

to reforms in the pesticide law. NACA argues that federal testing requirements on pesticides subtract from a product's patent life.

The environmental coalition and NACA announced on 11 September that they had agreed in principle to changes in the law and characterized the agreement as a good first step toward writing specific legislation. The main provisions are as follows:

- It would set strict deadlines that force EPA to accelerate the review of hundreds of chemicals that are the active ingredients in 40,000 pesticides now sold. Congress told EPA 13 years ago to review these chemicals for their safety, but to date, the agency has analyzed less than a dozen of 600 active ingredients. Under the agreement, EPA would be given 2 years to analyze existing health and safety data on these chemicals. If the information is insufficient, pesticide companies would be required to conduct more tests within 4 to 5 years. Once EPA receives the new data, the agency would have 1 year to decide whether to reregister the chemical.

- In a significant concession, the pesticide manufacturers agreed in principle to pay a reregistration fee to help fund this review process.

- EPA's process to cancel the use of a particular pesticide that may pose significant health or environmental hazards would be compressed to 1 year. These special reviews are often protracted. It took EPA 7 years to ban ethylene dibromide, for example.

- The public would be given access to health and safety data about a pesticide before it is approved by EPA. Under current law, the information is available only after approval. Pesticide companies would also be required to give local communities access to information about what pesticides it makes, health and safety data, and where the chemical plants are located.

- Inert ingredients will be regulated for their safety, and companies will be required to list them on product labels.

- Companies would have to provide more information to countries importing pesticides that are not approved for use in the United States. They would have to inform the importing country if a product had been restricted and cancelled here and the reasons for the regulatory action.

One area that remains a potential

stumbling block is how to regulate groundwater contamination. Meyerhoff says, "If we don't reach agreement on groundwater, we would have to assess whether to go forward with the agreement." Industry favors a cost-benefit approach whereas Meyerhoff says regulatory action by EPA should be triggered solely by evidence that a groundwater pollutant poses a health risk.

There is still a long road ahead before a final bill is passed. The two groups have to hammer out the specific language of a draft pesticide bill. And they are awaiting reaction by the farm community and the Administration. EPA's reaction to the agreement is guarded. James Davis of EPA says that "we are encouraged they can agree. Most of the questions we have are whether we can keep the reregistration deadlines and if the industry fees will cover the resources we will need."

But for the moment, Luther Shaw, a NACA spokesman, said, "We're optimistic that we've got a pretty good crack at getting legislation through this Congress. We've established a process here [with the coalition] that's not confrontational."—MARJORIE SUN

Soviets Target Campuses for Intelligence Operations

The Soviet Union routinely tries to obtain militarily sensitive data from American universities and international scientific conferences, according to a report* released by the Department of Defense on 18 September. Many of these attempts are successful, the report states, with the result that "millions of rubles" are saved by the Soviet military research establishment.

Although this is hardly a new theme at the Defense Department, the report contains some fresh details. It is based in large part on purloined Soviet documents, in which various arms of the Soviet bureaucracy have discussed the fruits of their technological snooping. Written by the U.S. Technology Transfer Intelligence Commit-

* *Soviet Acquisition of Militarily Significant Western Technology: An Update*, available from the Public Correspondence Branch, Office of the Assistant Secretary of Defense for Public Affairs, Room 2E777, Pentagon, Washington, D.C. 20301-1400.

tee, which has representatives from 22 federal agencies and is directed by the Central Intelligence Agency, the report could figure prominently in future debates about government censorship of scientific information.

Specifically, it states that over 35 scientific conferences were identified by a group of senior Soviet industrialists in the late 1970's as potential sources of data on a wide range of military topics, including "missiles, engines, lasers, computers, marine technology, space, microelectronics, chemical engineering, radars, armaments, and optical communications." An international radar conference, for example, was identified as a potential source of information on electronic circuitry for air- and space-borne radars; a symposium on solar energy was identified as a potential source of information on coatings for military space vehicles; and a conference run by a branch of the Institute of Electrical and Electronics Engineers was identified as a potential source of information on low-altitude radars.

In addition, the Soviet Academy of Sciences and two other research groups are said to have targeted as many as 60 U.S. universities for both civilian and military intelligence-gathering efforts. The institutions cited most often by the Soviets are MIT, Carnegie-Mellon, Harvard, Michigan, Caltech, Princeton, Stanford, Cornell, Berkeley, and the Illinois Institute of Technology. Information was obtained from the academic community on a wide range of topics, the report states, including missiles and space systems, sonars, aerial photography, and lasers.

