

Transcript

The Living Weapon

Narrator: In November 1969, President Richard Nixon made a startling declaration.

President Nixon (Archival): The United States of America will renounce the use of any form of deadly biological weapons that either kill or incapacitate.

Narrator: Nixon's announcement was widely acclaimed, yet few Americans knew that for more than twenty-five years the United States had been operating an extensive research program to harness germs as weapons of mass destruction. Born during a terrible world war, America's bioweapons program was fueled by fear and insulated with secrecy.

Matthew Meselson, Biologist: Biological weapons are designed to kill vast numbers of civilians.

Jeanne Guillemin, Sociologist: You couldn't have these programs out in the open because the public should not know.

Narrator: American researchers would enter uncharted territory as they ran an escalating series of experiments -- ultimately using human subjects.

Norm Covert, Camp Detrick Historian: I've read the day-to-day notebooks of the laboratory scientists. They never reached an end point. They just kept pushing that point farther and farther every day.

Martin Furmanski, Pathologist: There is an appeal to these weapons to certain members of the scientific community, almost being seduced by the dark side.

Brian Balmer, Author: It's essentially invisible. You can't see it, you can't hear it, you can't smell it.

Richard Preston, Author: A biological weapon is alive. What it wants to do is survive and reproduce itself -- inside a host, the human body.

Narrator: On December 9, 1942, the U.S. government convened a secret meeting at the National Academy of Sciences in Washington, D.C.

Army officers had urgent questions for an elite group of scientists. America and its allies were fighting a horrific world war. Intelligence suggested that Germany might soon target Britain with a terrifying new weapon -- a bomb packed with biological agents.

The meeting was called to respond to a critical British request. Could the Americans create a large-scale biological warfare program to help their allies -- and do it virtually overnight?

Jeanne Guillemin, Sociologist: If you brought all that we knew about microbiology and infectious diseases, into a military context, you could develop a weapon that would be amazingly effective. It would be dangerous. It could change the course of the war.

Narrator: Only a few months before, the president of the United States had grappled with the issue of biological weapons.

"I have been loath to believe that any nation," Franklin Roosevelt said, "even our present enemies, would be willing to loose upon mankind such terrible and inhumane weapons."

Secretary of War, Henry Stimson, thought differently. "Biological warfare is ... dirty business," he wrote to Roosevelt, "but ... I think we must be prepared."

The president approved the launch of America's biological warfare program. For the first time, U.S. researchers would be trying to make weapons from the deadliest germs known to science.

Jeanne Guillemin, Sociologist: Once you're looking at a science not strictly for the benefits that it can bring, but for the damage it can inflict on an enemy, you're in a whole new world.

Narrator: Now, at the request of a desperate ally, America was entering a realm lacking clear ethical limits, where science and secrecy would go hand in hand.

As the meeting broke up, the researchers were now warned -- anyone who leaked details of the discussion would face forty years in prison and a \$10,000 fine.

By the time of the Washington meeting, German bombs had been raining down on Britain for two years. The English feared that the next bomb might carry a biological payload.

Jeanne Guillemin, Sociologist: You can look at the British in 1940. When the Blitz is going on, that's when they decide that they're going to start a biological weapons program. They are absolutely at the edge. They're really desperate, and they want to seek any kind of defense that they can.

Narrator: In July 1942, Britain began secret trials of unconventional weapons on a small Scottish island called Gruinard.

Brian Balmer, Author: It was picked because of its remoteness -- partly because of reasons of secrecy, but also partly because there were very few populated areas around the island.

Narrator: The British believed they had a weapon that would disperse infectious germs into the air. In their labs they had evaluated a handful of lethal agents. Now in the field, they would test the most promising -- the bacterium that causes the dreaded disease anthrax.

Led by bacteriologist Paul Fildes, the team first considered how far beyond the island wind might spread the germs. Then they positioned their subjects -- a score of sheep purchased from local crofters. A scaffolding held a bomb packed with hardy anthrax spores.

Jeanne Guillemin, Sociologist: They really have to turn to an agent like anthrax because the anthrax spore is able to withstand the pressure of an explosion.

Brian Balmer, Author: This was an anti-personnel bomb. But, obviously, doing experiments with humans with anthrax was out of the question.

Narrator: Over the next minutes, the cloud of germs passed over the animals.

For several days, nothing. Then the sheep began to tremble and stagger. Blood oozed from their bodies shortly before death.

