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## **FACT SHEET**

### **Early History of Biowarfare and Bioterrorism** **Biowarfare in the Twentieth Century** **Bioterrorism in the Twentieth Century**

#### **Early History of Biowarfare and Bioterrorism**

Biological weapons have been used to wage war and promote terror throughout history. One of the earliest uses of biological weapons occurred in the 6th century BC when the Assyrians poisoned enemy wells with rye ergot. In 400 BC, Scythian archers used arrows dipped in blood and manure or decomposing bodies. It was widely reported that in 1346 -1347, plague broke out in the Tartar army during its siege of Kaffa (in Crimea). The Tartars catapulted the bodies of bubonic plague victims over the walls of the city of Kaffa. The plague epidemic that followed forced the defenders to surrender. Some historians believe that this was the cause of the epidemic of plague that swept across medieval Europe, killing 25 million. It has been reported that Russian troops may have used a similar strategy involving corpses of plague victims against Sweden in 1710. The Spanish, in 1495, infected French wine with blood from leprosy patients. In the mid-1600's, a Polish military general reportedly put saliva from rabid dogs into hollow artillery spheres for use against his enemies.

On several occasions, smallpox was used as a biological weapon. Pizarro reportedly gave smallpox virus-contaminated clothing to South American natives in the 15th century. During the French-Indian War, the British gave blankets used by smallpox victims to the Native Americans and consequently smallpox raged through the Native American community and decimated their numbers. This same tactic was used by Dr. Luke Blackburn, the future governor of Kentucky, during the Civil War. Dr. Blackburn attempted to infect clothing with smallpox and yellow fever, which he then sold to Union troops. One Union officer's obituary stated that he died of smallpox contracted from his infected clothing.

#### **Biowarfare in the Twentieth Century**

In 1915, Dr. Anton Dilger, a German-American physician, developed a microbiology facility in Washington D.C. Dr. Anton produced large quantities of anthrax and glanders bacteria, using seed cultures provided by the Imperial German Government. At the loading docks, German agents inoculated 3000 head of horses, mules, and cattle that were destined for the



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Allied Forces in Europe. Reportedly, several hundred military personnel were secondarily infected.

In 1918, the Japanese formed a biological weapons section in the Japanese Army (Unit 731). In 1931, Japan expanded its territory into Manchuria and made available "an endless supply of human experiment materials" (prisoners of war) for Unit 731. Biological weapons experiments in Harbin, Manchuria, directed by Japanese General Ishii, continued until 1945. A post-World War II autopsy investigation of 1,000 victims revealed that most were exposed to aerosolized anthrax. It is estimated up to 3,000 more prisoners and Chinese nationals may have died in this facility. During an investigation of Japan's seizure of Manchuria in 1931, Japanese military officials unsuccessfully attempted to poison members of the League of Nations' Lytton Commission by lacing fruit with cholera bacteria. In 1939, the Japanese military poisoned Soviet water sources with intestinal typhoid bacteria at the former Mongolian border. During an infamous biowarfare attack in 1941, the Japanese military released an estimated 150 million plague-infected fleas from airplanes over villages in China and Manchuria, resulting in several plague outbreaks in those villages. Reportedly, by 1945, the Japanese program had stockpiled 400 kilograms of anthrax to be used in a specially designed fragmentation bomb. In the only known use of biowarfare by Germany, a large reservoir in Bohemia was poisoned with sewage, in 1945.

In 1942, shortly before the battle of Stalingrad, on the German-Soviet front, a large outbreak of tularemia occurred. Several thousand Soviets and Germans contracted the illness. 70% of the victims had pneumonic tularemia, evidence of an intentional release. It was determined later that the Soviets had developed a tularemia weapon during the prior year.

During World War II, with fears of the German and Japanese biological weapons programs, the U.S. and Great Britain began their own programs. The British program focused on anthrax spores and their viability and dissemination when delivered with a conventional bomb. Gruinard Island, off the coast of Scotland, was used as the site for this testing. It was thought that it was far enough off the coast not to cause any contamination of the mainland. After an outbreak of anthrax in sheep and cattle in 1943 on the coast of Scotland that directly faced Gruinard, the British decided to stop testing.

