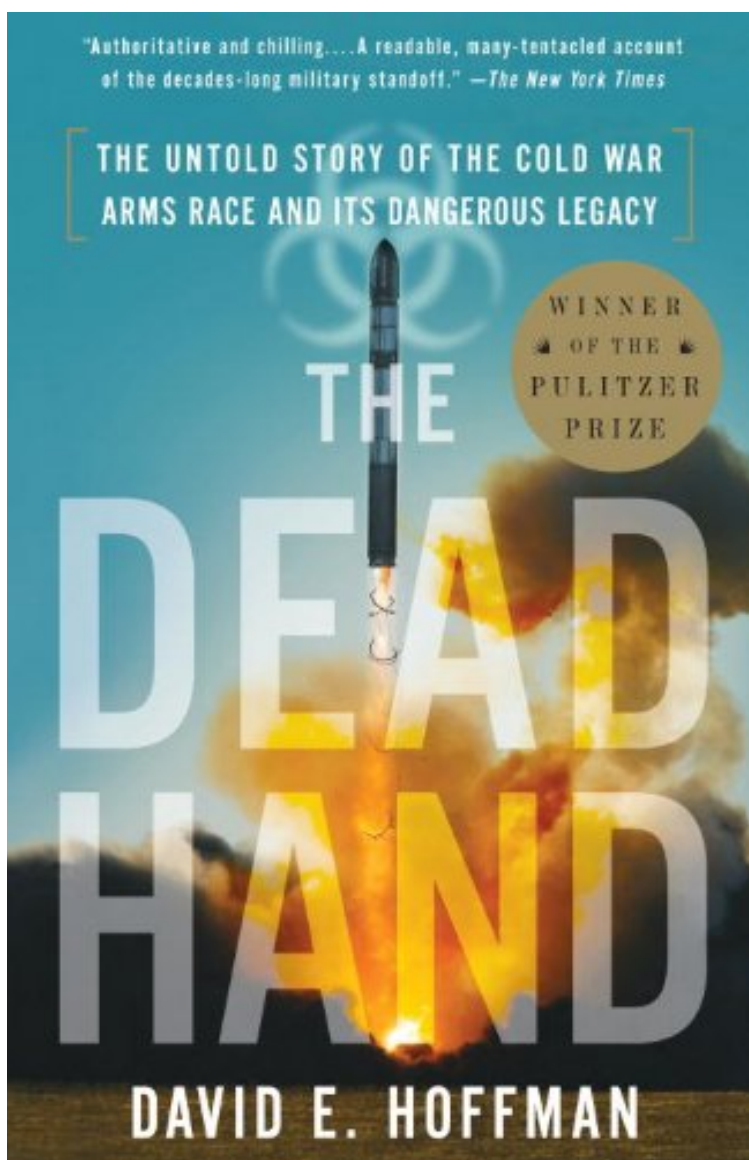


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The Dead Hand: The Untold Story of the Cold War Arms Race and its Dangerous Legacy



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Description :

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WINNER OF THE PULITZER PRIZE
The first full account of how the Cold War
arms race finally came to a close, this riveting narrative history sheds new light on the people who struggled
to end this era of massive overkill, and examines the legacy of the nuclear, chemical, and biological weapons
that remain a threat today.Drawing on memoirs, interviews in both Russia and the US, and classified
documents from deep inside the Kremlin, David E. Hoffman examines the inner motives and secret
decisions of each side and details the deadly stockpiles that remained unsecured as the Soviet Union

collapsed. This is the fascinating story of how Reagan, Gorbachev, and a previously unheralded collection of scientists, soldiers, diplomats, and spies changed the course of history. From the Trade Paperback edition. Extrait