Brian Balmer, Author: What Fildes' experience on Gruinard Island had shown was that an anti-personnel biological bomb could be produced. What it did convince the allies of was that they had a really potent weapon.

Narrator: A potent weapon, but one exceedingly hard to contain.

Brian Balmer, Author: The dead sheep were put at the bottom of the cliff with some explosives. The explosives were let off to bury the sheep. One or two of the sheep were blown into the water and floated away.

Narrator: Soon, animals began to die on the mainland. If word of the lethal experiment got out, Fildes feared, the public would panic.

British security services concocted a story -- Greek sailors had tossed infected carcasses overboard. The British reimbursed farmers, "on behalf of the Greek government."

Fildes had a successful field trial, but scant resources. To move into production, the British would need American help.

Brian Balmer, Author: One of the advantages of bringing the U.S. into the research on biological warfare, as far as Britain was concerned, was that they didn't have the facilities, the resources, the money.

Narrator: A British politician of the day described the United States as a "gigantic boiler. Once the fire is lighted under it, there is no limit to the power it can generate."

Fildes had lit the boiler.

In spring 1943, American scientists and staff began arriving at a sleepy airstrip in rural Maryland. Operating under the Army's Chemical Warfare Service, Camp Detrick would become the top-secret enclave for enthusiastic American biowarfare researchers.

Norm Covert, Camp Detrick Historian: They were passionate about their science. They were the best in the country. If someone said to you, "Here is an unlimited budget, here's all the equipment you need, tell me which kind of building you want to work in, we'll build it." You

would jump at that opportunity, and that's exactly what they did. But the imperative was, we need results very quickly.

Narrator: The American bioweapons program would embody the same security precautions that the British had adopted.

Norm Covert, Camp Detrick Historian: It was the highest level of secrecy. In some cases, there were only four or five people who actually knew the extent of what was going on at Camp Detrick.

Mike Foster, Captain, Chemical Warfare Service: I remember one time we had a party and somebody said, "Hey, lot of bacteriologists here, aren't there?" That was quickly shushed up. We were taught at Detrick, "Don't talk about Detrick."

Matthew Meselson, Biologist: If an activity is conducted in secret, people who can see the mistakes in it or the danger in it, or the false assumptions in it, may not know about it -- even people within the government. And therefore, you might embark upon a course which is disastrous.

Narrator: Detrick's scientific director was Ira Baldwin, the forty-seven-year-old chairman of the bacteriology department at the University of Wisconsin.

In one sense, Baldwin was an unlikely choice to lead the project.

Norm Covert, Camp Detrick Historian: He had Quaker roots, very strict way of living. And their morality was that war was not the way you do things. You would think that Doctor Baldwin would have rejected the value of using biological warfare and the ethics of using biological warfare.

Narrator: Like other Detrick scientists, Baldwin struggled over his decision -- but then quickly got down to work. It was wartime.

Norm Covert, Camp Detrick Historian: Not many people today can understand the mindset of 1941, when we were attacked by Japanese. The entire nation was at war, so we had a real mission to protect our nation.

Mike Foster, Captain, Chemical Warfare Service: Do I find anything morally wrong with biological warfare as compared with other warfare? No. I don't see where there's any difference. The purpose is the same in every case. Kill 'em.

Jeanne Guillemin, Sociologist: The people who worked in the biological weapons programs were able to convince themselves that there was a patriotic reason for doing this work. That the nation-state would be in danger of not surviving if they did not do this work. They lived in a closed, moral order.

Narrator: The British had made two requests. One was for anthrax. Another was for a toxin produced by bacteria -- botulinum -- the most lethal substance ever discovered.

Richard Preston, Author: A person who is poisoned with botulinum toxin develops paralysis. Doctors can watch it creep through the body. And when the paralysis reaches the center of the chest, you have a breathing arrest and a heart attack. And you can't be resuscitated.

Narrator: The British provided Detrick with the botulinum recipe. Scaling it up was Ira Baldwin's job. He built a temporary tarpaper shack. Protected by guards armed with machine guns, it ran twenty-four hours a day, seven days a week.

Researchers tested the deadly toxin on mice. But no one could say exactly what would happen in human beings.

Mike Foster, Captain, Chemical Warfare Service: One milliliter will kill a million mice. Now, how much would it take to kill a person? I can't answer that. But it's very, very toxic, very potent.

Narrator: A special plan provided for staff who might be accidentally killed on the job. They were to be buried on Detrick's grounds, without any report on the cause of death, in airtight metal caskets.

