Southeast Asia at the rate of one or two a week. If these can be smuggled out, why not a piece of steel? Celec's answer is that the toxins are not always delivered by munitions; that the target areas are difficult and dangerous to visit; and that the victims' first impulse is to flee, not to collect evidence.

Some of the confusion might be cleared away if an investigative team were to survey the battle sites and conduct a thorough, independent analysis of medical and environmental samples. The United Nations (U.N.) voted in December 1980 to launch such an investigation, but progress has been slow. The U.N. staff took several months to send out invitations to serve on the inquiry. More time went by before requests to visit the battle sites went out. By the end of November 1981, the U.N. team, led by an Egyptian general, had visited refugee camps in Thailand. The next month the investigators submitted a report. It was necessarily vague, they said, because they had been denied access and assistance by the countries where toxin attacks are supposedly taking place: Afghanistan, Laos, and Kampuchea.

In February 1982, the team visited camps in Pakistan to collect refugees' accounts of gas attacks in Afghanistan. By then one of the original members and the technical consultant had been replaced. Some of the interview transcripts were leaked to the *Wall Street Journal*, which published them on 7 June. Although gruesome, the symptoms described by the Afghan resistance fighters do not in all cases match the descriptions collected in Southeast Asia. Some of the weapons described were different, as well.

Thus, the puzzle becomes more complex, and the U.N. team seems no closer to solving it than it was 2 years ago. Its final report is due in the fall. Some American officials are cynical about the outcome in any case, for the inquiry's ultimate administrative chief is a Soviet citizen, U.N. Under Secretary-General Viacheslav A. Ustinov. At best, the cynics believe, Ustinov is unenthusiastic. They say that he knows how to use bureaucratic inertia at the U.N. to smother unfavorable information.

The conditions do not seem to favor a quick settlement of this dispute, nor is there much hope for the kind of thorough data collection that U.S. scientists would like. This means that, for the present, people will have to rely on conjecture in deciding exactly what Yellow Rain is. However, the claim that it includes some toxic agent seems well established by the victims' testimony.—ELIOT MARSHALL

DOD Official Criticizes Export Control Policies

A senior Department of Defense (DOD) official has issued a memorandum complaining that Pentagon contract officers have sometimes been overzealous in trying to restrict the exchange of information from academic research projects. The memorandum, written on 21 May by James Wade, Jr., deputy under secretary for research and engineering, instructed the assistant secretaries of the Army, Navy, and Air Force to ensure that contract officers "avoid new or unnecessary restrictions added to university research contracts."

The DOD's policy on export controls as applied to university contracts is currently under review, Wade pointed out in his memo. But in the meantime, he wrote, "It has come to my attention that certain DOD agencies are attempting to modify university research contracts by including clauses which would serve to unnecessarily restrain the open exchange of unclassified information among members of the scientific community." Restrictions should not be placed on the publication of basic research results or on the involvement of foreign nationals in unclassified basic research, Wade noted. "Contract officers," he warned, "should not make ad hoc decisions which would aggravate and confuse an already difficult situation."

There have been a number of recent cases of contracting agencies "getting confused" and "taking matters into their own hands," according to Leo Young, director of the research and technical information office at the Pentagon, and it was these incidents that precipitated Wade's letter. One such episode, which occurred in March, involved two Air Force contracts for psychology research at the University of Illinois. The research was to be done under the direction of Emmanuel Donchin, head of the psychology department at Illinois.

"The work is pure, basic experimental psychology," Donchin says. Volunteers were to do very boring tasks for hours. Occasionally they would have to do something important. The question was, How well would they do on the important tasks?

When Donchin got the Air Force contracts for his work, he noticed a clause saying that the "technical data" under the contract may be affected by the International Traffic in Arms Regulation (ITAR), meaning that foreign nationals could not have access to the results without prior written approval and that the work could not be freely published in the open literature. Ironically, says Donchin, he himself is an Israeli citizen, the associate director of the project is British, one of his graduate students is from Italy and one is from Canada. All would need prior written approval to work on the contract.

The University of Illinois protested to the Air Force that the ITAR clause was unwarranted, and about 6 weeks later, it was removed.

The Illinois affair, says Young, illustrates how "well intentioned" contracting officers have been taking actions that "don't make sense." C. Frederick Bentley, associate director of the sponsored project office at Stanford University, says Stanford and several other universities working on very high speed integrated circuits also have protested—and eventually gotten rid of—ITAR clauses in DOD contracts. Bentley is optimistic that Wade's memo will help the universities in dealing with contract officers. "Maybe it will give us some ammunition," he says.—***Gina Kolata***

New Directors at Two Institutes

The new director of the National Institutes of Health (NIH), James B. Wyngaarden, has appointed two veterans of the research agency as directors of the institutes that specialize in arthritis and diabetes and in child health.

Wyngaarden named on 17 June Lester B. Salans as director of the National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases, whose $370-million budget is the third largest of the 11 institutes. Salans, whose appointment is effective immediately, has been acting director of the institute since October 1981.