In 1942, the United States began research into the offensive use of biological weapons. The United States conducted this research at Camp Detrick (now Fort Detrick) in Maryland. The U.S. program investigated the use of *Bacillus*



*anthracis* (anthrax), botulinum toxin (botulism), *Yersinia pestis* (plague), *Francisella tularensis* (tularemia), *Coxiella burnetii* (Q fever), Venezuelan equine encephalitis virus, *Brucella suis* (brucellosis), and *Staphylococcal enterotoxin B*. Production of weapons also occurred at other sites in Arkansas and Colorado. The U.S. tested bioweapons dispersal methods by releasing the harmless, but easily identifiable, *Serratia marcescens* over San Francisco, in 1950. In 1966, the U.S. conducted a test of vulnerability to covert bioterrorism by releasing *Bacillus subtilis*, another harmless organism, into the subway system of New York City. Results showed that the entire subway system could be infected by release in only one station due to spread by the trains. In 1969, President Nixon stopped all offensive biological and toxin weapon research and production by executive order, after which all stockpiles of biological agents and munitions from the U.S. program were destroyed. Presently, the U.S. continues a bioweapons medical defensive program, which began in 1953, at USAMRIID in Ft. Detrick, Maryland.

In 1972, the United States and many other countries signed the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, commonly called the Biological Weapons Convention. This treaty prohibits the stockpiling of biological agents for offensive military purposes, and also forbids research into offensive use of biological agents.

Although the former Soviet Union was a signatory to the Biological Weapons Convention, their development of biological weapons only intensified after the accord and continued with full steam into the 1990s. From 1975-1983, Soviet-backed forces in Laos, Cambodia, and Afghanistan allegedly used tricothecene mycotoxins (T-2 toxins) in what was called "Yellow Rain." After being exposed, people and animals became disoriented and ill, and a small percentage of those stricken died. The use of T-2 toxins has been denied and the presence of the yellow spots was reported as being caused by defecating bees.

In late April of 1979, an outbreak of pulmonary anthrax occurred in Sverdlovsk (now Yekaterinburg) in the former Soviet Union. While, originally, the outbreak was described as being due to ingestion of infected meat, it was later discovered that the cause was from an accidental release of anthrax in aerosol form from the Soviet Military Compound 19, a Soviet bioweapons facility. Residents living downwind from this compound developed high fever and difficulty breathing, and a large number died. The final death toll was estimated at the time to be between 200 and 1,000. The death toll in animals living in the area was even greater. During the 1980s, more than 60,000 people were engaged in research, testing, production, and



equipment design for the Soviet bioweapons program. One facility, Building 15 at Koltsovo, was capable of manufacturing between eighty and one hundred tons of smallpox virus a year. In the city of Kirov, the Soviets maintained an inventory of twenty tons of plague in their arsenals. And, by 1987, the combined production capacity of their anthrax lines throughout the country was nearly 5,000 tons a year.

Iraq, also a signatory of the Bioweapons Convention of 1972, admitted in 1991 that they had conducted research into the offensive use of *Bacillus anthracis*, botulinum toxins, and *Clostridium perfringens* (presumably one of its toxins). It was further discovered that they had also worked on development of aflatoxins, wheat cover smut, and ricin. Biological agents were tested in various delivery systems, including rockets, aerial bombs, and spray tanks. In December 1990, the Iraqis filled 100 bombs with botulinum toxin, 50 with anthrax, and 16 with aflatoxin. In addition, 13 SCUD warheads were filled with botulinum toxin, 10 with anthrax, and 2 with aflatoxin. These weapons were deployed in January 1991 to four locations. In all, Iraq produced 19,000 liters of concentrated botulinum toxin, 8,500 liters of concentrated anthrax, and 2,200 liters of aflatoxin.