For decades, nations had debated the use of unconventional weapons. In World War I, many saw Germany's use of chlorine gas, a chemical weapon, as an outrageous violation of the norms of war and a corruption of science.

Jeanne Guillemin, Sociologist: Wonderful things came out of modern chemistry that improved people's lives. But, unfortunately in World War I, you find that a great science can be exploited for military purposes.

Narrator: In 1925, in Geneva, over thirty nations signed a protocol banning first use of unconventional weapons -- germs and chemicals alike.

Richard Preston, Author: A chemical weapon is a poison. And it kills usually very rapidly. A biological weapon is a microorganism. A biological weapon is alive. And like all other life forms, what it wants to do is survive and reproduce itself.

Narrator: The U.S. signed, but didn't ratify the Geneva Protocol -- an agreement which still permitted research and production of germ weapons.

By the late 1930s, as tensions rose in Europe, the door was open to the scientific creation of new weapons of mass destruction.

Jeanne Guillemin, Sociologist: This war coming in 1939, 1940, was envisioned as a war of scientists against scientists. Whoever had the best scientists was going to win this war.

Narrator: In 1944, V-1 rockets launched from Germany pounded London, raising British fears of a Nazi biological attack.

The fears would prove unfounded, but not before British Prime Minister Winston Churchill had placed an urgent order with the U.S. for half a million anthrax bomblets. "Pray let me know when they will be available," he wrote. "We should regard it as a first installment."

The British request far exceeded Detrick's capacity. To fill it, Ira Baldwin began converting an old munitions factory in Vigo, Indiana. The new plant was designed as a gigantic industrial assembly line that could produce anthrax bacteria by the ton.

Still, critics at the highest levels of American government voiced concerns about the germ program. Admiral William Leahy, President Roosevelt's chief of staff, said that using germ weapons, "would violate every Christian ethic I have ever heard of and all of the known laws of war." But in a time of national crisis, Leahy's objections were not enough to slow the momentum of the U.S. program.

In December 1944, reports came of a potential germ attack on the United States -- launched by Japan. Balloons began to fall from the western skies of North America. Amid worries that the balloons might contain a biological agent, Detrick dispatched a scientist to one of the crash sites.

The balloons contained only explosives. Still, the incident fueled the fears that kept America's biological program moving forward.

By August 1945, the American biological program had spent sixty million dollars. Thousands of workers at Detrick and satellite facilities had sacrificed over half a million experimental animals while investigating a dozen devastating illnesses. And soon the new Vigo plant would be ready for its first anthrax run.

But then came surprising news from Japan. As citizens, the biowarfare researchers celebrated the American victory. But as government scientists, they knew they had a problem. Another unconventional weapon had proved itself in war.

Jeanne Guillemin, Sociologist: After Hiroshima and Nagasaki, biological weapons were put in a kind of a shadow. They didn't look as powerful or promising as they had before the revelations about what a nuclear weapon could do.

Narrator: Nuclear weapons were now in ascendance. After three frantic years, the U.S. biological warfare program seemed headed for extinction.

Then, an unexpected reprieve. Not long after the war's end, the U.S. received unconfirmed intelligence of biological weapons research conducted by America's wartime ally -- the Soviet Union.

The looming Cold War would drive the American program for decades to come.

The U.S. germ program was launched in World War II because of reports of German and Japanese bioweapons research. Now with the war over, America dispatched investigators to uncover the real extent of its defeated enemies' germ technology.

In Germany, the U.S. had expected to find a large biological program. But no one calculated that Hitler, wounded in a chemical attack in World War I, would constrain the development of a German program.

Brian Balmer, Author: As it turned out, the German program was very scattered, and Hitler himself had given an order very early in the war that there was to be no offensive biological weapons research.

Narrator: But in Japan, Americans were surprised by the ways that germ research surpassed what wartime intelligence had suggested.

The name of one officer and physician kept coming up. One informant called him "the germ man." Another said his entire career, "starts with germs and ends with germs." He was Shiro Ishii, the driving force behind Japan's secret biological weapons program.

Ishii was interrogated by Detrick investigators in May 1947. And what came out exceeded anything the British or Americans had imagined. Detrick researchers could now piece together the story of Japan's no-holds-barred germ warfare program.

Its headquarters was a facility called Unit 731 in a Japanese-controlled region of China. The site housed 3,000 Japanese personnel and included labs, a Shinto temple, a cinema and a brothel.

