A Farewell to Germs

The U.S. Renunciation of Biological and Toxin Warfare, 1969–70

Jonathan B. Tucker

In autumn 2001, letters containing powdered anthrax spores were sent through the U.S. mail, killing five people, infecting several others, temporarily disrupting the operation of all three branches of the federal government, and frightening millions of Americans. These unprecedented attacks transformed the largely hypothetical threat of biological terrorism into a harsh reality and increased public interest and concern about U.S. government efforts to address the problem. Because current U.S. policies on biological weapons date back to the Nixon administration, understanding the factors that shaped those decisions can illuminate some key issues facing the United States as it confronts the growing threats of biological warfare and terrorism.

On November 25, 1969, President Richard M. Nixon announced that the United States had decided to renounce the possession and use of lethal and incapacitating biological weapons even for retaliation, and would henceforth confine its biological research program to defensive measures. The administration also declared that it would destroy its entire stockpile of biological weapons over the next few years. "These important decisions," President Nixon said, "have been taken as an initiative toward peace. Mankind already carries in its own hands too many of the seeds of its own destruction. By the examples we set today, we hope to contribute to an atmosphere of peace and understanding between nations and among men."[1]

The U.S. renunciation of biological weapons, which was expanded in February 1970 to cover toxins (nonliving poisons produced by bacteria and other organisms), was the first time that a major power had unilaterally renounced an entire category of weapons of mass destruction. Despite the importance of this

Jonathan B. Tucker directs the Chemical and Biological Weapons Nonproliferation Program in the Washington office of the Monterey Institute of International Studies. He is the editor of Toxic Terror: Assessing Terrorist Use of Chemical and Biological Weapons *(Cambridge, Mass.: MIT Press, 2000) and the author of* Scourge: The Once and Future Threat of Smallpox *(New York: Atlantic Monthly Press, 2001).*

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1. Office of the White House Press Secretary, "Statement by the President," November 25, 1969, p. 2.

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step, the political and bureaucratic factors that led to it are poorly understood. The most detailed study of the policymaking process involved in President Nixon's decision is a Stanford University doctoral dissertation by Forrest Frank that was written in 1974, shortly after the events occurred.[2] Because the relevant U.S. government documents were classified at the time, Frank's analysis was based on press accounts and interviews with officials and outside observers. The present account draws on a number of National Security Council (NSC) and State Department documents that have since been declassified, making it possible to address some previously unanswered questions. First, what were the internal and external political factors that caused the Nixon administration to address the issue of biological warfare in 1969? Second, why did Secretary of Defense Melvin Laird take a position in the internal policy debate that differed from that of the Joint Chiefs of Staff (JCS)? Third, what concessions were needed to win the support of the uniformed military?

This article also examines the historical legacy of President Nixon's decision. The U.S. renunciation of biological and toxin warfare had a positive effect on the international political climate and opened the way for the rapid negotiation of the 1972 Biological and Toxin Weapons Convention (BWC), a multilateral treaty banning the development, production, stockpiling, and transfer of such weapons. At the same time, the decision had a number of negative consequences. First, the fact that the United States had unilaterally renounced biological warfare (BW) reduced the incentive of U.S. negotiators to incorporate into the BWC an effective mechanism for monitoring compliance, especially given the Soviet Union's aversion to on-site inspections. Yet without formal verification measures, the BWC was reduced to little more than a "gentleman's agreement," which the Soviet Union and then Russia violated on a large scale until at least 1992. Second, because President Nixon's decision authorized a biological defense research program but did not provide for effective oversight by either the White House or the Congress, the U.S. Army and the intelligence community were given free rein to pursue certain questionable biodefense projects that have skirted, if not violated, prohibitions in the BWC.

This article recounts the history of the U.S. biological warfare program from World War II to the late 1960s; the Nixon administration's 1969 review of chemical and biological warfare (CBW) policies that led to its decision to renounce the U.S. offensive BW program; the belated discovery and resolution of

2. Forrest Russel Frank, "U.S. Arms Control Policymaking: The 1972 Biological Weapons Convention Case," Ph.D. dissertation, Stanford University, November 1974.

a further set of policy issues related to toxin weapons in early 1970; and the negotiation of the BWC in 1971. The article concludes with an assessment of the legacy of the Nixon administration's renunciation of offensive biological warfare for current U.S. policy, including efforts to strengthen the BWC and to improve defenses against biological warfare and terrorism.

Origins of the U.S. Biological Warfare Program

During World War II, the United States, Great Britain, Canada, France, Germany, Japan, and the Soviet Union did research on biological weapons, despite the deeply rooted international norm against the military use of poison and disease.[3] The U.S. BW program was established in response to the perceived need to deter a biological attack by Japan and Germany.[4] Beginning in 1936, the Japanese army ran a top-secret BW facility in occupied Manchuria known as Unit 731, where military scientists cultivated deadly bacteria—including the agents of plague, anthrax, gas gangrene, typhus, and typhoid—and tested them on prisoners of war. Japanese military aircraft dropped ceramic bombs containing plague-infested fleas and grain (to attract disease-spreading rats) on eleven Chinese cities in 1940, triggering deadly epidemics.[5]

Responding to reports of Japanese BW attacks against China and intelligence assessments (later shown to be incorrect) that Nazi Germany was developing operational biological weapons, the U.S. Army established a biological warfare research program in 1941 through its Chemical Warfare Service. A more substantial effort began the following year under the direction of George Merck, president of the pharmaceutical firm Merck and Company. When compared with the $2 billion spent on the Manhattan Project, however, the U.S. BW program during World War II was modest in scope, with a workforce of about 4,000 (including scientists) and a total expenditure of about $60 million.[6] Although the United States had not yet ratified the 1925 Geneva Protocol banning the use in war of chemical and biological weapons, President Franklin D. Roosevelt considered such weapons morally repugnant and remained commit-

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3. Richard M. Price, *The Chemical Weapons Taboo* (Ithaca, N.Y.: Cornell University Press, 1997).
4. Stockholm International Peace Research Institute (SIPRI), *The Problem of Chemical and Biological Warfare,* Vol. 1: *The Rise of CB Weapons* (New York: Humanities Press, 1971), p. 333.
5. Sheldon H. Harris, *Factories of Death: Japanese Biological Warfare, 1932–45, and the American Cover-Up* (London: Routledge, 1994).
6. Barton J. Bernstein, "The Birth of the U.S. Biological-Warfare Program," *Scientific American,* Vol. 256, No. 6 (June 1987), pp. 116–121.

ted to the principle of no first use.[7] Responding to reports in June 1943 that the Axis powers were considering escalation to chemical warfare, Roosevelt declared, "I state categorically that we shall under no circumstances resort to the use of such weapons unless they are first used by our enemies."[8]

After Roosevelt's death on April 12, 1945, U.S. planning for chemical and biological warfare advanced, but not to the point where sufficient logistical or organizational readiness existed to use these weapons on a large scale.[9] In the closing year of World War II, a bomb filled with anthrax bacterial spores was developed, but BW agents were not available in sufficient quantities to be employed against Japan. The Vigo anthrax production facility, located six miles south of Terre Haute, Indiana, was still undergoing preliminary testing when the war ended.[10] Had the Pacific war dragged on into the late autumn and winter of 1945, however, President Harry Truman might have been under growing pressure to use chemical—and perhaps even biological—weapons against the Japanese.[11]

Although the U.S. biological warfare program during World War II did not yield an operational weapon, the success of the research and development (R&D) effort persuaded military planners of the feasibility of this type of warfare and the need to develop a retaliatory capability, particularly in view of suspected Soviet activities in the BW field. As Cold War tensions deepened, the U.S. investment in offensive biological weapons increased, although it fluctuated over time. Laboratory development of antipersonnel and anticrop agents took place at Camp Detrick, Maryland, and evaluation of antilivestock agents at Fort Terry on Plum Island, New York.[12] Despite operational planning for bi-

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7. Three factors made the Geneva Protocol, in effect, a "no-first-use" agreement. First, several countries ratified the protocol but reserved the right to retaliate in kind if attacked first with chemical or biological weapons. Second, the doctrine of belligerent reprisal states that any violation of the laws of war is justifiable to the extent that it is intended to bring to an end some previous violation. Third, because the Geneva Protocol was drafted as a contract among the parties, if another member country broke the contract by using chemical or biological weapons first, the attacked state was freed from its obligation.

8. Quoted in U.S. Arms Control and Disarmament Agency (ACDA), *Arms Control and Disarmament Agreements: Texts and Histories of the Negotiations* (Washington, D.C.: ACDA, 1990), p. 11.

9. Julian Perry Robinson, "Chemical Arms Control and the Assimilation of Chemical Weapons," *International Journal*, Vol. 36, No. 3 (Summer 1981), pp. 515–534.

10. John Ellis van Courtland Moon, "U.S. Biological Warfare Planning and Preparedness: The Dilemmas of Policy," in Erhard Geissler and Moon, eds., *Biological and Toxin Weapons: Research, Development, and Use from the Middle Ages to 1945*, SIPRI Chemical and Biological Warfare Studies, No. 18 (Oxford, England: Oxford University Press for SIPRI, 1999), pp. 253–254.

11. Barton J. Bernstein, "Why We Didn't Use Poison Gas in World War II," *American Heritage*, Vol. 36, No. 5 (August–September 1985), pp. 40–45.