PROLOGUE I. Epidemic of Mystery

"Are any of your patients dying?" asked Yakov Klipnitzer when he called Margarita Ilyenko on Wednesday, April 4, 1979. She was chief physician at No. 24, a medium-sized, one-hundred-bed hospital in Sverdlovsk, a Soviet industrial metropolis in the Ural Mountains. Her hospital often referred patients to a larger facility, No. 20, where Klipnitzer was chief doctor. Klipnitzer saw two unusual deaths from what looked like severe pneumonia. The patients, he told Ilyenko, were "two of yours." No, Ilyenko told him, she did not know of any deaths. The next day he called again. Klipnitzer was more persistent. "You still don't have any patients dying?" he asked. Klipnitzer had new deaths with pneumonia-like symptoms. "Who is dying from pneumonia today?" Ilyenko replied, incredulous. "It is very rare." Soon, patients began to die at Ilyenko's hospital, too. They were brought in ambulances and cars, suffering from high fevers, headaches, coughs, vomiting, chills and chest pains. They were stumbling in the hallways and lying on gurneys. The head of admissions at Hospital No. 20, Roza Gaziyeva, was on duty overnight between April 5 and 6. "Some of them who felt better after first aid tried to go home. They were later found on the streets the people had lost consciousness," she recalled. She tried to give mouth-to-mouth resuscitation to one ill patient, who died. "During the night, we had four people die. I could hardly wait until morning. I was frightened." On the morning of April 6, Ilyenko raced to the hospital, threw her bag into her office, put on her white gown and headed for the ward. One patient looked up at her, eyes open, and then died. "There are dead bodies, people still alive, lying together. I thought, this is a nightmare. Something is very, very wrong." Death came quickly to victims. Ilyenko reported to the district public health board that she had an emergency. Instructions came back to her that another hospital, No. 40, was being set up to receive all the patients in an infectious disease ward. The word spread: infection! and with it, fear. Some staff refused to report for work, and others already at work refused to go home so as not to expose their families. Then, disinfection workers arrived at hospital No. 20, wearing hazardous materials suits. They spread chlorine everywhere, which was a standard disinfectant, but the scene was terrifying, Ilyenko recalled. "There was panic when people saw them."

(1) Sverdlovsk, population 1.2 million, was the tenth-largest city in the Soviet Union and the heartland of its military-industrial complex. Guns, steel, industry and some of the best mechanical engineering schools in the Soviet Union were Sverdlovsk's legacy from Stalin's rush to modernize during World War II and after. Since 1976, the region had been run by a young, ambitious party secretary, Boris Yeltsin. Hospitals No. 20 and 24 were in the southern end of the city, which slopes downward from the center. Streets lined with small wooden cottages and high fences were broken up by stark five-story apartment buildings, shops and schools. The Chkalovsky district, where Ilyenko's hospital was located, included a ceramics factory where hundreds of men worked in shifts in a cavernous building with large, high windows. Less than a mile away, to the north-northwest, was Compound 32, an army base for two tank divisions, largely residences, and, adjacent to it, a closed military microbiology facility. Compound 19, which comprised a laboratory, development and testing center for deadly pathogens, including anthrax, was run by the 15th Main Directorate of the Ministry of Defense. On Monday April 2, 1979, from morning until early evening, the wind was blowing down from Compound 19 toward the ceramics factory.

(2) Inside Compound 19, three shifts operated around the clock, experimenting with anthrax and making it in batches. Anthrax bacteria were grown in fermentation vessels, separated from the liquid growth medium and dried before they were ground up into a fine powder for use in aerosol form. Workers at the compound were regularly given vaccinations. The work was high risk. Anthrax is an often-fatal infection that occurs when spores of the bacteria *Bacillus anthracis* enter the body, either through the skin, ingestion or inhalation. The bacteria germinate and release toxins that can quickly bring on death if untreated. In Russia, the disease was known as *Sibirskaya yazva*, or Siberian ulcer, because of the black sores that form when it is contracted through cuts in the skin. In nature, the disease most commonly spreads through contact with infected animals, usually grazing animals such as cows, goats and sheep, which ingest the spores from the soil. The inhalation variety is dangerous to humans. Breathing the spores into the lungs can kill those infected if not treated. A single gram of anthrax contains around a trillion spores. Odorless and colorless, the spores are extremely stable, and can remain dormant for as long as fifty years or more. For these reasons, anthrax was well suited for a biological weapon. According to one estimate, 112 pounds of anthrax spores released along a 1.2-mile line upwind of a city of 500,000 residents would result in 125,000 infections and kill 95,000 people.

