agriculture are great. But so is the potential, though hypothetical, risk. Plasmids can splice genes from viruses, for example, into bacteria. One could, therefore, incorporate an animal tumor virus in *Escherichia coli* which grow in the human gut. No one would want such a menacing hybrid to "escape" from the laboratory.

Scientists attending the 1973 Gordon Conference on Nucleic Acids became so alarmed by potential problems of the experiments that they instructed the meeting chairmen, Maxine Singer of NIH and Dieter Soll of Yale, to write to the presidents of the National Academy of Sciences and the Institute of Medicine about it. That letter, which suggested the establishment of a study committee, was published in *Science* (21 September 1973) and elsewhere.

Such a committee was established, with Paul Berg of Stanford University as its chairman, and, in the summer of 1974, it called for an international moratorium on those aspects of the gene combination experiments that were potentially threatening (*Science*, 26 July 1974). Their call for a temporary embargo was made at a full-dress press conference and was widely publicized. At that time, they also announced plans for the Asilomar conference at which scientists (and others) would evaluate the new technology and decide how to handle it.

The scientists who did all of this, did so out of a deep sense of social responsibility. They remembered the past, when scientists failed to alert the public to the possible consequences of their work, and they were determined not to repeat previous failures. And they believed that, by making their concerns public, they were inviting public scrutiny, encouraging public debate, and, in every sense, involving the public.

But now they seem to be in a no-win situation.

The Kennedy hearing (only one other member of the Senate health subcommittee showed up, and he stayed no more than 15 minutes) was set up in the form of a debate. Stanley Cohen of Stanford, who first developed the techniques for recombinant DNA, and Donald Brown of the Carnegie Institution of Washington, in Baltimore, were cast as being opposed to public involvement. Each of them was at Asilomar. Willard Gaylin, president of the Institute of Society, Ethics and the Life Sciences at Hastings-on-Hudson, New York, and Halsted Holman of Stanford, were introduced as advocates of the position that scientists cannot be left to act alone.

From the point of view of Cohen and Brown, the debate format was unfortunate. One observer declared the hearing a "disaster." Neither man *meant* to come out sounding anti-public, yet in the minds of most persons present at the event, they did. In part, that is because of what they said, but the debate format did serve to intensify their position.

In an interview a couple of weeks after the hearing, Cohen was adamant in saying that he had been misinterpreted, as had Brown. "The impression that prevailed at

Kennedy Has Rocky in to Talk

Senator Edward M. Kennedy (D–Mass.) had Vice President Nelson Rockefeller over to the Senate on 6 June for a brief, public "White House advisory conference." The subject of the meeting was the role of the new science and technology adviser to the President. The purpose was to give senators from three science-related committees a face-to-face meeting with Rockefeller, who has been the champion of the science adviser idea within the White House.

The meeting was thoroughly cordial, and Rockefeller extolled science and technology as the key to solving society's ills. He also cleared up some doubts by reassuring the senators that military research and development will indeed be within the purview of the new adviser.

Otherwise, the main significance of the meeting was that Kennedy, chairman of the science subcommittee of the Committee on Labor and Public Welfare, got the jump on Olin E. Teague (D–Tex.), chairman of the House Committee on Science and Technology. Rockefeller had already agreed to deliver the opening statement at Teague's hearings on the Administration bill creating the new science office. By having Rockefeller over on the eve of congressional hearings (scheduled for the week of 9 June), Kennedy got to him first. (Because it is almost unprecedented for a Vice President to be called to testify on Capitol Hill, care has been taken that neither of Rockefeller's appearances cast him as a witness.)

Passage of the White House bill creating the office of a science and technology adviser is likely to be swift, assuming neither house loads the measure with too much excess baggage. In the Senate, Kennedy's hardy perennial, S.32, will again be taken up along with the White House bill. S.32 contains a provision for a three-man science advisory panel as well as procedures to facilitate long-range planning and priority-setting in government science activities. In the House, Teague's National Science Policy and Organization Act of 1975, which, among other things, would create a cabinet-level Department of Research and Technology Operations, will be considered along with the Administration bill. But the Administration's science adviser measure may be handled separately in the interest of speed, says a staff man.

No one seems to have any idea who President Ford wants for the new post. But it is pretty clear that H. Guyford Stever, head of the National Science Foundation, is out of the running. Rockefeller said at the 6 June meeting that the two jobs were too much for one man, and there has been no hint that Stever would be called away from the NSF.—C.H.