12. Camp Detrick was renamed Fort Detrick in 1956. In the early 1950s, the U.S. Army built a laboratory at Fort Terry to evaluate animal-disease agents, including the viruses that cause foot-and-

ological warfare, it is doubtful that the weapons were actually used. During the Korean War (1950–53), North Korea, China, and the Soviet Union accused the United States of covert bacteriological warfare, but archival evidence suggests that these claims were part of an elaborate disinformation campaign.[13]

In 1952 the Soviet Union introduced a draft resolution in the UN Security Council calling on all countries, including the United States, to ratify the Geneva Protocol. But Washington declared that it was not prepared to rule out the use of chemical and biological weapons unless they were eliminated through negotiated disarmament agreements with effective safeguards.[14] During the 1960 presidential campaign, the candidates were asked their views on chemical and biological warfare. Republican candidate Richard Nixon called the continued development of such weapons "essential" for the national defense, whereas Democratic candidate John F. Kennedy said that it was imperative to bring them under international control with a view to their eventual elimination.[15] In 1961 the Kennedy administration requested a thorough reassessment of chemical and biological warfare by the Joint Chiefs, considering all potential military applications. Ironically, this study, known as Project Number 112, provided the rationale for a major expansion of BW research and development.[16]

By the late 1960s, the United States had acquired an offensive BW capability to deter a Soviet biological attack and retaliate in kind. The U.S. biological weapons complex included the research laboratory at Fort Detrick, Maryland; a manufacturing facility at Pine Bluff Arsenal in Arkansas; and an open-air testing site at Dugway Proving Ground in Utah. The Army Chemical Corps had officially standardized and formulated two lethal microbial agents (anthrax and tularemia bacteria) and three additional agents that were rarely fatal but caused incapacitating symptoms (brucellosis bacteria, Q fever rickettsia, and Venezuelan equine encephalitis virus). Bacterial toxins had also been developed into weapons, including a lethal agent (botulinum toxin) and an inca-

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mouth disease, African swine fever, Rift Valley fever, and Rinderpest, for potential offensive use against the Soviet Union. The plan was to disrupt the Soviet economy in wartime by spreading diseases that would kill domestic livestock such as pigs, cattle, and horses. John McDonald, "Lab Focus Was on 4 Animal Diseases," *Newsday,* November 21, 1993, p. 60.

13. Bruce B. Auster, "Unmasking an Old Lie: A Korean War Charge Is Exposed as a Hoax," *U.S. News and World Report,* November 16, 1998, p. 52.

14. ACDA, *Arms Control and Disarmament Agreements,* p. 11.

15. Charles L. Ruttenberg, "Political Behavior of American Scientists: The Movement against Chemical and Biological Warfare," Ph.D. dissertation, New York University, June 1972, p. 136.

16. William C. Patrick III, "A History of Biological and Toxin Warfare," in Kathleen C. Bailey, ed., *Director's Series on Proliferation,* No. 4 (Livermore, Calif.: Lawrence Livermore National Laboratory, May 23, 1994, UCRL-LR-114070-4), pp. 16–17.

pacitating agent (*Staphylococcus* enterotoxin B, or SEB). To maintain a stockpile for retaliatory purposes, the U.S. Army's Directorate of Biological Operations at Pine Bluff Arsenal produced limited quantities of biological and toxin agents and loaded them into bomblets, bombs, and spray tanks. Filled munitions were stockpiled in underground igloos, refrigerated vans, and other storage facilities.[17]

The army's Deseret Test Center also performed numerous field tests, most of them with harmless microbes that simulated the behavior of biological warfare agents. In 1965 and 1968, however, two secret trials conducted with live agents demonstrated that biological weapons could be employed for strategic, mass-casualty attacks against cities and other population centers. The first test series, code-named Shady Grove, took place from January 22 through April 9, 1965, near Johnston Atoll in the Pacific. Five army light tugboats were deployed in a staggered array downwind to form a sampling line 100 miles long, with caged rhesus monkeys on the desks serving as the experimental subjects. Shortly after sunset, to minimize ultraviolet radiation (which killed BW agents) and ensure stable atmospheric conditions, a tactical aircraft equipped with spray tanks released an aerosol cloud of tularemia or Q fever microbes, forming an invisible plume that drifted downwind and exposed the caged monkeys. These trials demonstrated that the microbes spread over hundreds of square miles and remained infectious and virulent for several hours. In the largest of the twenty tests in the Shady Grove series, a plane sprayed a 32-mile-long line of agent that traveled downwind for more than 60 miles before it lost its infectiousness.[18]

The second set of live-agent trials, conducted in September and October 1968 near Eniwetok Atoll in the Pacific, were similar but involved spraying from an F-4 Phantom jet an aerosol of the incapacitating toxin SEB. This protein toxin proved to be highly stable and did not deteriorate significantly during storage, aerosolization, or downwind travel. Under the test conditions, a single release of SEB was calculated to have covered 915 square miles and would have incapacitated 30 percent of a susceptible population.[19] The Shady Grove and Eniwetok trials demonstrated that biological and toxin agents were true weap-

17. Ed Regis, *The Biology of Doom: The History of America's Secret Germ Warfare Project* (New York: Henry Holt, 1999), pp. 210–211.
18. Thom Shanker and William J. Broad, "Sailors Sprayed with Nerve Gas in Cold War Test," *New York Times,* May 24, 2002, pp. A1, A21.
19. Regis, *The Biology of Doom,* p. 206.

ons of mass destruction, capable of killing or incapacitating large numbers of people over a wide area.[20]

Domestic and International Opposition to U.S. CBW Policies

In the spring of 1968, a watershed event occurred that was to change the public's perception of chemical and biological warfare. On March 17 the owner of a livestock company reported that some 3,000 sheep had died in Skull Valley, Utah, a 30-mile stretch of desert adjacent to the army's open-air CBW test site at Dugway Proving Ground. The army admitted that an aircraft had sprayed the potent chemical nerve agent VX over Dugway on March 13, suggesting that the toxic cloud had drifted out of the test range and poisoned the sheep. Although the army agreed to pay $1 million in damages, it refused to accept responsibility.[21] Whether or not the army was to blame, the Skull Valley incident generated bad publicity and concern in Congress over the open-air testing of chemical weapons.[22]

The press devoted relatively little attention to the Skull Valley incident until the NBC newsmagazine *First Tuesday* broadcast a documentary on the U.S. CBW program on February 4, 1969. In addition to reporting the massive sheep kill in Utah, the documentary described the Pentagon's disposal of bulk containers and munitions holding tons of obsolete chemical warfare agents. The weapons were shipped by rail from depots in various parts of the United States and loaded onto old ships, which were scuttled several miles offshore. The Pentagon called this effort Operation CHASE, an acronym for "cut holes and sink 'em." Critics of the operation claimed that the transportation of chemical weapons by train posed hazards to the public and that the sea dumping of chemical weapons threatened the marine environment.[23]

Congressman Richard McCarthy of Buffalo, New York, was among the millions of Americans who saw the *First Tuesday* broadcast. In his book *The Ultimate Folly,* he wrote that "my interest and indignation climbed as I continued to watch the story unfold; indignation because I realized that I had undoubt-

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20. Interview with Matthew Meselson, PBS *Frontline* broadcast "Plague War," http://www.pbs.org/wgbh/. . . shows/plague/interviews/meselson.html (accessed July 3, 2001).
21. Regis, *The Biology of Doom,* p. 209.
22. Jeffrey K. Smart, "History of Chemical and Biological Warfare: An American Perspective," in Frederick R. Sidell, Ernest T. Takafuji, and David R. Franz, eds., *Textbook of Military Medicine,* Pt. 1: *Warfare, Weaponry, and the Casualty: Medical Aspects of Chemical and Biological Warfare* (Washington, D.C.: Borden Institute, Walter Reed Army Medical Center, 1997), p. 62.
23. Ibid., p. 63.

edly voted funds for this kind of activity but which, apparently, were buried in other appropriation bills."[24] After consulting with more senior members of the New York delegation, McCarthy requested a congressional briefing by Defense Department officials on U.S. CBW programs and policies. Although the Pentagon preferred to testify in closed session, McCarthy insisted on a partially unclassified briefing, which was held on March 4, 1969. For the participating members of Congress, the briefing raised more questions than it answered.[25]

In addition to growing domestic opposition to chemical weapons testing and disposal, the U.S. government was facing international opprobrium for its use of tear gas and chemical herbicides to augment conventional military operations in Vietnam. U.S. forces employed the defoliant Agent Orange to deprive the enemy of jungle cover and to destroy crops, and tear gas to flush enemy forces out of tunnels or bunkers so they could be fired upon. Beginning in 1964, the Soviet Union and its allies charged that such combat uses of herbicides and tear gas violated the 1925 Geneva Protocol. Although neither the United States nor North Vietnam had ratified the treaty, Washington did not challenge the view that the use of chemical weapons was banned under customary international law. Instead U.S. officials argued that the Geneva Protocol did not proscribe the use of nonlethal tear gases, which unlike chemical "incapacitating agents"—the term used in the protocol—were transient in their effects, dissipated rapidly, and were widely used for domestic riot control. In 1966, however, Hungary introduced a resolution at the UN General Assembly that called for making any combat use of chemical or biological agents, including tear gas, an international crime. Although the United States managed to water down the resolution, CBW became a recurring topic on the agenda of the United Nations and its disarmament forum in Geneva.[26]

In 1967, during the administration of President Lyndon B. Johnson, Secretary of State Dean Rusk raised the CBW issue with Secretary of Defense Robert McNamara, noting the growing international pressure on the United States to ratify the Geneva Protocol and to halt its use of tear gas and defoliants in Vietnam. McNamara referred the issue to the Joint Chiefs, who consulted with the armed services and encountered strong resistance to any limitations on CBW from the army and its Chemical Corps. Because the Joint Chiefs tended to re-

24. Richard D. McCarthy, *The Ultimate Folly: War by Pestilence, Asphyxiation, and Defoliation* (New York: Alfred A. Knopf, 1970), p. 126.
25. Frank, "U.S. Arms Control Policymaking," p. 101.
26. Charles C. Flowerree, "The Politics of Arms Control Treaties: A Case Study," *Journal of International Affairs,* Vol. 37, No. 2 (Winter 1984), p. 272.

spect each other's key missions, the chairman sent a memo to McNamara opposing any change in U.S. policy. With a major escalation of the Vietnam War then under way, McNamara advised Rusk that it was not an opportune moment for President Johnson to raise such a sensitive issue with the uniformed military.[27]