(3) What exactly happened at Compound 19 is still unknown. By one account, a liter was removed and not properly replaced, and anthrax spores were released into the air.

(4) To

the south, sheep and cattle in villages began to die. Anthrax had been present in rural areas in the past, although it was not common. At the same time, people started getting sick. The first records of those admitted to hospitals came on Wednesday, April 4, when Ilyenko got Klipnitzer's phone call. "What was strange for us, it was mainly men dying, not many women, and not a single child," she said.⁽⁵⁾ Ilyenko began keeping records of names, ages, addresses and possible reasons for the deaths, but she didn't know what was happening, or why. On April 10, as the crisis deepened, Faina Abramova, a retired pathologist who had been a lecturer at the Sverdlovsk Medical Institute, was summoned to Hospital No. 40 and asked to autopsy a thirty-seven-year-old man who died over the weekend. He had been at Compound 32, the army base with the tank divisions, for reserve duty, gone home to a nearby village and, for no apparent reason, became suddenly ill. Abramova, a spirited professional, was puzzled by the case. The man did not show classic signs of influenza and pneumonia. But the autopsy showed infection of the lymph nodes and the lungs. Abramova had also noticed the man suffered from cerebral bleeding, a distinctive red ring around the brain known as "cardinal's cap."⁽⁶⁾ "We started thinking what other diseases may cause this pathology," she recalled. "We looked up the books, and we went through them all together, and it looked like anthrax." That evening, Abramova attended a reception, which was also attended by Lev Grinberg, her protégé, a young pathologist with thick glasses, black hair and a beard. As they danced at the reception, Abramova whispered to him that she had autopsied the man earlier that day, and diagnosed his death as anthrax. Grinberg was stunned. "I asked, where in our godforsaken Sverdlovsk can we have anthrax?" he recalled. The next day, Grinberg saw the evidence for himself. He was instructed to go to Ilyenko's hospital. "I saw a horrible picture," he recalled. "It was three women, they had identical changes, sharp hemorrhagic changes in their lungs, in the lymph nodes, and the tissue of lymph nodes was hemorrhaging." Abramova took samples and materials from the autopsies. Word of the outbreak reached Moscow. Late on April 11, Vladimir Nikiforov, a chief of the infectious diseases department at the Central Postgraduate Institute, located within the Botkin Hospital in Moscow, arrived in Sverdlovsk. Also arriving in the city was Pyotr Burgasov, the Soviet deputy minister of health, who had once worked at Compound 19, in the 1950s. On April 12, at 2 P.M., Nikiforov assembled all the doctors who had been involved and asked for their observations and the autopsies. Abramova was last to speak. She told him: anthrax. Nikiforov, an eminent, courtly scientist who had studied anthrax throughout his career, announced that he agreed with her. He reassured the doctors it could not spread from human to human. But from where had it come? Burgasov declared the source was contaminated meat from a village located 9.3 miles from the city. No one spoke up. No one knew for sure; the uncertainty was frightening. In Chkalovsky's neighborhoods, residents were told to watch out for contaminated meat. A widespread vaccination program began; according to Ilyenko's notes, 42,065 people were vaccinated in the days that followed. Broadsheet leaflets dated April 18 were distributed warning people not to buy meat outside the stores, to watch out for anthrax symptoms such as headaches, fever, cold and cough followed by abdominal pains and high temperatures, and not to slaughter animals without permission.⁽⁷⁾ Buildings and trees were washed by local brigades, stray dogs shot by police and unpaved streets covered with fresh asphalt. Ilyenko wrote in her notes on April 20, "358 got sick. 45 died. 214 in Hospital 40." She was not asked to relinquish her notes, and kept them at home. The 45 who died at her hospital were only part of the story; the total number of deaths from anthrax was more than 60 people. Carried by the steady wind, the spores floated through the ceramics factory, south of Compound 19. Vladlen Krayev, chief engineer, was present when the outbreak began among his 2,180 employees. He recalled that the factory had a ventilator that sucked air from outside, pumping it into furnaces, and provided ventilation for the workers. In the first weeks, about eighteen factory workers died. The crisis stretched on for seven weeks, much longer than might be expected, given the two-to-seven-day incubation period for anthrax described in textbooks at the time.⁽⁸⁾ Grinberg recalled that Nikiforov made an unusual decision, ordering that all the dead be autopsied even though government regulations prohibited autopsy for anthrax victims because the spores can spread. As Grinberg and Abramova worked through the long days, the two pathologists began to take notes out of sight. They wrote these notes on cards, and sometimes they wrote the official reports on carbon paper and kept the copies. "No one checked," Abramova recalled. The head of the regional health department came and told them "not to talk too much about it, and don't discuss it on the phone." They conducted forty-two autopsies. They saw anthrax had damaged the lungs and lymph nodes. Grinberg said he suspected inhalation anthrax but didn't know for sure. "Perhaps we didn't know definitely, but we were not talking about it much. Honestly speaking, we were very tired, it was hard work, we had a feeling, myself for example, as if we were working under war conditions. They were feeding us, bringing us meals, to the center at No. 40. There was a huge amount of