Ishii, like his Allied counterparts, understood the need for the utmost secrecy. He operated under a cover as "Chief of the Water Purification and Epidemic Corps."

Jeanne Guillemin, Sociologist: He had tremendous access to human subjects, to mostly peasant Han Chinese. He would just pick people up out of their homes or off the street and bring them in and keep them captive, and also then perform on them really atrocious experiments equal to anything that was ever conducted in the Nazi death camps.

Martin Furmanski, Pathologist: The human experiments always ended in death. Even those who recovered from the disease were killed so that their autopsies could be completed and added to the files. They sought the scientific information so avidly, they often did the autopsy before the patient died so that the tissues would be perfectly fresh.

If you look at the number of people who were murdered in the facility in experiments, there were at least three thousand, and more likely closer to ten thousand people.

Narrator: Ishii and his team infected people with germs causing plague, cholera, dysentery and typhoid. But they had a preferred lethal agent.

Jeanne Guillemin, Sociologist: They conducted human subjects experiments with anthrax -- something that the United States and the United Kingdom scientists may have theorized, but they had never brought themselves to that actuality.

Richard Preston, Author: If you inhale anthrax spores into your lungs, you can come down with pulmonary anthrax. It's a very bad disease that is very hard to survive.

Your lungs fill up with fluid. Your skin turns blue. The lymph nodes inside the chest can swell up to the size of tennis balls and can rupture. It's a very painful, grizzly death.

Narrator: The Japanese experiments were not confined to the laboratory. They also took place in Chinese cities.

Martin Furmanski, Pathologist: One of the weapons that Ishii developed were fleas that had been infected with the plague bacterium. These were released from airplanes and dropped over Chinese cities.

Narrator: Outside Ishii's compounds, thousands of Chinese were infected with Black Death and other diseases spread by Japan's forces. The extent of Ishii's experiments amazed the American investigators.

Jeanne Guillemin, Sociologist: The more they learned about the Japanese program, the more they wanted to know about the Japanese program. The work that the Japanese did was beyond the experience of those American scientists.

Narrator: The Japanese had crossed an ethical line.

Martin Furmanski, Pathologist: All of the work in America had been done on animals. The Japanese data was a proof test. It showed that a weapon could kill people.

Narrator: Ishii had kept what appeared to be meticulous records, including autopsy diagrams and microscope slides of human tissue.

In exchange for his human data, Ishii wanted immunity from war crimes prosecution for himself and his colleagues. His case came to the top allied commander in post-war Japan -- General Douglas MacArthur.

He took the matter to the Joint Chiefs of Staff. They gave MacArthur a free hand, but stressed the importance of hiding biowarfare information from the Soviets. By early 1948, the U.S. understood that it was fighting a Cold War with its former ally. Americans saw the Soviet Union, already in control of Eastern Europe, as a ruthless nation in pursuit of unconventional weapons.

That March, MacArthur formally approved a highly secret deal with Ishii.

In Nuremberg, Germany, Nazi doctors had been convicted and hanged. The Tokyo War Crimes trial would play out differently.

Not a single biowarfare case was prosecuted.

Martin Furmanski, Pathologist: The immunity deal was a disgrace. The Japanese workers deserved to be tried for their war crimes. If that had happened, there would have been a precedent against such things.

Narrator: Detrick researchers considered the deal helpful for the American germ program. It put unique human data in their hands. It suppressed testimony that might have encouraged Soviet scientists. And it offered something else just as important.

Jeanne Guillemin, Sociologist: The United States got secrecy around its own program. Think of it. If the Japanese scientists had been prosecuted in Tokyo, the world would have reacted with such horror that it would have been very difficult for Americans to move forward with an offensive biological weapons program.

Narrator: But thanks to the deal, the program was advancing once again -- faster than ever.

In the early years of the Cold War, many Americans -- and Detrick workers in particular -- feared the worst from the Soviets.

Bill Patrick, Microbiologist: We felt very strongly that the Soviet Union had a very strong program in biological warfare and that we were putting our lives at risk to work with all these nasty organisms.

Narrator: The U.S. military concluded it had to make plans, despite not knowing if the Soviets really had germ weapons.

Matthew Meselson, Biologist: If they do, do you need them yourself? If you had no nuclear weapons, I think the decision would have been, we'd better have a biological capability. And we would be in bad shape if we found out that they did, and had nothing of that sort ourselves.