Launching the CBW Policy Review

After the Nixon administration took office in late January 1969, it soon found itself under pressure from Congress, including Senate Foreign Relations Committee Chairman J. William Fulbright, to clarify U.S. policies on chemical and biological weapons. No comprehensive review of this issue area had taken place for more than fifteen years. On April 30, 1969, Secretary of Defense Laird sent a memorandum to Henry Kissinger, the president's national security adviser, requesting that the NSC initiate an immediate review of U.S. CBW policies and programs. "I am increasingly concerned about the structure of our chemical and biological warfare programs, our national policy relating to such programs, and our public posture vis-à-vis chemical and biological warfare activities," Laird wrote. "It is clear the Administration is going to be under increasing fire as a result of numerous inquiries, the more notable being Congressman McCarthy's and Senator Fulbright's. It would seem reasonable to have the subject brought before the National Security Council at an early date. I suggest the necessary studies and reviews be initiated immediately, to facilitate early consideration by the NSC."[28]

On May 9, 1969, Kissinger responded to Laird's request for a prompt review of CBW policy by stating that he would sign a National Security Study Memorandum (NSSM) initiating an in-depth interagency study of the topic.[29] The NSSM process, which occupied the first year of the Nixon administration, involved a comprehensive examination of the major premises of U.S. foreign and

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27. Morton Halperin remarks, in Ivo H. Daalder and I.M. Destler, moderators, "Arms Control Policy and the National Security Council," *The National Security Council Project: Oral History Roundtables*, March 23, 2000 (Washington, D.C.: Center for International and Security Studies at Maryland and Brookings Institution, 2000), pp. 9–10.
28. Memorandum, Secretary of Defense Melvin R. Laird to National Security Adviser Henry A. Kissinger, April 30, 1969; Confidential, 1 page. Source: Vol. 1 folder: NSC Files: Subject Files, Chemical, Biological Warfare (Toxins, etc.); Box 310; Richard M. Nixon Presidential Materials Staff, U.S. National Archives and Records Administration (NARA), College Park, Maryland; declassified under Executive Order 12958 (hereafter cited as NARA).
29. Memorandum, National Security Adviser Henry A. Kissinger to Secretary of Defense Melvin R. Laird, Subject: CBW Study, May 9, 1969; Confidential, 1 page. Source: NARA.

security policy. The product of each NSSM study was a paper, prepared and vetted by the major national-security agencies, that laid out a broad set of options in a given issue area and identified the pros and cons of each. Any expression of agency preferences was deliberately excluded from the options papers. Instead the NSC met in weekly sessions to discuss the various issues under review. At these meetings, the agency principals—the secretaries of state and defense, the director of the Arms Control and Disarmament Agency (ACDA), the chairman of the Joint Chiefs, and the director of Central Intelligence—orally defended their preferred policies for President Nixon's consideration.

Morton Halperin, a senior member of the NSC staff with responsibility for national security planning, managed the NSSM system until his departure in September 1969, working with the heads of the functional and regional directorates to select the study topics. The NSC staff exerted a dominant influence over the NSSM process because the State Department, under the weak leadership of Secretary William Rogers, was overshadowed by Kissinger's close personal relationship with President Nixon. On most security-related issues, the State Department looked to the NSC staff to take the lead in the policymaking process.[30]

Under Halperin's direction, officials from the Departments of State and Defense jointly developed the terms of reference for the CBW study directive, which was designated NSSM-59 and issued on May 28, 1969.[31] The scope of the study covered the entire complex of policy issues relating to CBW, including whether or not the United States should ratify the Geneva Protocol banning the use in war of chemical and biological weapons. NSSM-59 would be conducted over the summer, with a deadline of September 5, 1969. Because of long-standing differences between the Departments of State and Defense on a number of CBW issues, both agencies were eager to get a new hearing during the policy review. Halperin gave Michael Guhin, a junior NSC official right out

30. Halperin remarks, in Ivo H. Daalder and I.M. Destler, moderators, "The Nixon Administration National Security Council," *The National Security Council Project: Oral History Roundtables,* December 8, 1998 (Washington, D.C.: Center for International and Security Studies at Maryland and Brookings Institution, 1999), p. 37.

31. National Security Study Memorandum (NSSM) No. 59; from National Security Adviser Henry A. Kissinger to the Secretary of State, Secretary of Defense, Director of Central Intelligence, Special Assistant to the President for Science and Technology, and Director of the United States Arms Control and Disarmament Agency, Subject: U.S. Policy on Chemical and Biological Warfare and Agents, May 28, 1969; Secret, 2 pages. Source: Document declassified under a Freedom of Information Act (FOIA) request by the National Security Archive, George Washington University, Washington, D.C. (hereafter cited as FOIA).

of graduate school, the task of coordinating NSSM-59 because "nobody else wanted to handle the CBW stuff."[32] Guhin could devote large amounts of time to the issue and, lacking any political "baggage," could act as an honest broker in the interagency debate.

The drafting and vetting of papers for NSSM-59 was assigned to the Interdepartmental Political-Military Group (IPMG), a standing interagency committee made up of representatives from the Departments of State, Defense, ACDA, and the intelligence community. This group was chaired at various times by Ronald Spiers, the assistant secretary of state for politico-military affairs (State/PM), or his deputy, Thomas Pickering. The NSC staff tasked the IPMG to prepare a summary paper listing the full range of alternative policy options on each issue, along with the pros and cons.

To address the various questions raised in NSSM-59, the IPMG divided up the analytical work among three subcommittees known as Interdepartmental Groups (IGs). Each subcommittee included representatives from every stakeholder agency, but the drafting of options papers was assigned to one or two agencies and reviewed by the others. The first IG consisted of members of the intelligence community (including the Central Intelligence Agency [CIA], the Defense Intelligence Agency [DIA], and the State Department's Bureau of Intelligence and Research), which were given the task of assessing foreign CBW capabilities. The second IG was responsible for examining military options for employing chemical and biological weapons; officials from the JCS and State/PM drafted the options paper. The third IG was assigned to explore the diplomatic options open to the United States with regard to ratification of the 1925 Geneva Protocol and the negotiation of additional CBW arms control agreements; the legal office of the State Department took the lead in writing this paper.

Once the three IG papers had been drafted, the IPMG would combine them into a summary report that would be submitted to the NSC Review Group, a high-level committee chaired by Kissinger and consisting of officials at the deputy secretary level. The NSC Review Group prepared the agenda for meetings of National Security Council principals and made sure that the president was presented with real choices among policy options and not prepackaged decisions. The relatively objective analysis of policy alternatives promoted by

32. Halperin remarks, in Daalder and Destler, "The Nixon Administration National Security Council," p. 36.

the NSSM process tended to empower minority views that would otherwise be shut out of the debate.

Because the CBW issue was highly technical, the NSC staff sought advice from scientific experts outside of government. At Kissinger's request, the White House Office of Science and Technology (OST) convened a panel of members from the President's Science Advisory Committee (PSAC) to prepare a separate report on scientific aspects of chemical and biological weapons. Matthew Meselson, a professor of molecular biology at Harvard University and a personal acquaintance of Henry Kissinger, was instrumental in persuading Kissinger to request the PSAC analysis. Vincent McCrae of the OST staff oversaw the study, and Ivan Bennett, dean of the New York University School of Medicine, chaired the panel, which included Meselson, Harvard chemistry professor Paul Doty, IBM physicist Richard Garwin, and others. The PSAC report, in addition to serving as a technical primer for the NSC staff, would be submitted to the NSC Review Group chaired by Kissinger.[33]

As the three Interdepartmental Groups and the PSAC were writing their papers, relevant news stories were breaking. On July 8, 1969, the U.S. Army announced that twenty-three American soldiers and one U.S. civilian had been exposed to nerve gas after an accident in Okinawa involving sarin-filled bombs.[34] The revelation that the army had secretly deployed chemical weapons on the Japanese island, a fact not known even to the Nixon White House, sparked anti-American riots in Japan and Okinawa. It was also disclosed that U.S. chemical weapons had been stockpiled secretly in West Germany, prompting an angry protest from the East German government. Ten days after the Okinawa incident, Secretary of Defense Laird made a statement endorsing the retention of U.S. offensive chemical and biological capabilities for deterrence purposes.[35] On July 22, however, the Pentagon announced that it would speed up the previously planned removal of chemical weapons from Okinawa.[36]

Meanwhile, at a meeting on July 10 of the Eighteen-Nation Disarmament Committee, a UN arms control forum in Geneva, the United Kingdom proposed a draft convention banning the development, production, and stockpiling of biological weapons.[37] In contrast to the Geneva Protocol, the British

33. Frank, "U.S. Arms Control Policymaking," p. 110.
34. Smart, "History of Chemical and Biological Warfare," p. 63.
35. Frank, "U.S. Arms Control Policymaking," p. 113.
36. Smart, "History of Chemical and Biological Warfare," p. 63.
37. U.S. Arms Control and Disarmament Agency, "U.K. Draft Convention on Biological Warfare, July 10, 1969," *Documents on Disarmament, 1969* (Washington, D.C.: Government Printing Office, 1970), pp. 324–326.

draft treaty separated biological from chemical arms and proposed a complete ban on the former but not the latter. The rationale was that although the time was ripe for a comprehensive ban on biological warfare, negotiating a similar prohibition of chemical weapons—which had already been used extensively in World War I—would be far more difficult. The British initiative made it all the more urgent for the United States to develop a national policy on CBW.