chlorine. Disinfection was done every day. And we were going home on the trams after the working shift, and people were rushing away because we smelled of chlorine. The way I remember it, on the 10th day, about the end of the second week, we were thinking about keeping this material, that it should be preserved and studied." Although it was prohibited, Grinberg persuaded a friend who was a photographer to secretly take color photographs of the autopsies using East German slide film. Abramova also preserved tissue samples. In May, as the crisis eased, Nikiforov assembled all those who had participated in the hospital work and told them: the anthrax had come from tainted meat. But quietly, he told Abramova to keep investigating. He played a double game. In public, he was an official of the state, and loyal to the official story. But he also gave the pathologists a private signal to hide and protect their evidence. Nikiforov later died of a heart attack. "We are certain that he knew the truth," Grinberg said.⁽⁹⁾ But the people of the Soviet Union and the outside world did not.

II. Night Watch for Nuclear War

The shift change began at 7 P.M. on September 26, 1983. Stanislav Petrov, a lieutenant colonel, arrived at Serpukhov-15, south of Moscow, a top-secret missile attack early-warning station, which received signals from satellites. Petrov changed from street clothes into the soft uniform of the military space troops of the Soviet Union. Over the next hour, he and a dozen other specialists asked questions of the outgoing officers. Then his men lined up two rows deep and reported for duty to Petrov. Their twelve-hour shift had begun.⁽¹⁰⁾ Petrov settled into a comfortable swivel chair with arms. His command post overlooked the main door of the early-warning station through a window. In front of him were telephones to connect to headquarters and electronic monitors. Out the door, beyond the specialists and their consoles, a large map covered the far wall. At the center of the map was the North Pole. Above the pole and beyond it as it might be seen from space were Canada and the United States, inverted. Below the pole stretched the vast lands of the Soviet Union. This was the path that nuclear missiles would take if ever launched. The map showed the location of Minuteman missile bases in the United States. Petrov knew those bases held one thousand intercontinental ballistic missiles carrying nuclear warheads that could cross the Arctic and reach the Soviet Union in thirty-five minutes. On the main door, a dozen men monitored electronic consoles with a singular mission: using satellites to spot a launch and give the leaders of the Soviet Union an added margin of ten minutes' warning, or maybe twelve minutes, to decide what to do. Petrov, forty-four, had served in the military for twenty-six years, rising to deputy chief of the department for combat algorithms. He was more of an engineer than a soldier. He liked the logic of writing formulas, often using English-based computer languages. On most days, he was not in the commander's chair but at a desk in a nearby building, working as an analyst, responding to glitches, re-tuning the software. But twice a month, he took an operations shift in order to keep on top of the system. When Petrov first arrived eleven years earlier, the station was new, with equipment still in crates and the rooms empty. Now, it had grown into a bristling electronic nerve center. Seven satellites orbiting above the earth were positioned to monitor the American missile fields, usually for a period of six hours. Each satellite was a cylinder six feet long and six feet around, and sent streams of data to the command center.⁽¹¹⁾ The brain of the center was the M-10, the best supercomputer that existed in the Soviet Union, which analyzed the data and searched for signs of a missile attack. The satellite system was known as Oko, or "Eye," but the individual spacecraft were known to Petrov by simple numbers, one through nine. On this night, No. 5 was reaching the highest point of its orbit, about 19,883 miles above the Earth. From space, it scanned the very edge of the Earth, using infrared sensors to detect a missile launch. The satellite could spot the heat given off by a rocket engine against the black background of space, a delicate trick requiring the satellite to be in the right position, steady and aimed at the distant point where the Earth met the darkness of the cosmos. Of the whole fleet, No. 5 had the highest sensitivity, but its task was complicated by the time of day. The satellite was aimed at missile fields that were passing from daylight to twilight during Petrov's shift. Dusk was often a blurry, milky zone that confused the satellites and computers. The operators knew of the challenge, and watched closely. Usually, each satellite picked up fifteen or twenty objects of interest, and the computers at Serpukhov-15 examined the data on each, checking against the known characteristics of a rocket fire. If it did not look like a missile, the objects would be discarded by the computer and a new target grabbed for examination. The computer ran continuous checks against the data streaming in from space. The satellites also carried an optical telescope, with a view of the Earth. This was a backup, allowing the ground controllers to visually spot a missile attack, but the images were dim in fact, special operators had to sit in a darkened room for two hours so they could see through the telescopes. On this night, satellite No. 5 was bringing in more data than usual. Instead of fifteen to twenty targets, it was feeding the computer more than thirty. Petrov figured the elevated levels were due to the satellite's heightened sensitivity. They watched it closely as it approached the apogee of its orbit, when it

