revivalists was the Belgian Marxist Ernest Mandel, who points out wryly that he was virtually alone in predicting an imminent slump in Western economies in the late 1960's, at a time when most economists were preoccupied with the implications of continuous growth.

Yet just as the theory of long waves has now generated its non-Marxist supporters in Europe (the French government, for example, has recently started collecting statistical data on the new innovations with the idea that this should form an integral part of its economic planning), so in the United States Rosenberg finds that "Americans are becoming increasingly interested in these ideas." One of the most unexpectedly crowded sessions at last December's annual meeting of the American Economics Association in New York was devoted to a discussion of Kondratiev's ideas and their contemporary relevance. According to Edwin Mansfield of the University of Pennsylvania, much of the U.S. interest is coming from business rather than academic economists. Mansfield describes himself as an "agnostic" on the validity of the theory of long waves.

Freeman's proposal for a technology policy that uses substantial government intervention in order to stimulate rapid technological innovation while, at the same time, taking conscious steps to maintain a high level of employment, is an alternative to Reaganomics that could be easily molded to provide a platform for next year's presidential elections.

As in Europe, the search for political solutions to economic conditions is beginning to stimulate a full-scale Kondratiev revival, which might itself show that, as Mandel has pointed out, almost 50 years after the publication of Schumpeter's major work on technical innovation and business cycles, interest in long waves has itself become a cyclical phenomenon.—**DAVID DICKSON**

Weapons Proposal Stirs Disquiet at Stanford

Some 300 faculty and staff members at SLAC have objected to a proposal for weapons-related work at the synchrotron radiation lab

A proposal to conduct weapons-related research at the Stanford Synchrotron Radiation Laboratory (SSRL) has stirred up a lively dispute in the high energy physics community at the university. Some 15 faculty and 280 staff members at the Stanford Linear Accelerator Center (SLAC) have signed letters and petitions objecting to the proposal, which is now under consideration by a peer review committee and by the Department of Energy's (DOE's) weapons program.

The proposal, which has been put together by scientists from the University of California, the Lawrence Livermore National Laboratory, the Los Alamos National Laboratory, and Sandia National Laboratory, involves basic physics; only a small fraction of the research would be directly related to weapons development, and none of it would be classified. In essence, the university scientists—whose part of the proposal is not related to weapons—are hoping to tap into the weapons program for support of fundamental research, a connection that could become more common as the military R & D budget continues to grow.

The proposal involves the construction of two new beam lines at SSRL to conduct research over a broad spectrum of ultraviolet and x-ray energies. A detailed description submitted to Stanford last December makes no direct reference to weapons-related work but lists a large number of basic research experiments. A proposal for funding sent to DOE, however, emphasizes the relevance of the research to the weapons program. Part of the work, for example, would involve the calibration of instruments for use in weapons tests to provide data for new warhead designs. "In the future," the DOE submission states, "laboratory experiments in which weapons conditions are simulated will be possible, and will likely require new and unique diagnostics systems." In other words, the proposed experiments at SSRL could help provide the basis for laboratory simulations of nuclear explosions if underground testing is ever prohibited.

> The proposal would enable academic scientists to tap into the weapons budget for basic research.

The plan is that DOE would contribute $5 million to construct the beam lines and the University of California would put up $1 million. Once the facilities are complete, however, experimental time would be divided equally between the university and the national labs. Thus, for a relatively modest investment the university would get a lot of time on the machine. The university has already approved the expenditure, but DOE's share of the funds were not included in the fiscal year 1984 budget request. According to Lloyd Multhauf of Lawrence Livermore, a principal investigator in the national labs group, DOE has not shut the door on funding; negotiations are still going ahead to channel some money into the project. First, however, the proposal must win approval from SSRL and that may be difficult.

An outside peer review committee has already conducted a preliminary look at the proposal and has asked for more information on several points. Ultimately, it will give its opinion on the scientific merits of the work to SSRL director Arthur Bienenstock, who will make the final decision. Bienenstock says that one other group has submitted a proposal to construct a beam line at the site proposed by the University of California–national labs team. Opposition from SLAC employees could be a factor in the final choice.

Although SSRL and SLAC are administratively separate, they physically joined. SSRL sits around SLAC's storage ring and obtains its synchrotron radiation from it. Thus SLAC provides the basic energy for all SSRL experiments.

Soon after the proposal was submitted to SSRL in December, a group of 15 faculty members at SLAC jointly drafted a letter to Stanford's University Committee on Research, expressing disquiet at the fact that if the work were approved, SLAC would be a participant in weapons research. The committee met with Bienenstock and SLAC director Wolfgang Panofsky last month to discuss the issue.

Shortly before the meeting, Mary James, an engineering physicist at SLAC, circulated a petition among

SLAC staff members expressing opposition to the proposal. James says she wanted Panofsky to go to the meeting with a sense of the staff's feelings, and managed to collect 280 signatures in just 4 days. The committee essentially left the final decision up to Bienenstock.