The stolen Soviet documents indicate that spying on American campuses may account for as much as one-fifth of their total effort, according to the report. But the information composed only 5 percent "of the technology judged most significant by the Soviets during the late 1970's and early 1980's." The report adds that there is a "rough correlation" between the number of military research needs identified by the Soviets and the number of visits to American universities by Soviet Bloc scientists with relevant expertise. "There is, however, little data indicating that specific scientists were tasked to acquire information for Soviet military research projects," the report says. ▶

Assistant Secretary of Defense Richard Perle, who fielded questions about the report, denied that its release was related to the November summit between President Reagan and Mikhail Gorbachev. Asked about the fact that virtually all of the information obtained by the Soviets was unclassified, Perle said that "far too much" scientific data are publicly available. But he acknowledged that a balance should be struck between the competing goals of restricting Soviet access and ensuring a free exchange within the U.S. scientific community. "We have moved in the direction of trying to persuade the scientific and technical community to exercise self-restraint," he said, "and only through an awareness of the fact that they are targets of hostile intelligence organizations can we expect them to take that self-responsibility seriously."

— R. JEFFREY SMITH

OTA Study Highlights Star Wars Difficulties

Ensuring the survival of most U.S. cities in the face of a concerted Soviet nuclear attack is infeasible, according to a new report by the Office of Technology Assessment (OTA). The 325-page report, released on 25 September after a 16-month investigation of President Reagan's "Star Wars" proposal, states that the difficulties of mounting such a city defense "can be overcome only if the attack is limited by restraints on the quantity and quality of the attacking forces." Fortunately, it suggests, the Reagan Administration recognizes this problem and has abandoned a perfect defense of cities as the program's primary goal.

Instead, the 5-year multibillion dollar research effort is now aimed merely at reducing the threat posed by Soviet ballistic missiles to both cities and military assets. The difficulty is that an appreciable dent is unlikely to be made in this threat without "negotiated deep reductions in offensive forces," the report states. In short, Soviet cooperation is needed, not only to make a comprehensive missile defense feasible but also to ensure that the strategic balance remains stable.

"Without such an agreement, as the United States and the Soviet Union

begin to deploy [ballistic missile defense], each might easily suspect the other of attempting to gain military advantage by seeking the ability to destroy most of the opponent's land-based missiles and then use defenses to keep retaliatory damage to a very low level"—a perfect recipe for a first-strike capability, the report states. "It is important to note, however, that no one has yet specified just how such an arms control agreement could be formulated."

A companion study, which focuses on antisatellite weapons, concludes that the existing Soviet ASAT poses only "a limited threat to U.S. military capabilities, but future space systems could pose a much greater threat." A ban on tests of space weapons would inhibit development of such systems, as well as "reduce the cost and complexity of ensuring a reasonable level of satellite survivability," but it would not eliminate all ASAT threats.

If the reaction of OTA's overseers is any indication, even these mild conclusions are likely to be controversial. Five of the 12 members who sit on the OTA congressional board voted not to release the "Star Wars" report, while 7 voted in favor of publication.

—R. JEFFREY SMITH

Magnets Chosen for Supercollider

Particle physicists have selected a high-field design for the magnets of the proposed superconducting supercollider, thereby fixing the size of the huge machine at a relatively modest 100 kilometers circumference and setting the stage for an eventual commitment of federal funds to its construction. Maury Tigner, director of the supercollider's Central Design Group at the Lawrence Berkeley Laboratory, announced the decision on 19 September.

If approved, the \$4 billion supercollider will accelerate beams of protons to 20-trillion electron volts and will smash them together head on, allowing physicists to study how elementary particles are built and how the fundamental forces are unified. The machine will also be the largest and most expensive scientific project in history, with a main ring that could

comfortably encircle a major city such as Washington, D.C., or New York.

The newly selected high-field magnets, known technically as the conductor-dominated type, represent an upgraded version of the design used at the first superconducting accelerator, the Tevatron at Fermilab. That base of operational experience weighed heavily in the choice: the high energy physics community still has vivid memories of the ISABELLE project at Brookhaven National Laboratory, in which magnet problems resulted in delays that ultimately proved fatal (*Science*, 20 May 1983, p. 809).

The only other serious contender was an innovative low-field design known as the superferric magnet, which did offer some cost advantages. However, the advantages were not as great as its developers had originally hoped. Moreover, the low field values would have required a main ring some 160 kilometers in circumference, thereby increasing the construction costs of the accelerator itself.

With the magnet selection completed, the Central Design Group is now moving towards its next major milestone: a detailed design proposal for the machine based on the high-field magnets, together with a more precise estimate of the project's cost. That proposal will be submitted to the Department of Energy in April 1986. After that the schedule calls for the selection of a site for the supercollider in December 1986—at least 20 states are preparing bids, so the competition promises to be hot—and the beginning of actual construction in October 1987.

However, the latter part of this schedule is hanging in a state of limbo at the moment. The supercollider has come under attack by scientists in other disciplines who are concerned that huge expenditures on the machine will cut into their own funding. Moreover, a construction start in October 1987 means that the Energy Department has to make an official commitment to the supercollider some time next year, before the fiscal year 1988 budget is prepared. Given the deficit situation, it is not at all clear that the department will be willing or able to take that step. In fact, some physicists in the project have begun to resign themselves to a delay of several years.—M. MITCHELL WALDROP