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# Army Tested Biological War in S.F.

New York

At least eight United States cities and military installations were subjected to simulated biological warfare attacks by Army scientists between 1950 and 1966.

After an outbreak of infection that killed one man in San Francisco within weeks of the initial test, the military continued to use a bacterium that was implicated in the death.

Information released by the Army at the request of Newsday

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confirmed that the tests were conducted in Key West and Panama City, Fla., New York City and San Francisco over the 16-year period that ended when the bacterium, *Serratia marcescens*, was dispersed in the New York City subway system.

The Army said that similar tests, in which bacteria were released into the air and their spread was monitored by military personnel, were conducted in Army installations at Point Mugu and Port Hueneme in Ventura county, at Ft. McCellan, near Anniston, Ala.; and a Navy facility in Mechanicsburg, Pa. The Army also admitted testing bacteria at the Pentagon but would discuss no details.

The Army released minimal information about the tests after a Newsday investigation last month turned up details of the 1950 test in San Francisco and a subsequent outbreak in Stanford University Hospital of *Serratia* infections, which killed one man.

On the afternoon of Sept. 26, 1950, the U.S. Army conducted an experiment to test San Francisco's vulnerability to a germ warfare attack.

The so-called "vulnerability test" involved the release into the air of *Serratia marcescens*, to see whether winds in the Bay Area would carry germs into the city. The military had monitoring stations taking air samples around the city to see where the bacteria appeared. The experiment was repeated the next afternoon.

Within a week, patients in the old Stanford University Hospital in San Francisco began to develop infections of a type that was so rare

then that three medical researchers were moved to write about the outbreak in a prominent medical journal.

In little more than a month, one man was dead and five other patients were infected and suffering from chills, high fever and a general malaise. Before the outbreak ran its course and disappeared five months later, 11 cases of infection were found.

The bacterium responsible in all cases was *Serratia marcescens*.

*Serratia* was first identified as the cause of an infection at the Stanford Hospital on September 29, two days after the last acknowledged test by the Army. Three days later, the bacterium was isolated from Edward Nevins, a 75-year-old retired pipe fitter. The initial isolate came from urine; ten days later it was found in Nevins' blood.

He was given antibiotics but, in his case and in all the other cases

observed in the hospital, the *Serratia* strain was resistant to all antibiotics administered. Nevins continued to suffer from fever and chills until November 1 when he died.

Despite indications that the Army experiment with *Serratia* was related to the death and infections in the hospital, they continued to use the bacterium in their so-called "vulnerability tests" for years, exposing military personnel and civilian populations to the same infection, sources said.

According to one researcher, *Serratia* probably was used in an experiment in the mid-1960s in the New York City subway system, in which a light bulb filled with bacteria was dropped between cars of a moving train to see how far the air currents would carry it. No adverse medical reactions were reported then.

The bacteria were grown in the U.S. Naval Biological Laboratory in Oakland, specifically for the tests, Newsday learned.

Another series of experiments, code-named Operation Seaspray, was carried out in the Bay Area in 1954 by Navy personnel working for the Army. The base of operations, sources said, was Ft. Cronkhite in Marin county.

The bacterium, set in a paste, was taken in small boats to a point outside the surf and put into the water. The idea was to see if the breaking waves, would toss the bacteria into the air where the wind could pick it up and carry it into the city. A source said that the winds were blowing from the west at the time of the test and that the bacteria were carried into Berkeley and Oakland.

*Serratia* was used, sources said.

because it was believed to be harmless to man. Before the outbreak in 1950, medical literature listed fewer than a dozen cases of human infection resulting from contact with the bacterium.

"You have to realize that at this time, *Serratia* was used in military hospitals to check their (air) ducts" for leaks or possible sabotage, a military source said. "No one thought it was harmful to man."

*Serratia* had the added attraction of being easy to identify; it produces a distinctive pigment, usually red, that shows up readily in tests.

Sources at the Oakland lab, now called the Naval Biosciences Laboratory and which was headquarters for the San Francisco tests, said that *Serratia* could cause pneumonia, particularly in infants. Newsday found that, in at least two instances, an Army test was associated with a peculiar rise in pneumonia cases.

Dr. Thomas Chester of the Alabama State Health Department said that Calhoun county, where Ft. McCellan is located, had 139 cases of pneumonia in 1951. In 1952, the year of the test, the number of cases increased to 333 as the county, with less than three per cent of the state's population, accounted for more than 12 per cent of the state's reported pneumonia cases. In 1952, the number of cases dropped to 98.

In the Key West area, cases of pneumonia showed a startling tenfold increase. The Army statement said the test was carried out there in 1952 but did not specify the time of year. Florida state health department spokesman Gary Kinney said pneumonia cases went up from five in 1952 to 50 in 1953 and deaths went from four to 30. In 1954, the number of cases dropped to six and no deaths were reported.

The information released by the Army revealed nothing about the methods used in the tests or the results. The Army list also did not mention Operation Seaspray.

Sources and documents consulted by Newsday revealed that, in the Mechanicsburg test, the Army also used a fungus, *Aspergillus fumigatus*, which it admits can be fatal to humans.

Dr. Libero Ajello, director of mycology for the federal Center for Disease Control in Atlanta, said last week: "If I had been consulted and asked to choose an *Aspergillus* to use in a simulated biological warfare setup, *fumigatus* is the last one I would have suggested, because we know it's pathogenic."

The Army said it discontinued all such tests in 1969 following an executive ban on offensive biologi-

cal warfare and stockpiling.

The Army report admitted that in 1966, 16 years after the death in San Francisco, it used *Serratia* in the New York City subway system. Some details about that test emerged last year in testimony before the Senate Select Committee on Intelligence, although *Serratia* was not identified as the agent used.

Charles A. Senseney, a Defense Department employee testified that a light bulb containing a "simulant agent" was dropped from a moving subway train and the spread of the agent through the tunnels was monitored.

"It went well through the entire subway system, because we started down around 14th street and sampled up as far as about 58th street, and there (was) quite a bit of aerosol (containing the bacteria) all along the way," Senseney said.

Newsday