Gregory Loew, deputy director of the technical division at SLAC and one of the signatories of the faculty letter, says that the disquiet at SLAC stemmed from the feeling that the proposal represents a departure from SLAC's basic mission of research in high energy physics. He also noted that it would hurt SLAC's outside image. "We have a tremendous number of visitors, and people invariably ask whether we are building bombs. In the past, we have always been in a position to say absolutely not, but if this work were to be done here, we couldn't answer in a straightforward way." James says she is concerned because her work in maintaining the electron beam at SLAC makes her in a sense a participant in all the SSRL experiments. She says she would feel very uncomfortable participating in weapons-related work.

This dispute puts Bienenstock in a difficult position. Like many who signed the letters and petitions, he says "I myself do not want to do weapons research unless there is a national emergency. But I don't want to use my position as director of a national lab to force my political views on anybody else."

Bienenstock notes that, apart from the opposition at SLAC to the weapons-related work, the proposal does present one major problem. In the past when outside groups have financed beam lines at SSRL, the university has insisted that one-third of the experimental time on the line be allocated to SSRL researchers. This proposal would allocate 100 percent of the time to the outside researchers, however.

Asked whether the proposal could be submitted elsewhere if SSRL turns it down, Lloyd Multhauf says that the only alternative is the National Synchrotron Light Source under construction at Brookhaven. A shift to an East Coast facility would, however, present obvious logistical problems and probably preclude participation from the University of California. "We could not afford the travel costs. It would obviously not be feasible," says George Gruner, a physicist at the University of California at Los Angeles who helped prepare the proposal.

Gruner says that if the proposal falls through, the university's part of it—which does not involve any weapons-related work—would be dropped. "It is obvious that we are not going to get support for $6 million from the University of California system," to build a beam line, he noted. Asked whether the university scientists were trying to tap into the military's expanding budget to support their work, he said, "I can't see any other combination of different institutions which could collaborate in getting a beam line." Gruner added, however, that "I can very much appreciate Stanford's position, and I don't think we should try to influence people in this controversy."—**COLIN NORMAN**

Fraud Inquiry Spreads Blame

In December 1981, the National Institutes of Health (NIH) appointed a panel of outside scientists to investigate allegations of data falsification in the cardiac research laboratory of the Harvard Medical School. The panel was asked to determine the extent of data falsification by a young researcher named John R. Darsee in an NIH-supported study on dogs (*Science*, 29 January 1982, p. 478). It was also asked to look into the supervisory procedures in the laboratory, which is run by Eugene Braunwald, one of the nation's most productive cardiologists.

The panel's report and subsequent NIH staff recommendations in the case were released as this issue of *Science* went to press. Among the recommendations are that Darsee, who is now working in upstate New York, be debarred from NIH funding for 10 years and that he be excluded from service on NIH peer review and advisory committees as well. And, because the panel found deficiencies in the way research was supervised in Braunwald's laboratory at the time of the fraud, the NIH has taken the extraordinary step of calling for an on-site review of supervisory practices and research procedures in approximately 1 year's time "to confirm the panel's impression that current laboratory procedures and supervision are adequate."

Harvard is not pleased. Braunwald's laboratory is located at the Brigham and Women's Hospital—a Harvard affiliate. In documents submitted to the NIH and released under provisions of the Freedom of Information Act, Braunwald took strong exception to the panel's view that his own numerous responsibilities kept him from maintaining sufficiently tight supervision of his laboratory. To support his contention that Darsee (and not the pressures of a high-powered lab) is solely responsible for the fabrication, Braunwald reported evidence of fraud in Darsee's previous research during training at Emory University. Although the NIH panel refused Braunwald's request that it investigate Darsee's Emory record, NIH now agrees that such an investigation is warranted in the near future.

With respect to procedures for reporting serious allegations of data falsification, the NIH panel, headed by Howard E. Morgan of the Pennsylvania State University College of Medicine at Hershey, has called for a policy of informing collaborators in ongoing research projects, coauthors of all papers—published or in press—and funding agencies. Acting on the belief that Darsee had committed but a single foolish act, Braunwald and other Harvard officials elected not to notify others when Darsee was first caught in the spring of 1981. NIH senior staff who reviewed the panel's report wrote that the "desire to be fair to Dr. Darsee and to ensure due process is commendable, but the fact remains that a large and costly study of great importance for a major public health problem was irrevocably compromised because of the failure to inform [NIH and the coinvestigators]."

NIH is now negotiating with the Brigham and Women's Hospital for return of the $122,371 spent on the now useless study. Harvard's request that it be permitted to do the study over has been denied.

A policy encompassing strict procedures for responding to allegations of fraud is expected to be put in place at Harvard shortly. In June, the Association of American Medical Colleges called for such a policy for all research institutions (*Science*, 16 July, p. 226). The NIH review of the Darsee case and related issues will be discussed in detail in a subsequent article.—**BARBARA J. CULLITON**