Narrator: Because the U.S. still had few nuclear bombs, germ weapons got a boost.

Martin Furmanski, Pathologist: The biological weapons program was able to step up and at least claim that it could provide a weapon of mass destruction that would augment the atomic arsenal.

Narrator: With the American biological warfare program ramping up, Detrick researchers had high hopes for the human data from Japan.

They were deeply disappointed.

Martin Furmanski, Pathologist: It turned out that Shiro Ishii was not the kind of scientist they wanted. What they wanted was a scientist who would tell them how many airborne bacteria would infect people a half a mile downwind. There was nothing like this in the Japanese documents.

Narrator: The U.S. had let war criminals go free in exchange for junk science.

American bioweapons researchers now came to a sobering realization; if they wanted reliable human data, they would have to get it themselves.

On a sticky August day in 1949, technicians from Detrick visited the Pentagon on a secret mission. Disguised as maintenance workers, they used "simulants" -- non-infectious bacteria -- to assess the vulnerability of people inside large buildings to attack. Only a few of the Pentagon's employees were aware of the test. A technical success, the Pentagon trial revealed the threat, and promise, of germs for sabotage.

But the American biological program had ambitions beyond workers in buildings.

Matthew Meselson, Biologist: The characteristic of biological weapons is the ability to cover very large areas with windborne disease organisms. Automatically that tells you that if there is any utility to biological weapons, it lies in the attack of civilians.

Jeanne Guillemin, Sociologist: This is a great change in notions of conducting war, waging war in the twentieth century. You have to start thinking of the enemy civilian as aiding and abetting the enemy, as part and parcel of the aggression that you're trying to overcome. So your victory may depend greatly on the killing of civilians.

Martin Furmanski, Pathologist: A series of tests were done on American cities. There was still some doubt that biological weapons could be effective against a target the size of a city.

Narrator: An early trial took place in San Francisco in September 1950. Outside the Golden Gate Bridge, a Navy ship sailed a carefully charted course. It released a plume of simulant bacteria that dispersed like anthrax germs.

If the test had been real, most of San Francisco's 800,000 residents would have been exposed to anthrax, and a large number would have been infected.

Three years later, as the Cold War raged on, American planners took their secret exercises into the American heartland. In St. Louis and Minneapolis, two cities thought to resemble potential Soviet targets, sprayers hidden in cars dispersed invisible clouds of simulants.

U.S. citizens knew almost nothing about the American germ program. Nor did most of their representatives in Washington. Every year, the House Appropriations Committee approved biowarfare spending within the defense budget. In closed meetings, only a few selected congressmen were briefed on the details.

What the American public was told was how to respond to a biological attack.

Actor 1, *What You Should Know About Biological Warfare* (archival): Biological warfare? What do they expect me to do about it? It's not my headache.

Narrator, *What You Should Know About Biological Warfare* (archival): You're wrong. You had better find out the facts about biological warfare, or BW.

Actor 2, *What You Should Know About Biological Warfare* (archival): There's a new poison. One ounce can kill all the people in the United States.

Actress, *What You Should Know About Biological Warfare* (archival): Germ warfare can wipe out an entire city!

Narrator: In a period of escalating Cold War tensions, Americans were encouraged by their government to prepare for a germ assault by a ruthless Soviet enemy thousands of miles away.

Few were aware of what the U.S. had already done within its own borders. Fewer still knew what was coming next.

In 1954, a group of American servicemen -- all volunteers -- began participating in a series of experiments at Detrick. They stepped up to a new testing facility. The "eight-ball" was a million-liter sphere, the largest known aerosol testing chamber in the world. Inside, a sprayer or bomb set up a cloud of microbes.

The human subjects were Seventh Day Adventists. Conscientious objectors, they refused to carry arms. But 2,200 of them -- called the "Whitecoats" -- agreed to serve in experiments, including inhaling germs they knew might make them sick.

All human studies were approved by the Secretary of Defense.

Martin Furmanski, Pathologist: The Seventh Day Adventists presented an ideal population for testing biological weapons. Their religious beliefs prevented them from smoking, from drinking, and in general, their religion taught them to live a healthy lifestyle. Even among healthy army recruits, they were perhaps the healthiest.

Narrator: Some Whitecoat trials evaluated new vaccines developed at Detrick. But curing disease was not the primary goal of the studies.