Divergent Agency Positions

In early August 1969, Presidential Science Adviser Lee DuBridge personally delivered the PSAC report on scientific aspects of chemical and biological weapons to Deputy Secretary of Defense David Packard, a member of the NSC Review Group. The PSAC panel had concluded that biological weapons were far less reliable in the field and predictable in their military effects than chemical weapons, and had a much shorter shelf life. Moreover, microbial pathogens posed potential long-term hazards because of the possibility that a disease agent could mutate into a more virulent or uncontrollable strain, or could infect wild animals to create persistent foci of disease that would pose an enduring threat to public health.[38]

Because of these liabilities, the PSAC panel recommended that the United States renounce its biological warfare capability and destroy all existing stockpiles of BW agents. At the same time, the panel favored maintaining a vigorous biological defense research program as a hedge against "technological surprise," as well as preserving BW agent production facilities in a standby or mothballed state of readiness and continuing research on the chemical synthesis of toxin warfare agents.[39] The PSAC report, by providing technical grounds for questioning the military utility of biological weapons, strengthened the bureaucratic position of the State Department and ACDA, which had serious reservations about the U.S. offensive biological warfare program on political and moral grounds.[40]

Deputy Secretary Packard received two Pentagon reports on biological warfare at about the same time. The first was written by the Office of Systems Analysis, which staffed the civilian Office of the Secretary of Defense and often prepared issue papers for the secretary that paralleled those he received from the JCS. Like the PSAC report, the Systems Analysis paper was critical of bio-

38. Frank, "U.S. Arms Control Policymaking," p. 114.
39. Ibid., p. 115.
40. Interview with Michael Guhin, U.S. Department of State, Washington, D.C., August 6, 2001.

logical agents as combat weapons and questioned their politico-military utility as instruments of deterrence and coercive diplomacy. According to Ivan Selin, the acting director of Systems Analysis at the time, "The paper looked at a narrow set of criteria and military applications and did not take the threat of biological warfare seriously."[41] The second report to arrive on Packard's desk was a draft of the military options paper for NSSM-59, written by the JCS and State/PM. In contrast to the PSAC and Systems Analysis reports, this paper concluded that biological weapons were reliable and controllable in the field, and that existing U.S. biological warfare capabilities should be maintained and chemical warfare capabilities expanded. Little or no mention was made of the military drawbacks of biological weapons.[42]

Packard showed the two contradictory papers to Defense Secretary Laird, who read them and agreed that a problem existed. Laird had become increasingly concerned that the NSSM study process was out of control and that NSC principals such as himself, who bore the ultimate responsibility for policymaking, had been relegated to a secondary role. Because the NSSM study groups were autonomous, it was not clear to him how the various issues and options were being chosen and why. Laird worried that the options would simply reflect the prejudices and parochial interests of bureaucrats far down the chain of command.[43] According to the defense secretary's military assistant at the time, Air Force Lt. Gen. Robert Pursley, "Laird decided to blow the whistle on the whole NSSM process. He insisted on being kept fully informed about how the military options study group was developing issues and formulating alternatives."[44]

In mid-August Laird ordered the military options paper withdrawn from the interagency group for revision. He also formally requested that the NSC postpone its consideration of the CBW issue from September until late October or November, and that the NSSM process be modified to give agency principals a chance to review the options papers before they were finalized. Laird's demand to become more directly involved in the study process, and the resulting delay in preparing the military options paper, generated considerable tension with Kissinger and the NSC staff. Indeed, bureaucratic rivalry between

41. Telephone interview with Ivan Selin, Washington, D.C., February 19, 2002.
42. Frank, "U.S. Arms Control Policymaking," p. 115.
43. Telephone interview with Lt. Gen. (ret.) Robert E. Pursley, Alexandria, Virginia, January 30, 2002.
44. Ibid.

the national security adviser and the secretaries of state and defense was a leitmotiv of the Nixon administration.

Dissatisfied with the military options paper prepared by the JCS and State/PM, Laird transferred responsibility for the Pentagon contributions to the Office of International Security Affairs (ISA) within the Office of the Secretary of Defense (OSD).[45] Although greater expertise on CBW issues was available from other components of OSD, such as the Office of Systems Analysis or the Office of Defense Research and Engineering, ISA was the office that routinely staffed the secretary of defense in his dealings with the NSC and the State Department.[46] In any event, ISA had to coordinate with other parts of the Pentagon in preparing the paper.

At a meeting of the IPMG on August 22, ISA official David Wu requested a four-week delay from the planned September 5 deadline to allow enough time to redraft the military options paper. On September 16 Kissinger reluctantly authorized the delay and extended the study deadline until October 5.[47] This postponement would also make it possible to resolve some strong differences of opinion within the intelligence IG over estimates of foreign biological warfare capabilities, particularly those of the Soviet Union.[48]

Meanwhile, chemical and biological weapons issues were becoming more salient in the international arena. On September 19, 1969, Soviet Foreign Minister Andrei Gromyko gave a major speech on CBW policy to the United Nations General Assembly (UNGA). The Soviet Union and its allies then circulated a draft treaty calling for a comprehensive ban on the development, production, stockpiling, and use of both chemical and biological weapons, and the destruction of all existing stocks. Moscow argued that the two types of weapons should be prohibited together because a separate ban on biological weapons could exacerbate the chemical arms race. The UNGA First Committee, which dealt with disarmament issues, was scheduled to address the CBW issue in early November.[49] In the meantime, national delegations would begin informal consultations, increasing pressure on the U.S. government to develop a position.

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45. Frank, "U.S. Arms Control Policymaking," p. 116.
46. Interview with Morton Halperin, Council on Foreign Relations, Washington, D.C., January 10, 2002.
47. Memorandum, Ronald I. Spiers to the Acting Secretary of State, Subject: Chemical and Biological Warfare (NSSM-59), September 22, 1969; Secret, 2 pages. Source: FOIA.
48. Frank, "U.S. Arms Control Policymaking," p. 118.
49. Flowerree, "The Politics of Arms Control Treaties," p. 274.

The Pentagon Changes Course

Although Secretary of Defense Laird had reassigned the NSSM-59 military options paper to ISA, that office was not adequately staffed to complete the assignment. Accordingly, ISA officials contacted the White House Office of Science and Technology and requested permission to excerpt portions of the PSAC report. The science office authorized ISA to borrow freely.[50] As a result, the revised military options paper prepared by ISA repeated the main findings and recommendations of the PSAC report almost verbatim, strongly criticizing biological weapons on technical grounds and advocating their renunciation.[51]

On October 1 the revised military options paper prepared by ISA arrived on Secretary of Defense Laird's desk for his review, and he signed off on its recommendations.[52] Because Laird was a former member of Congress who intended to serve only one term as defense secretary in pursuit of a defined set of policy goals, he did not hesitate to take independent positions from those of the uniformed military.[53] On the issue of biological weapons, he showed no "downward loyalty" to the army chief of staff because he had concluded that the military drawbacks of offensive biological warfare outweighed the benefits and that "politically, it had become a tar baby."[54] Moreover, biological warfare was a low priority for all of the services except the army. According to a former NSC official, "In the big picture, the military utility of biological weapons was marginal. There was no high-level requirement."[55]

At an IPMG meeting on October 8, the OSD representative distributed copies of two reports on chemical warfare and "biological research," along with a summary paper that recommended halting production of biological weapons and retaining a strictly defensive research and development program as a hedge against technological surprise. Although Laird had personally approved the new recommendations, the Joint Chiefs had not yet had an oppor-

50. Frank, "U.S. Arms Control Policymaking," p. 120.
51. Ibid., p. 119.
52. "Basic Chronology of Chemical Warfare and Biological Research Issues" (undated, circa January 1970); Secret, 2 pages. Source: NARA. Memorandum, Ronald I. Spiers to the Acting Secretary of State, Subject: Chemical and Biological Warfare (NSSM-59), October 1, 1969; Confidential, 2 pages. Source: FOIA.
53. Telephone interview with Lt. Gen. Pursley.
54. Guhin remarks, in Daalder and Destler, "The Nixon Administration National Security Council," p. 37.
55. Interview with Guhin.

tunity to comment. According to a State Department memo describing the summary paper, "Secretary Laird's views are far closer to the likely State and ACDA position than we anticipated. It is likely that the JCS will submit a strong reclama."[56]

IPMG Chairman Spiers adjourned the October 8 meeting after a brief discussion so that all members of the group could study the new OSD papers. Spiers also asked agency representatives to prepare written comments on the draft summary report so that they could suggest specific changes at the group's next meeting.[57] When the IPMG reconvened on October 13, it agreed to submit the revised summary report to the NSC Review Group, where the policy options would be further refined.[58] According to a State Department memo describing the state of play, "Secretary Laird has now personally reviewed this subject and made a series of policy decisions which by and large overruled the positions that Defense people have been taking in the interdepartmental discussions, and which moves the Defense position substantially closer to what we would expect the State Department would like to see as U.S. policy in this area. The Joint Chiefs of Staff, however, have not agreed with Mr. Laird's position."[59]

In mid-October Laird sent a memorandum to the president in which he outlined his personal views on CBW policies and suggested that restricting the U.S. biological program to defensive research would be adequate for national security. The memo was promptly leaked to *New York Times* reporter Robert Smith, who wrote on October 18 that the defense secretary had urged a halt in U.S. production of biological weapons.[60] On October 22 Presidential Science Adviser DuBridge sent a memo to Kissinger in which he noted:

I understand that the Department of Defense in its contribution to NSSM-59 indicates a willingness to forego the further development of an offensive BW

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56. Memorandum, Ronald I. Spiers to the Acting Secretary of State, Subject: NSSM-59–Chemical and Biological Warfare, October 8, 1969; Secret, 2 pages. Source: FOIA.
57. Ibid.
58. Interdepartmental Political-Military Group, "Report to the National Security Council: U.S. Policy on Chemical and Biological Warfare and Agents," submitted in response to NSSM-59, October 15, 1969; Top Secret, 47 pages. Source: FOIA.
59. Memorandum, Under Secretary of State Elliot L. Richardson to Secretary of State William Rogers, Subject: Chemical and Bacteriological Warfare Policy, October 14, 1969; Secret, 3 pages. Source: FOIA.
60. Robert M. Smith, "Laird Asks Halt in Germ Output for Use in War," *New York Times*, October 18, 1969.

capability while maintaining R&D programs on defensive measures and to an extent that would avoid technological surprise by an enemy. This would involve no engineering development and no operational systems. However, the question of existing stockpiles of BW agents is not addressed specifically by DOD.