Mortimer B. Lipsett was chosen to be the top administrator of the Nation-

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al Institute of Child Health and Human Development, the seventh largest institute which had a budget last year of $221 million. Lipsett has been director of NIH's Warren G. Magnuson Clinical Center since 1976.

The appointments still leave several top NIH posts vacant, including the directorships of the institutes for heart, lung, and blood research, for dental research, and for neurological and communicative disorders. In addition, director of the Institute on Aging, Robert Butler, will leave his position next month.—***Marjorie Sun***

NASA Cuts Flights, Sets New Shuttle Price

The National Aeronautics and Space Administration (NASA) has sharply reduced the number of space shuttle flights expected over the next 12 years, from 487 to 312, and has raised the price of launching a payload by 85 percent. However, the agency maintains that the shuttle will still be competitive with Europe's Ariane rocket, which has lately loomed as a serious challenge to NASA's dominance of the launch market.

Maintaining the earlier flight model would require a substantial front-end investment to boost capacity for building external tanks and solid rocket boosters. In the current budgetary climate NASA has no hope of that. The resulting cutback in flights was a major factor in the price increase, although it was already clear that NASA's original price schedule, formulated in 1977, fell far short of the actual costs of launching the shuttle. The price discrepancy was recently the subject of a scathing review by the General Accounting Office, which pointed out that NASA was heavily subsidizing users of the shuttle at the same time its own science and applications programs were being cut back (*Science*, 16 April, p. 278).

With its new prices, effective 1986, NASA will try to recover out-of-pocket expenses for the nongovernment payloads. It has given up its original goal of recovering its total operations cost over a 12-year period.

The new shuttle fees will not apply to the Department of Defense (DOD). The Pentagon currently gets a very low price—strongly criticized by the General Accounting Office—and revisions are still being negotiated. The issue is clouded by the recent action of the Senate Commerce committee, which recommended a NASA budget requiring DOD to start paying an extra $409 million for shuttle services (*Science*, 4 June, p. 1085).

In 1982 dollars the old price for a full shuttle payload bay comes to $38.32 million. The equivalent new price will be $70.76 million. In comparing the shuttle with alternative launchers, however, NASA price analyst Barbara Stone points out that most payloads will occupy only a fraction of the shuttle bay, and thus will pay only part of the full price. For example, she cites a small communications satellite launched into low earth orbit by the shuttle and boosted from there to geosynchronous orbit by an expendable upper stage. Cost in 1986: $26 million. The estimated cost of launching that same satellite on one of NASA's Delta rockets would come to $38.5 million. And, according to a U.S. representative of Arianespace, the cost of such a launch on Ariane would be approximately $32 million.

—***M. Mitchell Waldrop***

OSHA's New Thoughts on Cancer Policy

A top official at the Occupational Safety and Health Administration (OSHA) says that a chemical must be proven to be a human carcinogen before the agency will regulate it, a statement that flies in the face of established cancer risk policy within the federal government.

OSHA deputy assistant secretary Mark Cowan wrote in a letter dated 13 May, 1982 to the director of the National Institute of Occupational Safety and Health (NIOSH), that "In order to promulgate a regulation, OSHA must not only find a substance to be carcinogenic to man but must demonstrate that the substance poses a significant risk to occupationally-exposed workers."

Other federal agencies and OSHA itself have regulated substances that are classified as potential human carcinogens solely on the basis of animal data, without supporting epidemiological evidence. Indeed, OSHA's own cancer policy, published in the *Federal Register* on 25 January 1980, states that positive results in animal studies "will be used to establish the carcinogenic hazard to workers."

Cowan's correspondence was a response to a letter from NIOSH director Donald Millar. Millar noted that the World Health Organization's International Agency for Research on Cancer judged last fall that formaldehyde should be considered a potential human carcinogen. But OSHA seems determined that it will not regulate the chemical, short of clear epidemiological evidence.

Concern about formaldehyde has recently been heightened by reports that five male workers have developed rare nasal cancers after exposure to the substance. The case reports are particularly worrisome because rodents exposed to formaldehyde in tests developed similar nasal cancers.

NIOSH is investigating the one worker of the five who is still alive. According to Phillip Landrigan, deputy director of NIOSH, the worker is a middle-aged engineer who set up equipment in New England textile plants that bathes fabric in formaldehyde, which imparts a permanent press finish. NIOSH was alerted to the case because the worker's wife notified the agency.

Landrigan said the worker was exposed to intermittent high doses of formaldehyde of several parts per million, but exact levels of exposure are undetermined. He cautioned that one case does not prove that formaldehyde is definitely a human carcinogen but said, "I hope this stimulates more research." The NIOSH findings have been submitted for publication.

The four other cases were cited in a memorandum to OSHA director Thorne Auchter by Peter S. Infante, an OSHA epidemiologist. He reported that two industrial workers and two pathologists have died of nasal cancers after formaldehyde exposure.

Auchter was advised by an aide, John F. Martonik, that the case reports cited by Infante were "suggestive evidence of human carcinogenicity at this time, at the very most. . . . The reports should be further investigated."—***Marjorie Sun***