"Unequivocal" Evidence of Soviet Toxin Use

The State Department has declassified material in an attempt to generate international pressure on the Russians

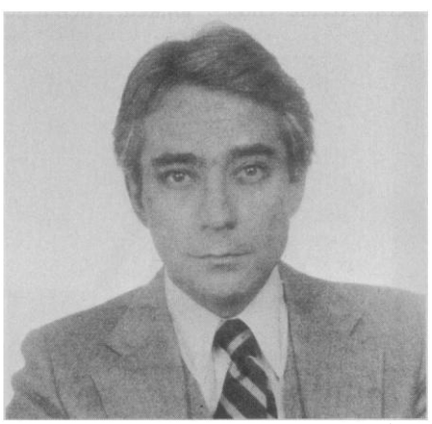
In an effort to persuade doubters that chemical and toxin weapons have been used in Southeast Asia and Afghanistan, the State Department has declassified a mass of supporting evidence. The 32-page report, made available on 22 March, still leaves many questions unanswered.

Nonetheless, Deputy Secretary of State Walter J. Stoessel, Jr., said the evidence is unequivocal that the governments in Laos, Kampuchea, and Afghanistan, with Soviet supervision and participation, are "flagrantly and repeatedly" violating international agreements, namely the Geneva Protocol of 1925 which prohibits the use of chemicals in warfare, and particularly the 1972 Convention on Biological and Toxin Weapons which bans the production, storage, and transfer as well as the use of biological agents.

Stoessel announced that Secretary of State Alexander Haig was delivering the report to the United Nations and all its members. "Only an alert and outspoken world community" can bring pressure to put a halt to the violations, said Stoessel.

The United States has been gathering evidence on suspected use of chemical agents, particularly in Laos, since 1975. Last September Haig announced that the United States had "firm evidence of utilization of such weapons in Southeast Asia," evidence consisting of an analysis of a stem and leaf sample from Kampuchea that showed high levels of trichothecenes—deadly mycotoxins from the fungus *Fusarium*. In November, the government produced three additional samples: two scrapings collected from rocks in Laos after "yellow rain" attacks; a sample of water contaminated with deoxynivalenol, one of four trichothecenes implicated; and two blood samples from victims of an attack in Kampuchea in which there had been tentative identification of HT2, a metabolite of the T2 toxin. The State Department said that since these toxins are not known to occur naturally in Laos or Kampuchea, they constituted virtually conclusive evidence that yellow rain was toxin warfare whose only source could have been the Soviet Union, which is known to do extensive agricultural research with trichothecenes.

The latest report does not add significantly to the evidence already supplied. However, it contains many details about the attacks, the method of delivery (rockets, bombs, sprays), and the number of casualties (a total of at least 10,000 in the three countries), and describes a large variety of physical symptoms (hemorrhaging is said to be a symptom unique to the toxin attacks, and is the symptom that tipped officials off to look for something beyond conventional chemical agents). Richard Burt, director of the State Department's Bureau of Politico-Military Affairs, testified before a Senate subcommittee on 22 March that the government has only credited reports that could be corroborated by other evidence. He added that "the great bulk of the reporting has come from unsophisticated peoples, including children, who could not plausibly have fabricated their stories. . . ." He also said evidence was now abundant that the Soviet Union was directly behind the activities, and "there is not a shred of evidence to support any alternative hypothesis."



Richard Burt

For example, the report contains the story of a Lao pilot who defected in 1979 who described missions to drop "smoke rockets" that contained chemical agents on Hmong tribesmen. It also relates that in July 1981 a Soviet shipment of crates arrived in Ho Chi Minh City containing cannisters of what security personnel warned Vietnamese soldiers were "deadly toxic chemicals."

Although accounts of apparent chemical attacks are far too abundant and persistent to leave much doubt that noxious agents, probably including nerve gas, have been employed in the three countries, some observers believe the government has still failed to make an adequate case substantiating the use of toxins, particularly in Afghanistan where no samples have been recovered. Too many pieces of the puzzle are still missing, inconsistencies abound, and scientific knowledge about trichothecenes is inadequate. A recent "yellow rain" attack over Thailand has further confused the picture. The substance, when analyzed by the Thai government, proved to be an innocuous mix of crushed flowers and fungus. (The episode, reported on 19 February by Agence France Presse, was not picked up by United States media.)

Some of the unanswered questions surround the following circumstances:

- The amounts of toxin in the samples: These ranged from scarcely detectable amounts up to 150 parts per million. Harvard biologist Matthew Meselson, the country's main civilian expert on chemical warfare, does not believe the yellow rain can do the harm reported with such low concentrations and that a man would have to be literally drenched with the stuff to suffer ill consequences. He suggests there could be another, unidentified compound in yellow rain that is more toxic than the trichothecenes. The State Department acknowledges the substance has still not been fully analyzed but maintains that solvents contained in yellow rain create a synergistic effect that could enhance the effect of the toxins up to 20-fold. At the press conference announcing the report, a scientist from the Army Research Institute of Infectious Diseases at Fort Detrick said the estimated LD_{50} (dose which would kill half a population) for a 70-kilogram man was 35 milligrams of the T2 toxin. This was extrapolated from the cat LD_{50} of .5 milligram per kilogram with oral administration of the substance. If it were inhaled, the toxicity would be greater.
- *Route of intoxication.* A State Department source told *Science* that the route of exposure was not clear. Some critics have said yellow rain can't be inhaled because it comes in sticky droplets. But then a Fort Detrick spokesman told *Science* that yellow rain dries to a fine powder which can be inhaled.
- *Physical evidence.* Fred Celec of the