If the President should decide to forego offensive BW as a policy, the timing and the phasing of a public announcement will be of crucial importance insofar as public reaction, domestic and international, is concerned. There is a large reservoir of skepticism, cynicism, and incredulity that has developed as a result of our past lack of policy and the inconsistency of past statements in this area. The results of the NSSM-59 review are being awaited impatiently by the press, the public, and the Congress.

I suggest that the President announce his conclusions from the study at the earliest possible date. If the final decision includes elimination of offensive BW, the announcement might be accompanied by a publicly announced order for immediate destruction of all existing stocks of BW agents. Our stocks consist of only small quantities of ineffective agents anyway, and, rather than allowing them to disappear through attrition and non-replacement, their destruction offers the President an opportunity to underline the policy change in a most dramatic and convincing fashion.[61]

On October 27 a State Department action memorandum for Secretary of State Rogers noted that the NSSM-59 summary report had been submitted to the NSC Review Group. The memo to Rogers stated: "As the Secretary of Defense has already taken a number of decisions on matters principally within his province, some of the potentially most controversial issues will probably be easy to resolve. [Asterisk: The Joint Chiefs of Staff may raise objections on some of these issues.] On none of these does it appear that the Department of State need take a substantially different position from the Department of Defense."[62]

On October 30 the NSC Review Group met to consider the NSSM-59 report. The group agreed that discussion by NSC principals with respect to U.S. policy on biological warfare should focus on the following questions:

1. Should the U.S. maintain a lethal biological warfare capability?
2. Should the U.S. maintain a capability for use of incapacitating biological agents?

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61. Memorandum, Presidential Science Adviser Lee A. DuBridge to National Security Adviser Henry A. Kissinger, Subject: PSAC Study, October 22, 1969; Top Secret, 3 pages; p. 2. Source: NARA.
62. Memorandum, Ronald I. Spiers to Secretary of State William Rogers, Subject: U.S. Policy on Chemical and Biological Warfare, October 27, 1969; Secret, 2 pages; p. 2. Source: FOIA.

3. Should the U.S. maintain only an RDT&E [research, development, testing, and evaluation] program, and if so, should it be (a) in the defensive area only, or (b) include both offensive and defensive objectives?
4. Should the U.S. support the UK draft convention for the prohibition of biological methods of warfare?[63]

The NSC Review Group requested a minor revision of the summary report, necessitating another IPMG meeting on November 6. In the final version of the paper, submitted on November 10 for consideration by the NSC, the question "Should the U.S. maintain a lethal biological warfare capability?" was followed with the following arguments:

PROS:

1. Maintenance of such a capability could contribute to deterring the use of such agents by others.
2. Without any production capability and delivery means for lethal agents, the United States would not be able to reconstitute such a capability within likely warning times.
3. Retains an option for the United States at very little additional cost as a hedge against possible technological surprise or as a strategic option.

CONS:

1. Control of the area of effect of known BW agents is uncertain.
2. A lethal BW capability does not appear necessary to deter strategic use of lethal BW.
3. Limits our flexibility in supporting arms control arrangements.[64]

International developments also influenced the internal U.S. government debate. In the fall of 1969, in response to a call from UN Secretary-General U Thant, twelve nonaligned countries drafted a resolution for consideration by the General Assembly affirming that the Geneva Protocol banned the use in war of tear gas, herbicides, and other harassing agents, an issue on which the United States was in a small minority of dissenting states.[65] In addition, the UN released two studies on chemical and biological weapons, one by the sec-

63. Memorandum, Richard F. Pedersen and William I. Cargo to the Under Secretary of State, Subject: NSC Review Group Meeting, Thursday, October 30, on Chemical and Biological Warfare (NSSM-59), October 31, 1969; Top Secret, 3 pages; p. 1. Source: FOIA.
64. Interdepartmental Political-Military Group, "Report to the National Security Council: U.S. Policy on Chemical and Biological Warfare and Agents," submitted in response to NSSM-59, November 10, 1969; Top Secret, 53 pages; pp. 24–25. Source: FOIA.
65. U.S. Arms Control and Disarmament Agency, *Arms Control and Disarmament Agreements*, p. 12.

retary-general's Committee of Experts and the other by a group of consultants to the World Health Organization, that described the devastating and indiscriminate effects of biological weapons on unprotected civilian populations.[66]

The NSC was scheduled to convene on November 18 to consider the policy options generated by NSSM-59. Prior to the meeting, State/PM sent a memorandum to Secretary of State Rogers recommending that he "support the position of the Secretary of Defense that we maintain a biological research and testing program *only for defensive purposes* and to safeguard against technological surprise. You should urge that the IPMG be asked to define specifically what activities and what stockpiles, if any, will be included in such a program. Assuming that the President supports this position, you should recommend that the U.S. support the UK draft Convention with timing and tactics to be worked out subsequently."[67]

The Decision to Renounce Biological Weapons

Michael Guhin and other members of the NSC staff stayed up all night on November 17 preparing a memorandum from Kissinger to the president that summarized the issues for decision in a few pages. Attached to the memo were the NSSM-59 report and an analytical paper describing the policy positions that the principals were likely to take and providing Kissinger's own recommendations. On November 18 the members of the NSC convened in the Cabinet Room of the White House. Attending were President Nixon, National Security Adviser Kissinger, Secretary of State Rogers, Secretary of Defense Laird, Chairman of the Joint Chiefs Gen. Earl Wheeler, ACDA Director Gerard Smith, and Director of Central Intelligence Richard Helms.

General Wheeler presented the JCS position, which argued for retaining U.S. stocks of both biological and chemical weapons, keeping open all military options with respect to chemical warfare, renouncing the first use of lethal biological agents but preserving the option for first use of incapacitating agents, and maintaining a national policy of being prepared to retaliate in kind to a biological attack. The JCS also opposed U.S. ratification of the Geneva Protocol be-

66. United Nations, *Chemical and Bacteriological (Biological) Weapons and the Effects of Their Possible Use,* Document No. E69.I.24 (New York: United Nations, 1969); and World Health Organization, *Health Aspects of Chemical and Biological Weapons* (Geneva: World Health Organization, 1970).
67. Memorandum, Ronald I. Spiers to Secretary of State William Rogers, Subject: U.S. Policy on Chemical and Biological Warfare, November 17, 1969; Secret, 5 pages; p. 2. Source: FOIA (emphasis in original).

cause it would set a precedent for an agreement on the no first use of nuclear weapons.[68]

The civilian members of the NSC , however, quickly formed a united front in opposing the arguments of the Joint Chiefs. Defense Secretary Laird called for renouncing offensive biological warfare and destroying all existing stocks of biological weapons, while retaining a strictly defensive research and development program. This step, combined with U.S. ratification of the Geneva Protocol, would help restrain countries that had the technical means to develop a BW capability from actually doing so.[69] At the same time, Laird argued, the United States should maintain its chemical warfare capability, including the weapons deployed in West Germany, and modernize it when "binary" weapons technology became available.[70] Rogers and Smith concurred with Laird in opposing an offensive biological warfare program, even for retaliation. By this time, it was clear that General Wheeler was isolated and would have to concede. According to Halperin, "The Chairman of the Joint Chiefs met with the President every week on a wide range of important military issues, so he couldn't 'fall on his sword' every time."[71] Nevertheless, Wheeler maintained a hard line with respect to retaining offensive chemical warfare capabilities and the combat use of tear gas and herbicides in Vietnam.

President Nixon had clearly done his homework on the biological warfare issue and asked probing questions of the agency principals, although he did not reveal his own views. Only later, in the privacy of the Oval Office, did the president check off the boxes in the decision memorandum prepared for him by the NSC staff. Nixon did not view biological warfare as a moral issue but rather as a military and political one. He was influenced by the PSAC report, which pointed out that biological weapons were subject to the vagaries of wind and weather and had delayed effects, giving rise to incapacitating symptoms only after an incubation period of several days. As a result, biological weapons had limited tactical utility on the battlefield and did not constitute a reliable and effective strategic deterrent. Lack of institutional support for biological warfare from within the armed services—with the sole exception of the army, which

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68. Frank, "U.S. Arms Control Policymaking," pp. 123–124.
69. Ibid., p. 124.
70. Memorandum, Richard F. Pedersen and William I. Cargo to the Under Secretary of State, October 31, 1969, p. 3. "Binary" chemical munitions have two compartments containing relatively harmless chemical ingredients that react together to form a lethal nerve agent while the bomb or artillery shell is in flight to the target.
71. Interview with Halperin.

defended the interests of the Chemical Corps—eased Nixon's decision to abandon what was generally considered to be a marginal capability.[72] Unlike nuclear and chemical weapons, biological weapons did not have powerful constituencies either inside or outside the U.S. government.

At the same time, the secret field trials in the Pacific had demonstrated that biological weapons posed a potential mass-casualty threat to U.S. cities. It was therefore important to discourage the development and production of these weapons by additional countries and to maintain U.S. strategic deterrence based on other weapon systems. Sending the message that biological warfare was ineffective would help to discourage hostile nations from acquiring a "poor man's atomic bomb" that could serve as a military equalizer.[73]

Finally, Nixon wished to be seen as a "man of peace" at a time when the war in Vietnam was provoking strong opposition both at home and abroad. By abandoning a category of weapons widely considered to be repugnant, he could deflect criticism of the ongoing combat use of tear gas and herbicides in Vietnam, which the Pentagon believed should continue at least as long as U.S. soldiers remained on the ground. (The process of "Vietnamization," or replacing American ground troops with South Vietnamese soldiers, had been launched following Secretary Laird's visit to Vietnam in March.)

