OTA report raps Pentagon SDI study

Although "Star Wars" research has yielded some impressive achievements, major questions remain unanswered about the feasibility of such a ballistic missile defense system, says the congressional Office of Technology Assessment (OTA) in a report issued June 7. One subject given "little analysis" by the Pentagon is the threat of Soviet space-based antisatellite weapons that might attack the system. Defending against these weapons would necessitate a race for the military control of space, the report says.

The OTA warned that Soviet nuclear antisatellite missiles could pose a significant threat to the Strategic Defense Initiative (SDI), especially if the system came under attack before it was fully operational. The Soviets might choose also to respond to SDI satellites with orbiting antisatellite weapons that are less complex than the SDI satellites. This might require the United States to deploy its own antisatellite satellites first, driving a race to control specific regions of space, according to the report.

The possible implications of Soviet deployment of a ballistic missile defense similar to SDI have not even been examined, OTA says, but the assumption of the Defense Department's Strategic Defense Initiative Organization (SDIO) has been that the United States "could and would maintain a consistent lead over the Soviet Union" in SDI technology. Such a commitment would require the United States to replace the first phase of SDI deployment, costing $75 billion to $150 billion, "soon" after it is deployed, says OTA.

The effectiveness of many other potential countermeasures to SDI has not been sufficiently studied by the Pentagon, the report says, even though such studies are essential to understanding whether the SDI program can work.

Responding to the OTA report, the SDIO says its analyses and recent experiments indicate each stage of SDI "could operate effectively," even in the face of Soviet countermeasures such as direct attacks on the system.

The wisdom of building SDI will be a certain issue in the 1988 presidential campaign: George Bush supports the plan while Michael Dukakis said this week he would replace SDI with a "conventional defense initiative."

The OTA study, mandated by Congress two years ago, notes "there may always be irresolvable questions" about the dependability of the software that drives the ballistic missile defense (BMD) system. "In the OTA's judgment, there would be a significant probability . . . that the first (and presumably only) time the BMD system were used in a real war, it would suffer catastrophic failure."

The SDIO statement terms this the "most disappointing chapter" in the report, and says the OTA conclusions on this point are "primarily based on extrapolation from past experience as opposed to the potential of newer technologies becoming available." OTA Project Manager Thomas Karas responds that even though there were widespread opinions about SDI among the computer experts on the project panel, they all agreed no one should expect dramatic advances in software soon. "I would be very surprised if the SDIO could come up with some magical new techniques that weren't addressed in the [OTA report] appendix," he says.

The OTA and SDIO agreed on some points, such as the technical possibility of deploying a first phase of SDI between 1995 and 2000, and the impossibility of following such a deployment schedule if Congress continues to provide less money for SDI than the Pentagon asks.

The report released last week is a declassified version of one given Congress last August. The SDIO originally cleared 12 chapters for public release, says Karas, but the Pentagon then decided to withhold declassification on three chapters dealing with countermeasures to SDI. — *C. Vaughan*

Nix the bear with syphilis

A paleopathologist is offering a second opinion in the case of an Ice Age bear with syphilis. Scientists last year reported finding treponemes — the organisms that cause syphilis — on an 11,000-year-old bone from this bear discovered in Indiana (SN: 9/26/87, p.205). The find appeared to be the earliest known evidence of treponemal disease, which normally infects only primates.

Another scientist now contends the bear probably had contracted some fungal disease that normally infects wild animals and is known to have been rampant at the time. Reporting in the June 15 NATURE, Ellis Neiburger of the Lake County Museum in Waukegan, Ill., says the lesions on the vertebrae and limb bones are more consistent with such fungal diseases, which probably would not have killed the animal.

An immunologic test had previously located signs of treponemes on one bone from the bear. But Neiburger says these most likely represent contamination either from the ground, where the bones rested for thousands of years, or from one of the hundreds of people who have handled the bones. He also suggests that since the results of the immunologic test are based on only one sample, they may represent a false positive. Neiburger plans to conduct further tests to identify the disease that infected the bear. □

Drugs and suicide: Link to recent loss

The death of a spouse, rejection by a romantic partner, even eviction from an apartment can push someone with a serious alcohol or drug problem to suicide, according to a report in the June ARCHIVES OF GENERAL PSYCHIATRY.

Yet people with mood disorders such as severe depression — a group previously found to have an increased risk of suicide — are less likely than substance abusers to kill themselves shortly after these types of stressful events, say psychiatrist Charles L. Rich of the State University of New York in Stony Brook and his colleagues. Substance abusers, suggest the researchers, are more vulnerable to stress caused by "interpersonal losses and conflicts."

The data, based on 283 suicides in San Diego County, Calif., between 1981 and 1983, may not readily apply to all populations, notes psychiatrist George E. Murphy of Washington University School of Medicine in St. Louis. "Nevertheless, interpersonal loss is strongly confirmed as a major and immediate risk factor for suicide in substance abusers," he writes in an editorial following the report.

The researchers made posthumous diagnoses of substance abuse, as well as mood disorders, after interviews with a suicide victim's family, friends, employers and physicians. Other sources included hospital, school and police records.

Murphy and his colleagues had previously linked suicide in 20- to 30-year-olds to depression, alcohol abuse and drug abuse (SN: 10/11/86, p.228). The new analysis finds that 42 percent of the suicide victims in this age bracket who were substance abusers — either with or without a mood disorder — had undergone a stressful loss or conflict in the six weeks before taking their lives. In a group of suicides over the age of 30 with the same diagnoses, 38 percent suffered an interpersonal disturbance in their last six weeks.

The researchers found significantly fewer instances of recent loss or conflict among suicides of all ages with a mood disorder or depressive symptoms that did not add up to a diagnosis of "major depression."

Nearly 60 percent of all suicides were substance abusers, say the researchers, and 84 percent of those abused both alcohol and other drugs.

Clinicians should pay close attention to the suicidal thoughts of substance abusers and involve the patient's family and friends in treatment, Murphy says. A short stint in the hospital, he adds, "may be needed for a period of protection [after a recent loss] as well as for detoxification." — *B. Bower*