would be positioned to monitor the American missile elds. At 10 P.M., Petrov paused for tea. Petrov and his men had watched many test launches from Vandenberg Air Force Base in California and from Cape Canaveral in Florida, as well as Soviet test launches from Plesetsk in northern Russia. With the satellites, they could rapidly detect the rocket's bright arc moments after it rose into the sky; they had seen a few tests fail, too. For all the years Petrov worked at the early-warning center, they had been rushed. The satellite system was put into service in late 1982, even though it was not ready. Petrov and his men were told: it was an important project for the country, don't worry about the shortcomings. They will be fixed later, you can compensate for the problems, look the other way for now. Petrov knew why they were in such a hurry. The United States and the Soviet Union threatened each other with missiles on hair-trigger alert. The two superpowers had between them about 18,400 nuclear warheads poised to be launched from missiles in silos, on submarines hidden under the seas and from bombers. And there were many smaller, or tactical, nuclear weapons arrayed along the front lines of the Cold War confrontation in Europe. In the event of a nuclear attack, a decision whether to retaliate would have to be made in minutes, and enormous efforts were made by each superpower to gain precious time for warning. With ground-based radar alone, which could not see beyond the curvature of the Earth, the incoming missiles might not be detected until the final seven to ten minutes of their flight. But with the early-warning satellites, a launch could be spotted sooner. The Americans already had stationed their satellites to watch over the Soviet missile elds. The Soviet Union was in a hurry to catch up. They rushed to build Serpukhov-15 and launch their own satellites. A fear haunted the old men who ruled the Soviet Union, led by General Secretary Yuri Andropov, a frail and paranoid former KGB chief who in the autumn of 1983 was suffering from kidney failure. The fear was a sudden attack that might destroy the entire leadership in Moscow before they could leave the Kremlin. If they could be decapitated, wiped out without warning by a surprise attack, their threat to retaliate was simply not credible. That is why Petrov's mission was so important. The satellites, the antennas, the computers, the telescopes, the map and the operations center they were the night watch for nuclear war. Petrov heard the rhetoric, but he didn't believe the superpowers would come to blows; the consequences were just too devastating. Petrov thought the Soviet leaders were pompous and self-serving, and in private he was disdainful of the party bosses. He did not take seriously their bombast about America as the enemy. Yet the furor in recent months had been hard to ignore. President Ronald Reagan had called the Soviet Union an "evil empire" in March, and only a few weeks before Petrov's night at the operations center, Soviet Air Defense Forces had shot down a Korean airliner in the Far East, killing 269 people. Petrov saw himself as a professional, a technician, and took pride in overcoming long odds. He understood the enormity of the task, that in early warning there could be no room for false alarms. His team had been driven hard to eliminate the chance for error. While they had tried strenuously to make the early-warning system work properly, the apparatus was still troubled. A system to make decisions about the fate of the Earth was plagued by malfunctions. Of the first thirteen satellites launched in the test phase from 1972 to 1979, only seven worked for more than one hundred days.⁽¹²⁾ The satellites had to be launched constantly in order to keep enough of them aloft to monitor the American missile elds. They often just stopped sending data back to Earth. At 12:15 A.M., Petrov was startled. Across the top of the room was a thin, silent panel. Most of the time no one even noticed it. But suddenly it lit up, in red letters: LAUNCH. A siren wailed. On the big map with the North Pole, a light at one of the American missile bases was illuminated. Everyone was riveted to the map. The electronic panels showed a missile launch. The board said "high reliability." This had never happened before. The operators at the consoles on the main floor jumped up, out of their chairs. They turned and looked up at Petrov, behind the glass. He was the commander on duty. He stood, too, so they could see him. He started to give orders. He wasn't sure what was happening. He ordered them to sit down and start checking the system. He had to know whether this was real, or a glitch. The full check would take ten minutes, but if this was a real missile attack, they could not wait ten minutes to find out. Was the satellite holding steady? Was the computer functioning properly? As they scrambled, Petrov scrutinized the monitors in front of him. They included data from the optical telescope. If there was a missile, sooner or later they would see it through the telescope. Where was it headed? What trajectory? There was no sign of it. The specialists who sat in the darkened room, also watching the telescope, spotted nothing. The computer specialists had to check a set of numbers spewing out of the hard-copy printer. Petrov scrutinized the data on his monitor, too. Could it be a technical error? If not, Petrov ran through the possibilities. If just one missile, could it be an accidental or unauthorized launch? He concluded it was not likely. He knew of all the locks and precautions and just one person could not launch a missile. Even the idea of two officers conspiring to launch a missile seemed impossible. And if one missile