President Nixon announced his CBW policy decisions in a speech on November 25, 1969. "Biological weapons have massive, unpredictable, and potentially uncontrollable consequences," he said. "They may produce global epidemics and impair the health of future generations." In view of these threats, Nixon declared, the United States would henceforth renounce the use of lethal biological agents and all other methods of biological warfare, destroy its entire stockpile of biological agents and munitions, and submit the Geneva Protocol to the U.S. Senate for its consent to ratification. Now that the United States had decided to abandon an offensive BW capability, it was clearly desirable for as many other states as possible to do the same. To this end, the president declared his support for the British draft convention calling for a global ban on the development, production, stockpiling, and transfer of biological weapons. Nixon warned, however: "Neither our association with the Convention nor the limiting of our program to research will leave us vulnerable to surprise by an enemy who does not observe these rational restraints. Our

72. Interview with Guhin.
73. Regis, *The Biology of Doom,* p. 210.

intelligence community will continue to watch carefully the nature and extent of the biological programs of others."[74]

With respect to chemical warfare, Nixon reaffirmed the U.S. policy of no first use of lethal chemical agents and extended this policy to include chemical incapacitating agents.[75] Although the JCS had lost the policy battle over biological weapons, they were more successful in their demands that the United States retain an offensive chemical warfare program and interpret the Geneva Protocol narrowly to exempt tear gas and herbicides from the ban on combat use. Nixon's decisions were formalized in National Security Decision Memorandum (NSDM) 35, which stated the following with respect to biological programs:

a. The United States will renounce the use of lethal methods of bacteriological/biological warfare.
b. The United States will similarly renounce the use of all other methods of bacteriological/biological warfare (for example, incapacitating agents).
c. The United States bacteriological/biological programs will be confined to research and development for defensive purposes (immunization, safety measures, et cetera). This does not preclude research into those offensive aspects of bacteriological/biological agents necessary to determine what defensive measures are required.
d. The Secretary of Defense will submit recommendations about the disposal of existing stocks of bacteriological/biological weapons.
e. The United States should associate itself with the principles and objectives of the Draft Convention Prohibiting the Use of Biological Methods of Warfare presented by the United Kingdom at the Eighteen-Nation Disarmament Conference in Geneva, on 26 August 1969.[76]

Paragraph (c) of NSDM-35 provided some flexibility for the U.S. biodefense program by permitting research into offensive aspects of bacteriological/biological agents that might be needed to inform the development of defenses. This language appears to have been added so that the Joint Chiefs would not challenge the president's decision. According to Halperin, "If the NSC staff

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74. Office of the White House Press Secretary, "Statement by the President," November 25, 1969; Unclassified, 2 pages.
75. James M. Naughton, "Nixon Renounces Germ Weapons, Orders Destruction of Stocks: Restricts Use of Chemical Arms," *New York Times,* November 26, 1969, p. 1; and Robert M. Smith, "Germ War: What Nixon Gave Up," *New York Times,* November 26, 1969, p. 16.
76. National Security Decision Memorandum No. 35, Subject: United States Policy on Chemical Warfare Program and Bacteriological/Biological Research Program, from National Security Adviser Henry A. Kissinger to the Vice President, Secretary of State, Secretary of Defense, etc., November 25, 1969; Top Secret/Nodis, 3 pages; pp. 2–3. Source: FOIA.

had pushed beyond the limits of what the bureaucracy was prepared to accept, the dissenting agency could have requested a reconsideration, known as the 'reclama process.' Thus, the NSC staff sought to implement the new policy without provoking bureaucratic resistance that could undercut the President's decision."[77]

Nixon's decision to renounce offensive biological warfare was well received both internationally and on Capitol Hill. Senator Charles Goodell (R-N.Y.) called the action "a great decision for the future of mankind." Representative McCarthy noted that the decision should be "hailed as a very significant thing," although he continued to urge the administration to halt the combat use of tear gas, defoliants, and incendiary weapons in Vietnam.[78]

Implications of President Nixon's Decision

The unilateral renunciation of offensive biological warfare ended three long-standing assumptions of U.S. policy with respect to CBW: first, that chemical and biological weapons should be seen as inextricably linked; second, that the United States should maintain an offensive BW capability to deter the use of such weapons by others; and third, that the United States should be prepared to retaliate in kind to a biological attack.[79] In a background briefing to the press on the morning of November 25, Kissinger explained the strategic rationale behind the U.S. decision. "Yes, we are giving up a means of retaliation," he said. "But when we considered the long-term effect of bacteriological warfare, what would be involved in using it, we concluded that. . . . bacteriological weapons were really primarily useful for first use; that the effect in retaliation would be long delayed, the consequences would be too uncontrollable."[80]

On December 9, two weeks after the president's decision, Secretary of Defense Laird wrote a memorandum to Rogers, Kissinger, and Helms in which he stated that the established practice of referring to "chemical and biological warfare" as a single entity was "seriously misleading and should be stricken from our lexicon." Instead, he wrote, the U.S. programs should henceforth be described as "chemical warfare and biological research. We do *not* have a bio-

77. Interview with Halperin.
78. Naughton, "Nixon Renounces Germ Weapons."
79. Ruttenberg, *Political Behavior of American Scientists,* p. 161.
80. Transcript of background briefing at the White House with National Security Adviser Henry A. Kissinger and Presidential Press Secretary Ronald Ziegler, November 25, 1969, 10:38 A.M. EST; Unclassified, p. 4. Source: NARA.

logical warfare capability, nor do we plan to have one. We will maintain, for defensive purposes, a biological research program."[81]

This new distinction between chemical and biological warfare made it easier for the United States to resist diplomatic efforts by the Soviet Union and its allies to ban chemical weapons, which the Pentagon viewed as having much greater tactical and deterrent value. Even arms control advocates recognized at the time that seeking to outlaw both biological and chemical weapons, as called for rhetorically by the Soviet Union and its Warsaw Pact allies, would drive the Pentagon to dig in its heels and "result in nothing more than a bitter fight."[82] Indeed, it took another two decades and the end of the Cold War before the United States was prepared to abandon its chemical warfare capability under the terms of the 1993 Chemical Weapons Convention.

The Debate over Toxins

President Nixon's November 25 statement did not mention toxins (i.e., poisonous compounds of natural origin that exist in a gray zone between chemical and biological agents). Examples include saxitoxin (produced by a marine dinoflagellate), ricin (extracted from castor beans), and cobra toxin. Although made by living organisms such as bacteria, plants, and animals, toxins are nonliving substances, do not multiply in the human body, and must be dispersed like chemicals. As of 1969, the United States had developed two toxin weapons: botulinum toxin, a lethal agent, and *Staphylococcus* enterotoxin B, an incapacitating agent. The U.S. toxin stockpile included 23,000 bullets and other "special devices" filled with botulinum toxin, which the army claimed had lost its potency and would have to be destroyed; a few hundred pounds of SEB in the form of a dry powder; and research quantities of saxitoxin (paralytic shellfish poison) and snake venom.[83] From the military's point of view, toxins were far more potent than standard chemical weapons per unit weight and hence were potentially more effective on the battlefield. The army was mainly

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81. Memorandum, Secretary of Defense Melvin R. Laird to Secretary of State William Rogers, National Security Adviser Henry A. Kissinger, and CIA Director Richard Helms, Subject: Chemical Warfare and Biological Research—Terminology, December 9, 1969; Secret, 2 pages; p. 1 (emphasis in original). Source: NARA.

82. James Watson remarks, in *Proceedings of the Conference on Biological and Chemical Warfare,* sponsored by the American Academy of Arts and Sciences and the Salk Institute, Cambridge, Massachusetts, July 25, 1969, p. 122.

83. Memorandum, Michael A. Guhin to National Security Adviser Henry A. Kissinger; Subject: The Toxins Issue, December 18, 1969; Top Secret/Nodis, 3 pages. Source: NARA.

interested in SEB, which was under development as a nonlethal incapacitating agent that could put enemy troops out of action by causing severe but transient symptoms of food poisoning. Based on the promising results of field tests, the army planned to standardize and mass produce SEB.

Although discussions by the interagency group and the NSC staff had touched on toxins, the topic was considered too arcane to include in the final "issues for decision" package for NSC principals, and Guhin was ordered to delete it.[84] As a result, the question of toxins was not raised during the meeting of the National Security Council on November 18. Several months later, during a background briefing for the press, Kissinger admitted that the exclusion of toxins from the NSC decision process had been a mistake. "Quite seriously," he said, "the problem with the toxin was that because it is produced biologically and acts chemically, because we do not have large stocks of it, it fell between the cracks. . . . It was a slip up."[85]

The ambiguity over the extent to which toxins were covered by the president's November 25 statement led to a sharp divergence of views within the administration, with the potential for public embarrassment. In consultations after the new U.S. policy was announced, representatives of the Pentagon's Office of Defense Research and Engineering (DR&E) and ACDA's Bureau of Science and Technology agreed that it would be necessary to close down the Directorate of Biological Operations at Pine Bluff Arsenal, where both microbial agents and bacterial toxins were produced in large fermentation tanks. Distracted by the press of other issues, however, DR&E and ACDA officials failed to communicate their understanding to the NSC staff.[86] Moreover, the JCS seized on the report prepared by the UN secretary-general's Committee of Experts, which classified toxins as "chemical agents," and claimed on this basis that toxins were not covered by President Nixon's decision.[87] According to an article by Robert Smith, the Pentagon planned to resume the production of toxins at Pine Bluff Arsenal over the protests of the State Department and ACDA.[88] Meanwhile, army scientists at Fort Detrick, uncertain whether the omission of toxins from the president's speech had been unintended or delib-

84. Interview with Guhin.
85. Transcript of Background Briefing: Administration Policy Concerning Toxins, with Presidential Press Secretary Ronald Ziegler and National Security Adviser Henry A. Kissinger, Key Biscayne, Florida, February 14, 1970, 9:45 A.M. EST, p. 4. Source: NARA.
86. Frank, "U.S. Arms Control Policymaking," pp. 135–136.
87. Ibid., p. 136.
88. Robert M. Smith, "Two Agencies Clash over War Toxins," *New York Times,* December 12, 1969.

erate, saw it as a loophole through which they could continue their work. Accordingly, they rewrote their research proposals to focus on toxins instead of microbial pathogens.[89]