Martin Furmanski, Pathologist: The Adventists were told that they were undergoing these experiments in order to save lives. But, in fact, they were undergoing the experiments in order to calibrate a weapon to take lives.

Narrator: Bill Patrick helped prepare the germs inhaled by the Whitecoats.

Bill Patrick, Microbiologist: You stick your nose into a hood that's attached to a tank and you don't smell it, you don't see it. The psychological impact of this, I think, would be very, very difficult to take.

Narrator: In the Whitecoat era, Detrick scientists worked with a wider variety of germs.

Richard Preston, Author: The American biowarfare program seemed to emphasize research into non-lethal biological weapons -- weapons that wouldn't necessarily make an enemy soldier dead, but would make that person pig-sick for a long time.

A sick soldier is more damaging to an Army than a dead soldier. If a soldier is killed, all you need to do is just leave the soldier and continue with the campaign. But an ill soldier is going to require several people to take care of that person.

Narrator: Hundreds of Whitecoats would eventually inhale germs, including those causing tularemia and sandfly fever. At least half of the exposed men became sick, but all eventually recuperated.

Researchers knew that it's one thing to test disease agents in the lab, but quite another to make them work on the battlefield. So in 1955, Detrick scientists prepared for America's first outdoor test of infectious germs on human subjects.

They arranged for a group of Whitecoats to be flown to Utah.

Lloyd Long, Whitecoat Volunteer: I know that they were not intentionally going to harm us in any way, that they had our best interests at heart.

You have to remember we're eighteen-, nineteen-year-old kids. It was all kind of a big adventure.

Narrator: The site chosen for the experiment was the Dugway Proving Ground, located on a remote stretch of desert.

At the end of a July day, scientists prepared to release an aerosol of germs that cause Q fever -- a debilitating infection.

Downwind, Whitecoats waited. A half-mile line of platforms held thirty men, three hundred guinea pigs, and seventy-five monkeys.

Lloyd Long, Whitecoat Volunteer: The monkey's faces were blue. It was cold. The wind was coming right at us. I took my blanket and I put it over the monkeys.

We knew that when the siren blew, this was the signal to get up, sit on the stool, face the wind, just breathe naturally.

Narrator: It took four minutes for the infectious cloud to reach the test stands. After the trials, men, monkeys and guinea pigs sat in the silence of the desert.

Forty-five minutes later, the Whitecoats were picked up. Their contaminated clothes were incinerated, and the men boarded a flight to return to Maryland that night.

Back at Detrick, the Whitecoats passed the time as the researchers waited to see if they'd come down with Q fever.

Lloyd Long, Whitecoat Volunteer: They had all kinds of activities for us to do. We could eat. We played games. We had ping-pong. We shot pool.

Narrator: After about two weeks, most of the exposed men began to fall ill.

Lloyd Long, Whitecoat Volunteer: I woke up feeling I was coming down with the worst case of flu that I ever had. My eyes were very, very sensitive to light. I wanted the room dark. I ached everywhere. I was just incredibly sick, just very, very sick.

Narrator: The ill men took antibiotics. Though one was hospitalized for months, all of the Whitecoats recovered.

With the cooperation of Seventh Day Adventists, researchers had proved that windborne germs could infect a small group of people under field conditions. Now with the help of monkeys, they would try to determine if a biological weapon could match the impact of a hydrogen bomb.

The tests began early in 1965, as barges took position near a Pacific atoll called Johnston.

Richard Preston, Author: Inside the barges were cages filled with monkeys. The monkeys were both on the deck of the barge and inside the hold of the barge. There were also human beings wearing space suits and probably quite nervous.

Narrator: A low-flying military plane sprayed a thirty-two-mile line of germs, germs that cause a lethal disease -- tularemia, or rabbit fever. Drifting over a vast swath of ocean, the microbes remained infectious for sixty miles.

Richard Preston, Author: The barges were towed back to the island. And in the next days, the monkeys became ill. Ultimately, about half of the monkeys became sick, and of them, most of them died.

Bill Patrick, Microbiologist: These large-scale field tests demonstrated, beyond any shadow of a doubt, the feasibility of biological warfare. And that is why we know that one particular agent, when properly stabilized and properly disseminated, is a terrific, very effective weapon system.

Richard Preston, Author: In theory, a single jet could knock out a city. It could perhaps infect as many as half the people in Los Angeles with tularemia.

Narrator: Though skeptics said the results were oversold, Detrick researchers were jubilant. After twenty years of hard work, they believed they had made the case that biological weapons deserved a place in the U.S. arsenal.