was launched, he thought, what did that mean? This was not the way to start a nuclear war. For many years, he had been trained that a nuclear war would start only with a massive strike. He said it again, to himself: this is not the way to start a nuclear war. He had a microphone in one hand, part of the intercom system to the main floor. With the other hand, he picked up the telephone to call his commanders, who oversaw the whole early-warning system, including the separate radars. Petrov had to quickly reach his own conclusion; the supervisors would want to know what was happening. He had not completed his own checks, but he could not wait. He told the duty officer, in a clipped tone: "I am reporting to you: this is a false alarm." He didn't know for sure. He only had a gut instinct. "Got it," the officer replied. Petrov was relieved; the officer did not ask him why. The phone was still in his hand, the duty officer still on the line, when Petrov was jolted again, two minutes later. The panel flashed: another missile launched! Then a third, a fourth and a fifth. Now, the system had gone into overdrive. The additional signals had triggered a new warning. The red letters on the panel began to flash MISSILE ATTACK, and an electronic blip was sent automatically to the higher levels of the military. Petrov was frightened. His legs felt paralyzed. He had to think fast. Petrov knew the key decision-makers in a missile attack would be the General Staff. In theory, if the alarm were validated, the retaliation would be directed from there. Soviet missiles would be readied, targets fed in and silo hatches opened. The Soviet political leadership would be alerted. There would be only minutes in which to make a decision. The siren wailed. The red sign flashed. Petrov made a decision. He knew the system had glitches in the past; there was no visual sighting of a missile through the telescope; the satellites were in the correct position. There was nothing from the radar stations to verify an incoming missile, although it was probably too early for the radars to see anything. He told the duty officer again: this is a false alarm. The message went up the chain.

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