SCIENCE NEWS of the week

# Biological Warfare Facility Debated

The U.S. Army last week released a draft environmental impact statement (EIS) for its proposed construction of a controversial, state-of-the-art biological warfare research facility in Utah. The report concludes that there is "no cause for concern" that hazardous biological materials might be inadvertently released from the laboratory. Opponents immediately criticized the report as inadequate and threatened to sue the Army if it tries to go ahead with its plans for the $5.4 million "biological aerosol facility."

The Army's latest report is itself the result of a lawsuit it lost in 1985. In that case, initiated by the Foundation on Economic Trends, a Washington, D.C.-based public interest group, a U.S. District Court ruled that the Army's original environmental assessment did not sufficiently address the potential risks of operating such a facility (SN: 6/8/85, p.359). The tightly sealed lab, which the Army says is to be used for defensive research only, is designed to perform tests on highly toxic aerosols.

"This is a situation that's every bit as dangerous as a Three Mile Island or a Chernobyl," Jeremy Rifkin, president of the Foundation on Economic Trends, told SCIENCE NEWS. "Unless there's a radical change in their thinking between now and the final EIS, we will relitigate."

The Army plans to release its final environmental impact statement in August after public hearings are held near the government's Dugway Proving Ground, where the lab would be built. The site is about 70 miles from Salt Lake City and has long served as a center for chemical warfare research. According to the draft report, Dugway's arid climate, low winds and low population density make it an ideal site for the proposed facility.

According to Rifkin, however, "There's a whole range of really critical environmental questions that are not even dealt with in a perfunctory fashion." He says the EIS "doesn't deal at all with mass evacuation, mass quarantine or emergency medical treatment." An accidental release of nerve gas from the proving ground killed 6,000 sheep in 1968.

Kathy Whitaker, an Army spokesperson at Dugway, says the scope of the EIS is limited to a discussion of "reasonably foreseeable events." She notes that according to the Army report, the only significant risk at the new facility is of a worker becoming accidentally infected and leaving the lab. That risk would be minimal, the report concludes, since all workers would be immunized with appropriate vaccines before being allowed to work in the lab.

But critics of the facility note that it is being designed as a so-called BL4 laboratory — one capable of containing not only the "usual" biological warfare agents such as anthrax, tularemia, Q fever and encephalitis, but also newly developed, genetically engineered strains of bacteria and viruses for which vaccines or cures are virtually impossible to develop. Without such vaccines it is impossible to guarantee that workers won't become infected. Moreover, they say, the laboratory's sophisticated design suggests that not all the research may be for defensive purposes.

The United States is one of 113 nations, including the Soviet Union, that are bound by a 1972 convention prohibiting the development, production and stockpiling of biological weapons except for defensive purposes. According to the Army, the Dugway facility would be used only "to test the effectiveness of equipment and procedures that have been developed for defense against attack with biological materials." The report notes that although the facility is designed to handle newly developed, genetically engineered organisms, there are no plans to work with such microbes.

"It's a joke, really," says Neil Levitt, a researcher who worked for 17 years at the Army's Medical Research Institute of Infectious Diseases at Fort Detrick, Md., the Department of Defense's only operating BL4 facility. "There's no defense against these kinds of organisms. And if you can't defend against something, then why are we pouring more and more money into it? There's something else going on that we don't know about."

The Defense Department says it needs the new facility in part to develop biological sensors capable of detecting enemy germs. Others claim that the variety of bacteria that can today be genetically engineered make such detection impossible.

"If the research were really for defensive purposes, biological simulants would suffice," says Rifkin. "The only reason to use the actual pathogen is to gather data for offensive purposes."

"There are all kinds of questions involved in this work," says Levitt. "The big one is: Why?" — *R. Weiss*

## Enzyme inhibition key to Alzheimer's?

Some scientists have suggested that an abnormal gene codes for the overproduction of amyloid protein in patients with Alzheimer's disease. But the excessive amyloid deposition so characteristic of the disease may actually be the result of too little breakdown, rather than too much production, according to three independent studies reported this week.

Nearly two dozen scientists report in the Feb. 11 NATURE that a newly discovered protein precursor for Alzheimer-associated amyloid also contains a structure similar to known inhibitors of certain enzymes. Because these so-called serine protease enzymes are needed to digest proteins, their inhibition might lead to excessive protein accumulation in tissues — and perhaps to the amyloid deposition found in the brains of Alzheimer's patients, say the scientists.

Researchers at California Biotechnology, Inc., in Mountain View and at Mount Sinai School of Medicine in New York City screened a library of human-brain genetic material and found a gene that codes for the new amyloid precursor and its "inhibitor" insert. At the same time, two other groups — one at Asahi Chemical Industry Co. Ltd. in Shizuoka, Japan, and the other at Harvard Medical School and Children's Hospital in Boston and at the University of Massachusetts Medical Center in Worcester — discovered the gene in both normal and Alzheimer brain tissue.

The Massachusetts group also has isolated the gene on the chromosome linked to Down syndrome, another condition associated with amyloid deposition in the brain. Understanding the clinical implications of the new gene, however, will require more studies, say the scientists.

How abnormal amyloid deposition occurs and whether it is a cause or a result of Alzheimer's is controversial (SN: 9/19/87, p.181). Although Rachael L. Neve of Children's Hospital acknowledged in an interview that "the jury's still out" on the exact role of amyloid in Alzheimer's, she thinks it is not abnormal amyloid production involved, but something abnormal happening to the amyloid after it is produced. Since completing the reported study, she and her co-workers have made genetic probes that distinguish between the two forms of amyloid (with and without the built-in inhibitor), and have gotten what Neve calls "exciting" preliminary results on the distribution of different amyloids in tissues. — *D.D. Edwards*