On December 18, 1969, Guhin wrote a memorandum for Kissinger on the toxins issue. He noted that the definition of toxins as nonliving chemicals produced by biological processes was technically correct and accorded with the recent report by World Health Organization experts and with OST's understanding of the issue. "The issue is not whether toxins should come under the chemical warfare program or the biological research program, as this would only confuse the established technical definition," Guhin wrote. "Keeping the definition of toxins as chemicals, the real issue is what should the toxin program be when considered on its own merits as a separate weapons system, and how would this relate to the President's decisions and our association with the principles and objectives of the UK Draft Convention." Guhin's memo concluded, "Whatever the decisions on this matter, I believe that the primary objective should be to avoid any unnecessary erosion of the President's announced decisions on chemical warfare and biological research."[90] On December 22 Presidential Science Adviser DuBridge wrote a memorandum to Kissinger in which he concurred with the Pentagon's view that toxins should be considered chemical agents despite their biological origin, but urged that the decision to retain or renounce toxin weapons be judged on its own merits.[91]

Concerned members of Congress also joined the fray. On December 27, 1969, in prepared remarks before a symposium in Boston of the Federation of American Scientists, Representative McCarthy noted that Rear Adm. William Lemos had recently testified before a House committee that the development of toxin agents would continue unabated. This statement, McCarthy said, cast doubt on whether the U.S. decision to abandon biological warfare had been made in good faith. "President Nixon's retrogression since the November 25 announcement," he concluded, "is most disturbing."[92]

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89. Patrick, "A History of Biological and Toxin Warfare," p. 19.
90. Memorandum, Michael A. Guhin to National Security Adviser Henry A. Kissinger, Subject: The Toxins Issue, December 18, 1969, Top Secret/Nodis, 3 pages; pp. 1, 3. Source: NARA.
91. Memorandum, Presidential Science Adviser Lee DuBridge to National Security Adviser Henry A. Kissinger, Subject: Next Steps in U.S. Chemical and Biological Weapons Policy, December 22, 1969; No classification, 2 pages. Source: NARA.
92. Memorandum, Michael A. Guhin to National Security Adviser Henry A. Kissinger; Subject: Reply to Bryce Harlow's Questions re. Congressman McCarthy's Comments on Toxins and the President's Announcement, January 8, 1970; Confidential, 2 pages; p. 1. Source: NARA.

Because of the growing confusion over the administration's policy on toxins and the conflicting positions of the Departments of State and Defense, Kissinger decided that the issue warranted a special interagency review. On December 31, 1969, he issued NSSM-85 ("United States Policy on Toxins"), which tasked the IPMG to prepare a study of the issue with the extremely tight deadline of January 16, 1970.[93] In the opinion of the NSC staff, the brevity of the study was warranted by the narrow scope of the topic and the fact that the controversy threatened to call the president's earlier decision into question. Guhin noted that it was "important to preserve international credence that the policy on biological agents will indeed be implemented."[94]

The IPMG met twice, on January 7 and 10, to discuss the draft options paper for NSSM-85. During the interagency deliberations, Defense Secretary Laird sided with the uniformed military on the definition of toxins as chemical agents. Although Laird claimed that the State Department agreed with the Pentagon's interpretation, there was actually a divergence of views.[95] State Department officials argued that because most toxins of military interest were produced by bacteria, which were grown in large fermentation tanks, maintaining toxin production facilities at Pine Bluff Arsenal would undermine the credibility of the U.S. renunciation of biological warfare. As a result, the United States would forfeit whatever international goodwill it had reaped in the wake of the president's speech.[96] The State Department had also learned that the UK draft convention to ban biological weapons was intended to cover toxins as well.[97]

Meselson's Analysis of the Toxins Issue

Concurrent with NSSM-85, Kissinger asked Matthew Meselson to prepare an analysis of the toxins issue. In a paper submitted to the NSC in January, the Harvard molecular biologist argued that the United States "should not attempt

93. National Security Study Memorandum No. 85, Subject: U.S. Policy on Toxins, from Henry A. Kissinger to the Secretary of State, Secretary of Defense, Director, Office of Science and Technology, and Director, Arms Control and Disarmament Agency; December 31, 1969; Secret, 1 page. Source: FOIA.
94. Michael A. Guhin to National Security Adviser Henry A. Kissinger, Subject: Dr. DuBridge's Comments re. Reactions to the President's Chemical Warfare and Biological Research Announcement, January 5, 1970; Official Use Only, 2 pages; p. 1. Source: NARA.
95. Frank, "U.S. Arms Control Policymaking," p. 135.
96. Robert M. Smith, "Nixon Is Weighing Options on Toxins," *New York Times,* January 26, 1970, p. 1.
97. Frank, "U.S. Arms Control Policymaking," p. 137.

to derive its policy for toxins from purely technical arguments regarding their definition. Instead, our treatment of toxins should aim to achieve our major policy objectives."[98] Meselson noted that although toxins offered some logistical advantages over standard chemical warfare agents in that a smaller quantity of toxin could deliver a lethal or incapacitating dose over a given area, most toxins were large proteins that were inactivated by sunlight and did not penetrate the skin, making them easier to defend against than persistent chemical agents such as VX nerve gas. Accordingly, toxins would not add any significant military capability to the existing or planned U.S. chemical arsenal.[99]

At the same time, the potential of toxins for wide area coverage per pound of agent made them more like microbial than chemical agents, with the ability to inflict mass casualties on unprotected civilian populations. In the absence of strong restraints against their acquisition, the proliferation of toxin weapons to hostile countries could pose a new dimension of strategic threat to the United States. For this reason, Meselson argued, "it is in our interest to discourage other nations from diverting resources to the development and procurement of toxin weapons. We do this by creating the expectation that such weapons will not be used, by not pioneering their technology, and by strengthening the psychological and legal barriers against them."[100]

Meselson's second point was that exempting toxins from the unilateral ban would reduce the arms control benefits of the president's new policy by creating an ambiguous situation with regard to the retention of a general biological warfare capability, including laboratories conducting secret work and military facilities capable of large-scale production of microbial agents. "An active U.S. toxin weapons program would prevent us from demilitarizing and declassifying our biological research laboratories at Fort Detrick and our germ weapons production facility at Pine Bluff Arsenal," he wrote. "Conversely, if we choose not to develop toxin weapons, Pine Bluff can be completely demilitarized and our defensive biological research program can be done at Fort Detrick and other locations with little or no secrecy. . . . Such a policy would allow us to focus maximum political pressure on other nations in order to discourage them from undertaking or prosecuting biological weapons programs of any kind."[101]

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98. Matthew Meselson, "What Policy for Toxins?" [typewritten paper], January 22, 1970, p. 2. Source: Matthew Meselson.
99. Ibid., p. 5.
100. Ibid., p. 6.
101. Ibid., pp. 6–7.

Finally, Meselson argued that retaining toxin weapons would undermine the credibility and authority of the president's principled stand against the use of disease as a weapon of war. "A toxin weapons program would require us to divert many of the recent and forthcoming advances in biology and medicine toward new methods of killing and of controlling living processes for military purposes," he wrote. "Most persons hold this to be unnecessary and abhorrent." Meselson concluded his analysis with a pithy quote from an editorial that had appeared in the *Washington Post* on January 9, 1970: "The revulsion generally felt against biological warfare arises from the conviction that disease should not be used as a weapon of war. Surely the President did not mean that, while a disease induced by living bacteria is out of bounds, a disease induced by a toxin is acceptable. He can scarcely have renounced typhoid only to embrace botulism."[102]

The Toxins Decision

On January 21 the IPMG submitted to the NSC staff a thirty-page summary report laying out the pros and cons of various policy options relating to toxin weapons. The three main options identified were as follows:

Option I: Keeping entirely open the option to produce and employ toxin warfare agents.
Option II: Not producing toxins now, but keeping open the possibility of producing them if a method were developed to make them by chemical synthesis, without the need for production in bacteria.
Option III: Giving up toxin weapons entirely and working only on defensive measures against them, such as vaccines and more effective gas masks.[103]

The State Department and ACDA supported Option III, by which the United States would renounce the development, stockpiling, and use of toxins produced either by biological fermentation or chemical synthesis. The State Department argued that it was hard to make a strong case that developing a capability to retaliate with toxins was essential to U.S. national security.[104] At the same time, the limited military advantages of maintaining a toxin warfare option were clearly outweighed by the political liabilities: diluting the favor-

102. Ibid., p. 7.
103. Smith, "Nixon Is Weighing Options on Toxins."
104. Memorandum, Ronald I. Spiers to the Acting Secretary of State, Subject: U.S. Policy on Toxins, February 9, 1970; Secret, 2 pages, p. 2. Source: FOIA.

able political impact of the president's November 25 announcement, undercutting international support for the UK draft convention, complicating efforts to obtain the Senate's consent to ratification of the Geneva Protocol, and making it harder to limit toxin warfare programs by other states. Although Option III entailed some risk of raising questions about the U.S. retention of chemical weapons, inasmuch as toxins were chemical agents, the State Department regarded this risk as small.[105]

The Department of Defense was divided on the toxins issue. The JCS favored Option I: to develop and stockpile toxins produced either by biological processes or chemical synthesis, thereby retaining maximum flexibility for retaliatory use. The Joint Chiefs argued that this option would provide an enhanced deterrent capability, was more consistent with the president's announced policy on chemical warfare, created a bargaining chip should the United States decide to renounce toxin weapons later on, and avoided a premature decision while providing enough time for a full assessment of the military potential of toxins. In contrast, Defense Secretary Laird and Deputy Secretary Packard supported Option II, under which toxins would be banned if produced by bacterial fermentation but would be legal if made by chemical synthesis. They argued that it was not urgent for President Nixon to declare a U.S. policy on toxins. Instead he should await the appropriate time and place for the announcement, making it clear that any policy choice other than Option I would be a major U.S. concession because of the UN expert group's definition of toxins as chemical agents.[106] In a memo to Kissinger, Packard wrote:

I recognize that for the near term, three to five years, there is a similarity between Options II and III since we now lack the technical ability to create toxins through chemical synthesis. From the military point of view, I further recognize the JCS concerns. However, through the near term we will retain a deterrent capability against chemical warfare with other types of chemicals. These other chemicals will also provide a capability for retaliation as necessary. For the longer term, beyond five years, I feel that there is little difference between Option I recommended by the JCS and Option II, the recommendation of the Secretary and myself. In that time period, we expect to have the ability to chemically synthesize toxins, thus meeting the JCS military concerns.[107]

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105. Memorandum, Acting Secretary of State to President Richard Nixon, Subject: Memorandum for the President: U.S. Policy on Toxins, February 10, 1970; Secret, 2 pages. Source: FOIA.
106. Memorandum, Deputy Secretary of Defense David Packard to National Security Adviser Henry A. Kissinger, Subject: Program Options on Toxins, February 12, 1970; Secret, 2 pages; with cover memorandum by Military Assistant Alexander M. Haig. Source: NARA.
107. Ibid.

