Congress questions new chemical arms

Whether the United States should return to the business of making chemical weapons is an emotionally charged issue expected to resurface in Congress next week. This time the question will be debated in the wake of two developments — the release of a General Accounting Office report that questions the administration's rationale for the new munitions and the discovery of unexpected risk in using a certain chemical bomb — that opponents of chemical weapons production are using to buttress their case.

The United States has produced no chemical weapons since 1969, but it does possess stockpiles of an irritant called CS and two lethal nerve agents, GB and VX. (The 1925 Geneva Protocol, an international treaty, prohibits first use of such chemical agents in warfare but not the production and stockpiling of them.) Claiming Soviet superiority, the Defense Department has requested funds from Congress to modernize its stockpile by producing a new generation of munitions: "binary weapons," which contain two nonlethal ingredients that mix and react to form the deadly warfare agent in flight (in the case of artillery shells) or when activated (in the case of bombs). Proponents claim that these munitions should be safer than "unitaries" to handle, store and transport prior to their activation.

However, the Pentagon last year discovered unexpected risks while studying the Bigeye bomb — one of the binary weapons it had proposed manufacturing. Specifically, it found that the Bigeye must be dropped within an hour of being activated (allowing the bomb's two chemical components to mix and form the lethal agent) — otherwise, pressure can build up inside the bomb, causing it to explode while still attached to the aircraft. (Although it should only take several minutes of mixing to form the lethal agent in the Bigeye, a pilot might want to activate the mixing well in advance rather than to risk waiting too long and miss the target.) This could present significant risks — for example, in the event that a bombing mission had to be aborted and a pilot could not release an already activated bomb over enemy ground.

As a result of these findings, DOD recently decided to request funds for only the binary artillery shells (it had initially requested from Congress funds for both the shells and Bigeye production). Even so, congressional opponents of chemical weapons production will be using the Bigeye issue as ammunition to shoot down DOD claims that in general, binaries offer substantial technical and operational advantages over existing unitaries.

The opponents of binary production also will be armed with the recently released GAO report, "Chemical Warfare: Many Unanswered Questions," which was written at the request of the House Committee on Foreign Affairs. "The general picture," the report concludes, "is that the chemical weapon system is not perceived as a credible deterrent, little is known about its functioning or its usefulness, and a large amount of money is being sought for it."

In 1980, Congress granted DOD funds to construct a binary weapons facility at Pine Bluff, Ark.; and in 1981, additional funds were authorized to equip that plant. Last year, however, after much debate, Congress turned down DOD's request for funds needed to actually begin producing the binary weapons. This year, a similar request — $114.6 million for the production of 155-mm artillery shells — is in the fiscal 1984 Defense Authorization Bill, which the U.S. House of Representatives is scheduled to begin considering June 13. At that time, Reps. Clement J. Zablocki (D-Wis.) and Ed Bethune (R-Ark.), who last year joined forces to lead the battle in the House against binaries, are expected to offer an amendment to the defense bill that would delete all requested funds for binary weapons production. —*L. Garmon*

Enzyme may lessen heart attack severity

A heart attack — death of cells in the heart — is usually caused by a narrowing of arteries providing the heart with blood. But a clot often forms in one of these narrowed arteries during the course of the attack, further blocking blood flow to the heart and making the attack even more severe.

Preliminary studies suggested that the clot-dissolving enzyme streptokinase can dissolve such clots, improve blood flow to the heart and lessen the effects of a heart attack (SN: 11/29/80, p. 341). Now two more extensive studies, if taken together, imply that streptokinase can improve blood flow and lessen a heart attack's consequences only if the enzyme is given no later than four hours after the start of an attack.

In the first study, Jeffrey L. Anderson and colleagues with the University of Utah College of Medicine in Salt Lake City examined 24 patients with clots who had come to the hospital less than four hours after the start of a heart attack. All then received streptokinase infusions into their clotted arteries. Twenty-six other patients who had come to the hospital less than four hours after the start of a heart attack received standard medical care for it, which included bed rest and pain drugs. Eighty percent of the treatment group experienced improved blood flow through previously clotted arteries, and the treatment group showed a significant improvement in heart function over controls, the researchers report in the June 2 New England Journal of Medicine.

In the second study, Fareed Khaja of Henry Ford Hospital in Detroit and coworkers gave 20 heart attack patients with a coronary artery clot infusions of streptokinase. Another 20 heart attack patients with a coronary artery clot got placebo infusions. Treatment of both groups began an average of 5.4 hours after the start of a heart attack. Although blood flow through the clotted artery was improved in 60 percent of treated patients compared with 10 percent of controls, there was no significant improvement in heart function among the former, the scientists report in the same New England Journal.

In an accompanying editorial, H.J.C. Swan, director of cardiology at Cedars-Sinai Medical Center in Los Angeles, concludes that the relative success of the first study may have been due to the fact that patients received the enzyme no later than four hours after the start of a heart attack. —*J.A. Treichel*

Toxemia: No worm?

In a letter entitled "The worm that wasn't," British pathologists argue that the parasite reportedly associated with toxemia of pregnancy (SN: 2/5/83, p. 85) is an artifact of the preparation procedures. Gillian S. Gau and colleagues at Queen Charlotte's Maternity Hospital in London say in the May 21 Lancet that they used the same procedures, which include exposure to concentrated sulfuric acid, on material from placentas from normal pregnancies and from blood of healthy non-pregnant female and male subjects. All the samples showed the wormlike "organisms," which in cross-section were observed not to have the structure common to parasites but just space. The London researchers conclude the "worms" are artifacts caused by the sulfuric acid exposure. □

Trees that alarm each other

People have often been advised to talk their plants into health. Now evidence is growing that trees communicate with each other. Sitka willows and sugar maples that are attacked by parasites seem able to communicate the news to untouched trees nearby. When they are attacked, these trees change their chemistry to make themselves unpalatable to the invader. Observation shows that untouched trees nearby also make the changes, and the inference is that the untouched trees get the message that invaders are near by means of a pheromone emitted by the attacked trees. Gordon H. Orians and David F. Rhoades of the University of Washington in Seattle intend to try to induce this effect in controlled laboratory experiments with Sitka willows. □