### **Biотerrorism in the Twentieth Century**

In the early 1970s, the leftist terrorist group, the Weather Underground, reportedly attempted to blackmail a homosexual officer at USAMRIID into supplying organisms which would be used to contaminate municipal water supplies in the U.S. The plot was discovered when the officer requested several items "unrelated to his work." In Chicago, in 1972, members of the right-wing group Order of the Rising Sun, who were dedicated to creating "a new master race", were found in possession of 30 to 40 kilograms of typhoid bacteria cultures that were to be used to contaminate the water supplies of several mid-western cities. In 1975, the Symbionese Liberation Army was found in possession of technical manuals on how to produce bioweapons.

In 1978, a Bulgarian exile named Georgi Markov, living in London, was stabbed in the leg, with a device disguised as an umbrella which injected a tiny pellet containing ricin toxin, while he was waiting for a bus. He died several days later. This assassination, it was later revealed, was carried out by the communist Bulgarian government, and the technology to commit the crime was supplied by the former Soviet Union.

In 1980, a Red Army Faction safe house was reportedly discovered in Paris which included a laboratory containing quantities of botulinum toxin. In 1993, the U.S. House Armed Services Committee described the discovery of another home laboratory, in 1989, in Paris, in which botulinum toxin was



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produced. This was linked to a cell of the German Bader Mainhof organization.

The FBI arrested two brothers in Northeastern U.S. in 1983 for being in possession of an ounce of nearly pure ricin. And, in 1995, two other men were the first convicted under the Biological Anti-Terrorism Act of 1989, for production of ricin. The two were members of a group called the Minnesota Patriots Council, and had planned to poison federal agents by placing ricin on doorknobs.

The most famous and successful use of bioterrorism on U.S. soil occurred during September 1984, when followers of the Bhagwan Shree Rajneesh contaminated salad bars in The Dalles, Oregon with *Salmonella* Typhimurium. Over 750 cases of salmonellosis were determined to be caused by the salad bar contamination. It was later discovered that the Rajneeshpuram cult wanted to influence the local county commissioners election, so as to form their own township. The September bioterrorism act was a trial run for the planned November election attack, which was later canceled, as the plan seemed to be ineffective. The cult members obtained the *Salmonella* strain through the mail from the American Type Culture Collection (ATCC).

The Japanese doomsday cult, AumShinrikyo, while seeking to establish a theocratic state in Japan, released sarin gas in Tokyo subway stations in 1995. They were later discovered to have developed and attempted to use other chemical agents (VX gas and hydrogen cyanide) and biological agents (*B. anthracis*, *Coxiella burnetii*, Ebola virus, and botulinum toxin) on at least ten other occasions. Their multiple attacks using sarin gas killed at least 20 people and injured more than 1,000 others.

In May of 1995, Larry Wayne Harris was arrested for illegally obtaining the plague bacteria *Yersinia pestis*. Using his previous employer's certification, Harris obtained the samples through the mail from the ATCC. He was sentenced to eighteen months probation and 200 hours of community service. Harris was again arrested in 1998 when he and another individual were found allegedly in possession of anthrax cultures, which were later determined to be anthrax vaccine. Due to the ease of obtaining dangerous pathogens, the CDC established rigorous guidelines for shipment of specific pathogens which may be used as bioterrorism agents.

### **Current Threat of Bioterrorism**

The threat of bioterrorism has increased in the last two decades, with a number of rogue countries working on the offensive use of these agents. There is also growing concern that the previously developed bioweapon agents, including smallpox virus, which was eliminated from nature in the late 1970's and now stored in only two laboratories (at the CDC in Atlanta and the Institute for Viral Precautions in Moscow, Russia) may have been sold by desperate ex-Soviet scientists seeking money.

The Department of Defense is leading a federal effort to train the first responders in 120 American cities to be prepared to act in case of a domestic terrorist incident involving bioterrorism and other weapons of mass destruction. The Department of Justice is currently assessing the domestic preparedness infrastructure for all the counties in the U.S. The Centers for Disease Control and Prevention (CDC) have bioterrorism-related cooperative agreements with most of the state health departments in order to boost state laboratory capabilities and epidemiology and response systems, and provide rapid communication capabilities between local and state health departments and CDC.