In fact, they may have succeeded too well.

Richard Preston, Author: I think it frightened the U.S. government. It was relatively easy to make biological weapons, relatively easy to disperse them. It wasn't as difficult by any means as building a hydrogen bomb. There was a thinking here that we don't really want to publicize how

powerful these weapons are. Because all we're really doing is proving to the rest of the world that biological weapons work.

Narrator: Even as the trials were being conducted in the Pacific, other events were casting all unconventional weapons in a negative light.

News stories broke about the American use of tear gas in Vietnam, the first combat use of a chemical weapon by the U.S. since World War I. America was also spraying a chemical defoliant tested at Detrick -- Agent Orange.

Public protest erupted.

Reporter (archival): Do you think germ warfare would be justified in Vietnam if it shortened the war and saved the lives of U.S. servicemen?

Protestor (archival): I feel that the best way to save lives of U.S. servicemen is to pull them out of Vietnam immediately.

Narrator: Adding to the controversy, a news story in February 1969 disclosed an accident at the Army's Dugway Proving Ground. At a nearby Utah ranch, an errant cloud of nerve gas was claimed to have killed 6,000 sheep.

Civilian (archival): The Army finally admitted that they had conducted experiments in the area with nerve gas agents.

Military officer (archival): There are too many confusing aspects. We have been working in this area for twenty-five years, in this particular part of this country, and we have never done anything to damage the surrounding area. If we are the cause of this, we have a problem.

Narrator: For critics, the incident strengthened the argument that unconventional weapons of all types could not be controlled. For biowarfare researchers, it reinforced the need for secrecy established long ago at Gruinard Island. Germ weapons programs could not survive the sunlight of public scrutiny.

In Washington, President Richard Nixon was feeling the mounting political pressure. His National Security Advisor, Henry Kissinger, ordered a full review of American chemical and biological weapons policy in May 1969.

Among the invited contributors was Harvard biologist Matthew Meselson. Meselson had been pushing for a re-assessment of America's unconventional weapons strategy. Working for the U.S. Arms Control and Disarmament Agency, he had visited Fort Detrick.

Matthew Meselson, Biologist: I asked my hosts what value they saw in these weapons. And the main answer I got back was that it would save money, that it was cheaper than nuclear weapons. I was amazed at this answer. It took a little thought, but not much, to realize that to pioneer a cheap weapon of mass destruction is exactly what the United States should never do.

Narrator: Kissinger presented Nixon with Meselson's brief, arguing that biological weapons were redundant with nuclear weapons and easier for poor countries to make.

The U.S. had been developing biological warfare since World War II. Now, the president's advisors undercut the weapons: they had a short shelf life, they were sensitive to weather, and germs might get out of control.

On November 25, 1969, Nixon surprised the world.

President Nixon (archival): Biological warfare -- which is commonly called "germ warfare." This has massive unpredictable and potentially uncontrollable consequences. It may produce global epidemics and profoundly affect the health of future generations. Therefore, I have decided that the United States of America will renounce the use of any form of deadly biological weapons that either kill or incapacitate. Mankind already carries in its own hands too many of the seeds of its own destruction.

Martin Furmansk, Pathologist: Nixon was under great pressure to do something. And disavowing biological weapons was an easy bone to throw to his critics.

Narrator: Nixon had killed the American offensive biological weapons program after nearly three decades of secret work.

Richard Preston, Author: It enabled us to take the moral high ground and to say, "We've ended our program. And other countries should do the same."

Matthew Meselson, Biologist: I thought that the decision he made was historic. It was good for the United States, even better -- good for all of humanity.

Narrator: In 1975, the U.S. finally ratified the 1925 Geneva Protocol, banning first use of germ weapons.

And a new international agreement went further, prohibiting the development and possession of germ weapons. The Biological Weapons Convention outlawed, for the first time in history, an entire class of weapons.

Martin Furmansk, Pathologist: One of the ironies of the United States' biological weapons program was that it created its own monster. Although it was designed to reduce threats to the United States, it in fact increased the threats.

Jeanne Guillemin, Sociologist: There's something in the military thinking about war and honor, which puts biological weapons in a very negative category. It's like dirty weapons, it's like poison, it's like something that somebody does on the sly who really lacks a sense of honor.

Matthew Meselson, Biologist: We don't fight with poisons. We don't fight with illness. This is alien.