would be negotiating detailed cost schedules and contracts with the participating countries. The Soviets alone are said to be considering a contribution of $15 million to Ting's project. Further, as Lederman puts it, "if the other groups found they couldn't pay their part, DOE would be faced with a crisis, having put up $20 million when the detector might need another $10 [million]." Lederman chuckles and calls these possibilities "delectable."

Some proponents of collaboration stress that work overseas is beneficial for U.S. programs, and not just in terms of scientific discovery. "It can take U.S. physicists out of the country and therefore lessen the pressure to build new machines," says Stanley G. Wojcicki, a physicist at Stanford who worked on a proposal for a LEP detector that was tentatively rejected by CERN. "Thus there will be more money left over to do experiments, to exploit American facilities that are already operating." It is also a truism that Nobel Prizes and other awards are won by individuals, rather than countries that take on the task of building huge machines.

So too, the risks and benefits of collaboration will eventually be shared as the pendulum starts to swing back to the United States. In the not too distant future, Fermilab will complete its next-generation machine, the Tevatron, and thereafter Stanford will build Richter's linear collider. Brookhaven also may eventually complete Isabelle or another machine based on a similar design. At Fermilab, Lederman says he already has proposals from about 200 Europeans for work on the Tevatron, which might start as early as 1985. In the past, he says, Europeans sometimes put in 20 percent of the work at Fermilab but for the Tevatron it will be closer to 25 percent. "It's becoming impossible for countries to build and run duplicate machines," says Lederman. "The ultimate solution might be a world laboratory."

The task before HEPAP and the Department of Energy is to decide whether the Ting proposal is scientifically sound and, if so, to debate the advisability of making a $20-million investment in Europe. Congress too might choose to enter the process. The record of successful minor collaborations over the past decade bodes well for a large-scale project. In the case of Ting's proposal, the migration of money and know-how would be sizable. Yet the scientific allure is considerable, and the project might mark a new era of cooperation at a time when such unquantifiable notions are seldom given a chance.—WILLIAM J. BROAD

Breeder Wins Exemption from Licensing Procedures

Persistence pays, the Administration has learned in its campaign to get an exemption from regular licensing procedures for work on the sodium-cooled fast breeder reactor to be built on the Clinch River in Tennessee. The plant is intended to be a low power (350 MWe) facility demonstrating the feasibility of a system that uses and produces the extremely long-lived radioactive fuel, plutonium. The Nuclear Regulatory Commission (NRC) had twice turned down the Department of Energy (DOE) when it asked for an exemption in March and June 1982. On the third try, on 5 August, the DOE got its way, winning permission to start construction before the plant has been licensed for safety.

The reversal came about because the newest Reagan appointee to the NRC, James Asselstine, changed his vote from nay to aye, allowing for a vote of 3 to 1 in favor of the Administration's request. Others voting in favor were Chairman Nunzio Palladino and Thomas Roberts, both Reagan appointees. Commissioner John Ahearne voted against the DOE request. Commissioner Victor Gilinsky, who has voted against it in the past, was absent because he missed a plane connection.

The victory for DOE and the backers of the breeder, important though it may be, is more symbolic than substantial. The Administration values it as a token of its new clout within the NRC and as an indication that the NRC may not balk at licensing the reactor when the technical hearings on its safety have been completed. Congress will vote later this year on appropriations for this project, whose cost is estimated to be over $3.5 billion, up from an original estimate in the early 1970's of around $700 million. Had the NRC denied the exemption for construction work, it would have given wavering congressmen a convenient reason for cutting the breeder from the budget. The skeptics might have argued that the Administration's own licensing authority, the NRC, could not be persuaded to endorse work on the breeder, so why should Congress go along? Now it will be impossible to find shelter in that procedural thicket, and congressmen will have to confront the issue more directly.

The exemption itself is narrow, allowing for preliminary work such as clearing the site and laying roadways and pipes. At the insistence of Asselstine, joined by Roberts, the NRC ruled out any early work on safety equipment, such as piping for emergency cooling water. The NRC decided that these would have to await consideration in licensing hearings.

The NRC staff and commissioners recognized the extraordinary nature of the exemption, and several commissioners said the technical justifications for granting it were slim. The decision was particularly awkward for the NRC in view of its desire to create an exemplary record in licensing the first breeder. Nevertheless, those who voted for it were swayed by the government's broad argument that the national interest was at stake. Palladino, in particular, suggested that it was not fitting for the NRC to stand in the way if the President has declared this a matter of national urgency and Congress has authorized funding.

Eldon Greenberg, attorney for the Natural Resources Defense Council and the Sierra Club, who tried to block the exemption, held a press conference after the vote to say the decision was "wrong on the law and wrong on the facts." He expects to file for an injunction to stop construction within a week.—***Eliot Marshall***

Stanford Patent Delayed

The United States Patent and Trademark Office has tentatively rejected claims for a genetic engineering patent sought by Stanford University. If the patent application is ultimately turned down, the worth of an earlier gene-splicing patent granted to Stanford and the University of California could be weakened. That patent has already yielded $1.4 million in licensing fees.

The first patent, issued in 1980, covers the method to replicate or express foreign genes in microorganisms. The second would place a claim on virtually all recombinant DNA plasmids which contain foreign genes.

On 2 August, the patent office gave notice that it challenged some of the claims made in the Stanford applica-

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