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State Department says evidence is extremely hard to come by because the stuff is so toxic and areas so remote, that we are lucky to have any samples at all. Meselson, however, finds it strange that no one has come up with a used munition bearing traces of toxin. (*Soldier of Fortune* magazine, which delivered one of the samples to the State Department, says it has scrapings in a jar of an inert substance the toxin was mixed with; it has offered a $100,000 reward to the first Communist to defect with an intact chemical or biological warfare munition.)

Although some find it inexplicable that the Russians would engage in such gross violations of international law for minimal gains, the State Department finds that part easy to explain. Chemicals have long been a prominent feature of the Soviet arsenal. For conflicts in remote, backward areas, they are ideal for terrorizing an unsophisticated and unprotected population, and for smoking out guerrillas in difficult terrain. And mycotoxins are very difficult to detect—witness the fact it took the government 3 years to find what it considers to be definitive evidence.

In his Senate testimony last month, Burt stated that "abroad, as at home, one encounters a persistent reluctance to face up to the fact that one of the most widely accepted norms of international behavior is being callously, flagrantly, and repeatedly violated." Still more evidence may be required to convince doubters that the Russians are using toxins. The UN team of experts looking into the matter is still not being allowed entrance into any of the affected countries; it may take *Soldier of Fortune*'s bounty hunters to come up with a conclusive find.—CONSTANCE HOLDEN

Pajaro Dunes: The Search for Consensus

University and corporate leaders agree on principle of preserving academic values, set agenda for debate on commercialization of biology

The heads of five major research universities and 11 corporations* met in seclusion at Pajaro Dunes on the coast of California late last month to contemplate the ramifications of academia's new found interest in collaborating with industry, particularly in biotechnology. What emerged was "important recognition that these new relationships do pose dangers to traditional academic values," according to Robert Sinsheimer of the University of California at Santa Cruz. Harvard University president Derek Bok called the conference "reassuring in that it readily established a consensus, shared by business, about the importance of maintaining academic values while acknowledging the possibility of creating sound relationships."

The conferees at Pajaro Dunes set no policy, reached few firm conclusions, and failed to agree on some of the more contentious issues, leaving their resolution to individual university faculties. What they did do, according to Stanford University president Donald Kennedy, was "get some general principles on the record" and "set an agenda for further discussion of the issues." Kennedy initiated the Pajaro Dunes conference whose purpose was "to contribute usefully to a more fruitful process of policy-making but not to make policy." From the outset, there was agreement that "it is too early in the game to write detailed rules we might later regret," as one participant put it. What emerged instead is what is being called a "draft" statement its authors believe will advance the debate while acknowledging that it is not "startling" or "astonishing."

*The Pajaro Dunes conference, financed by the Henry J. Kaiser Family Foundation, was organized by five university presidents: Donald Kennedy, Stanford; Derek Bok, Harvard; Marvin Goldberger, California Institute of Technology; Paul Gray, Massachusetts Institute of Technology; and David Saxon, University of California. Each invited members of his faculty and two businessmen with whom his institution has some connection. Genentech, Syntex, Gillette, DuPont, Eli Lilly, and Cetus were among the corporations represented.

Why the Doors Stayed Closed

The organizers of the Pajaro Dunes conference thought about opening the meeting to the press. They decided not to. They also declined requests for admission from students and representatives of public interest groups. The value of the conference, said Stanford president Donald Kennedy, lay in its small size and the opportunity for "full and frank" discussion. In a letter to a reporter, Kennedy acknowledged the validity of an argument that coverage of the conference would be more accurate and complete if the press were present, as it was at the Asilomar meeting on recombinant DNA. However, he noted that the "inhibition of media presence is a real one for some people, and it does not derive from a need to hide wrongdoing. . . . We chose a freer discussion, and therefore a better result, over better reporting of a less good result," he wrote. He rejected outright an argument in favor of opening the meeting based on the fact that some participants were from institutions that receive public funds. The Pajaro Dunes conference was privately funded; it stayed closed.

At its conclusion, challengers voiced their displeasure with the decision and called for a future conference at which the opinions of labor, environmentalists, racial minorities, and others could be heard. "Pajaro Dunes should be the beginning of a debate, not the conclusion of a treaty between these university and corporate presidents," said Al Meyerhoff of the Natural Resources Defense Council. In a letter with more than 30 signatories, including Ralph Nader, Joan Claybrook of Public Citizen Inc., Jonathan King of MIT, and Alberto Saldamando of California Rural Legal Assistance, the group commended the presidents for their efforts so far but also said, "We urge that you lend assistance to us in securing funds to underwrite holding this conference." As of now, the presidents who organized the Pajaro Dunes meeting have no plans for holding another conference.—B.J.C.

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