into projects already under construction. "Everybody recognizes that Teller more than anyone else contributed ideas at every stage of the H-bomb program, and this fact should never be obscured," writes Bethe. However, as a journalistic profile of the period put it, "nine out of ten of Teller's ideas are useless. He needs men with more judgment, even if they be less gifted, to select the tenth idea which often is a stroke of genius."

Bethe's account adds up to a recasting of cold war history. The key issue in the 1954 inquiry was whether pure political pressure had slowed work on the super, although Oppenheimer was charged with additional indiscretions. As Teller told the inquiry: "If it is a question of wisdom and judgment, as demonstrated by actions since 1945, then I would say one would be wiser not to grant clearance."

What Bethe's revision of H-bomb history makes understandable is why atomic scientists of the inner circle often hold Teller in such contempt. In 1954, the laws of classification made it impossible for them to come to Oppenheimer's defense in public, to explain the technical reasons for a cautious approach to the super. They were barred from revealing the blind alleys, the mistaken calculations. Bethe tried, and his attempt was promptly seen as a potential breach of security, one that might jeopardize the U.S. lead in atomic weapons. After all, designs based on Teller's faulty calculations were among the H-bomb secrets that had been stolen by the Soviets. Why untangle the mess in public? Such restraint, moreover, may have been wise in some ways. The Soviets did not detonate an H-bomb built on the Teller-Ulam principle until late 1955, more than a year after the Oppenheimer inquiry and 3 years after the first such U.S. detonation (*5*). It has long been known that Oppenheimer urged a slow approach to the super. Bethe's account now reveals the extent to which Oppenheimer's opposition to a crash program was based on technical as well as political reasons. But in the fanaticism of the McCarthy era, any opposition was enough to ensure his demise.—**WILLIAM J. BROAD**

References

1. P. Goodchild, *J. Robert Oppenheimer: Shatterer of Worlds* (Houghton Mifflin, Boston, 1981).
2. R. G. Hewlett and F. Duncan, *Atomic Shield 1947–1952* (Pennsylvania State Univ. Press, University Park, 1969), p. 440.
3. A. DeVolpi *et al.*, *Born Secret: The H-bomb, the Progressive Case, and National Security* (Pergamon, New York, 1981), pp. 82–109.
4. R. G. Hewlett and F. Duncan, *Atomic Shield 1947–1952* (Pennsylvania State Univ. Press, University Park, 1969), pp. 569–570.
5. H. F. York, *The Advisors: Oppenheimer, Teller, and the Superbomb* (Freeman, San Francisco, 1976), pp. 98–99.

Deaths Halt Interferon Trials in France

Paris. The French government announced last week that it was halting a broad program of clinical trials of human interferon in public hospitals, following the deaths of four cancer patients who were being treated with the drug as part of an investigation of its potential antitumor properties. The patients died of heart attacks.

The suspension of the trials is the second setback within a few months for an ambitious program to test the potential effectiveness of human interferon, launched by the Ministry of Health in December 1980. Last June, production of alpha interferon by the company L'Institut Pasteur Productions (IPP), a subsidiary of the Sanofi/Elf-Aquitaine group, was suspended after delays in getting the clinical trials off the ground had led to a much smaller demand for interferon than initially anticipated.

The trials are being organized by a scientific committee which has now decided that they should not proceed until the reasons for the deaths of the patients, each of whom was suffering from an advanced form of cancer, are known in more detail. In particular, tests are being carried out by IPP to discover whether the toxic effects were the result of the interferon itself, or whether they were caused by impurities in the blood samples from which the interferon was taken.

IPP, which is producing the interferon in collaboration with the National Center for Blood Transfusion, is now expected to carry out additional purification of the 50 billion units it has been holding in stock since production was halted in June.

Meanwhile, the deaths of the four patients have helped stir a growing debate over whether it is ethical to permit experimentation on human subjects on such a large scale before more detailed information is known about the therapeutic action of interferon and its toxic side effects. In addition, there are concerns that hospitals may have been using unregistered batches of interferon offered by foreign companies for experimental use, a practice which, if confirmed, raises yet more ethical questions since questionable financial dealings may also have been involved. Under the terms of the government-sponsored trials, clinicians who carried out experiments with cancer patients according to an approved protocol were reimbursed for the full costs of the interferon that they had used.

American researchers have not observed heart attack problems with cancer patients in interferon trials, according to Robert Oldham, director of the National Cancer Institute's program overseeing clinical trials with interferon. Interferon supplies for these studies are domestically produced. Oldham said that interferon can produce a high fever in some patients. This effect, he said, could harm a patient with a history of severe heart problems.—**DAVID DICKSON**

DOE to Gut Solar and Conservation Programs

The Department of Energy is considering a fiscal year 1984 budget that would virtually eliminate all its energy conservation programs and slash the current solar energy budget by two-thirds.

According to internal documents, the department plans to cut the present energy conservation budget of $384 million to $51 million. The proposal would terminate nearly all projects, but create one new program in basic research, allotting it $48 million. Programs that would not survive include research and information projects in energy efficiency. The department also wants to phase out all grants to state and local governments at a time when they are being squeezed by other federal cutbacks.

The solar energy budget would be reduced from its current appropriation of $268 million to $87 million. The biggest cut would hit the solar thermal energy program, reducing it from $78 million to $22 million.

The Reagan Administration has consistently tried to cut these programs drastically, but Congress has restored the funds each year. Nevertheless, the Administration seems determined to keep trying.

—**MARJORIE SUN**

0036-8075/82/1119-0772$01.00/0