On January 29 the NSC Review Group vetted the summary report on toxins and provided guidance to the IPMG for a final revision of the paper.[108] The NSC staff then prepared a decision memorandum from Kissinger to Nixon laying out the three contending policy options, with boxes for the president to check. Although Kissinger was not convinced that the United States needed to renounce toxins produced by chemical synthesis and thus leaned toward Option II, he did not feel strongly about the issue and allowed the NSC staff's recommendation for Option III to go to the president.[109] Some time later, Nixon selected Option III, despite Defense Secretary Laird's recommendation for Option II. According to a former member of the NSC staff, "Nixon's political instincts told him that any retention of toxins would be hard to reconcile with his earlier decision. The distinction between biological and chemical means of production was simply too fine a point."[110] The decision on toxins may also have been influenced by a desire to reduce tensions with the Soviet Union in advance of the Strategic Arms Limitation Talks on nuclear weapons.[111]

On Saturday, February 14, 1970, the White House released a statement clarifying the president's earlier decision on biological weapons by declaring that the United States would henceforth renounce "offensive preparations for and the use of toxins as a method of warfare" and would "confine its military programs for toxins, whether produced by bacteriological or any other biological method or by chemical synthesis, to research for defensive purposes only, such as to improve techniques of immunization and medical therapy."[112] All existing stocks of toxin agents and weapons would be destroyed, except for small amounts required for defensive research.

The president's statement explained that although toxins were properly classified as chemical substances, "the production of toxins in any significant quantity would require facilities similar to those needed for the production of biological agents. If the United States continued to operate such facilities, it would be difficult for others to know whether they were being used to produce

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108. Memorandum, Ronald I. Spiers to the Acting Secretary of State, Subject: U.S. Policy on Toxins, February 9, 1970; p. 1. Source: FOIA.
109. Interview with Guhin.
110. Ibid.
111. Transcript of Background Briefing: Administration Policy Concerning Toxins, with Presidential Press Secretary Ronald Ziegler and National Security Adviser Henry A. Kissinger, February 14, 1970, 9:45 A.M. EST, Key Biscayne, Florida; Unclassified, p. 13. Source: NARA.
112. Memorandum, Alexander M. Haig to Capt. Daniel Murphy, Military Assistant, Office of the Secretary of Defense, Subject: Presidential Statement on Toxins (with draft statement attached), February 13, 1970; Secret/Nodis, 4 pages; p. 2. Source: NARA.

only toxins but not biological agents. Moreover, though toxins of the type useful for military purposes could conceivably be produced by chemical synthesis in the future, the end product would be the same and their effects would be indistinguishable from toxins produced by bacteriological or other biological processes." The statement concluded, "The United States hopes that other nations will follow our example with respect to both biological and toxin weapons."[113]

The day after the U.S. renunciation of toxin weapons was announced, Meselson sent an admiring letter to President Nixon. "Your decision to renounce all biological and toxin weapons goes far toward preventing man from turning his growing understanding of fundamental life-processes against himself," he wrote. "The wisdom of your course is apparent today. Generations from now, it may be seen as a crucial choice in the life of our species."[114]

In hindsight, the separate NSSM devoted to toxins was useful because it resulted in a cleaner, less ambiguous decision. By extending the ban on biological weapons to cover toxins regardless of their means of production, President Nixon closed a potential loophole: the chemical synthesis of toxin agents. NSDM-44, issued on February 20, 1970, ordered U.S. government agencies to carry out the new U.S. policy on toxins, including "the disposal of existing stocks of toxin weapons and/or agents."[115] Once again, however, Kissinger carved out an exception by stating that defensive research on toxin detectors and vaccines (toxoids) "might require the production of very minor quantities of [a toxin] agent that produced the illness in order to determine the immunization requirements."[116]

Implementing President Nixon's Decisions

Between May 1971 and May 1972, the Department of Defense destroyed its stockpile of antipersonnel biological agents stored at Pine Bluff Arsenal in Arkansas, including 220 pounds of dried anthrax bacteria, 804 pounds of dried tularemia bacteria, 334 pounds of dried Venezuelan equine encephalitis (VEE)

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113. Ibid.
114. Letter, Matthew Meselson to President Richard Nixon, February 15, 1970; Unclassified, 1 page. Source: Matthew Meselson.
115. National Security Decision Memorandum No. 44, Subject: United States Policy on Toxins, from National Security Adviser Henry A. Kissinger to the Vice President, etc., February 20, 1970; Secret, 1 page. Source: FOIA.
116. Transcript of Background Briefing: Administration Policy Concerning Toxins, p. 11.

virus, 4,991 gallons of liquid VEE viral suspension, 5,098 gallons of Q fever rickettsia suspension, and tens of thousands of munitions filled with biological and toxin agents and simulants. The BW production facilities at Pine Bluff Arsenal were decontaminated and turned over to the U.S. Food and Drug Administration. Two anticrop agents stored at Rocky Mountain Arsenal in Colorado—158,684 pounds of wheat rust fungi and 1,865 pounds of rice blast fungi—were destroyed during the same period. In addition, the Pentagon cut funding for the biological research and development program from about $20 million per year to $10 million, to be used for defensive purposes only. Authorized biodefense activities included research on diagnosis, therapy, and vaccines at the U.S. Army Medical Research Institute of Infectious Diseases at Fort Detrick, Maryland; R&D on detection and warning systems at Edgewood Arsenal in Aberdeen, Maryland; and testing of defensive equipment and vulnerability analyses at Dugway Proving Ground in Utah.[117]

A still-open question was whether any biodefense research would be conducted in secret. On July 17, 1970, Michael Guhin wrote a memo to Kissinger explaining an NSC proposal to review "whether the U.S. requires classified biological defense research programs under the President's policy and, if so, where such programs should best be located within the bureaucracy." Guhin noted that because questions about defensive research could be used to "cast doubt on the credibility of the President's policy," it was important to determine if secrecy was justified. Moreover, if classified research proved to be necessary, should it take place within the Department of Defense, the CIA, or the Department of Health, Education, and Welfare? Guhin recommended that the NSC Under Secretaries Committee conduct an annual review of the U.S. biological defense research programs (including classified programs, if any) and make recommendations to the president.[118]

The first annual review of the U.S. chemical and biological research programs, prepared by the IPMG, was sent to President Nixon on February 4, 1971. This report identified only one area of biodefense research that might require classification: the characteristics of warning systems, including the performance of detectors and alarms. The rationale was that "information on available detection capabilities might enable the enemy to circumvent U.S. de-

117. Memorandum, Defense Secretary Melvin R. Laird to President Richard Nixon, Subject: National Security Decision Memoranda 35 and 44, July 6, 1970; Secret, 3 pages. Source: NARA.
118. Memorandum, Michael A. Guhin to National Security Adviser Henry A. Kissinger, Subject: Further Explanation of Proposed Review re. Necessity of Classified Biological Research Program, July 17, 1970; Secret/Sensitive, 2 pages. Source: NARA.

fensive measures and add to the effectiveness of his use of biological or toxin warfare agents."[119] At the same time, the report recommended that the U.S. biodefense research program "should be as open as possible consistent with security requirements in order to achieve the greatest political advantage."[120]

Meanwhile, efforts to negotiate a multilateral treaty prohibiting biological and toxin weapons were continuing at the UN disarmament forum in Geneva. The negotiations remained deadlocked until March 30, 1971, when the Soviet Union suddenly dropped its insistence on including chemical weapons in the ban. Once the Soviets had changed their position, the negotiating end game was swift. The U.S. and Soviet representatives worked out an agreed draft in a few months, and on August 5, the United States and the Soviet Union submitted separate but identical texts of the BWC.[121] After one more round of talks, the treaty was concluded on September 28.

During the negotiations, it became clear that verifying the BWC to a high level of confidence would be exceedingly difficult. The dual-use nature of the materials and equipment involved in the production of biological and toxin weapons meant that effective verification would require intrusive visits to both military and private industry facilities, yet Soviet leaders viewed inspections of any kind as tantamount to espionage. Although the NSC staff consulted with U.S. agencies on the desirability of "transparency measures," such as reporting biodefense activities and informal visits to treaty-relevant sites, the idea never acquired much traction because of resistance from the Pentagon and similar reservations from the Soviet military.[122] As a result, the BWC was finalized without any formal regime for checking or enforcing compliance. On December 16 the UN General Assembly adopted a resolution endorsing the BWC by a vote of 110 to 0, and the treaty was opened for signature in Washington, London, and Moscow on April 10, 1972.[123]

In late 1974, President Gerald R. Ford submitted both the BWC and the Geneva Protocol to the U.S. Senate for its advice and consent to ratification. Moving U.S. policy closer to the internationally accepted interpretation of the

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119. Interdepartmental Political-Military Group, "Annual Review of United States Chemical Warfare and Biological Research Programs as of 1 November 1970," February 3, 1971; Secret, 74 pages; p. 23. Source: FOIA.
120. Ibid., p. 24.
121. James F. Leonard, "The Control of Biological Weapons: Retrospect and Prospect," in Jonathan B. Tucker, ed., *Inspection Procedures for Compliance Monitoring of the Biological Weapons Convention* (Livermore, Calif.: Lawrence Livermore National Laboratory, December 1997), pp. 21–22.
122. Interview with Guhin.
123. ACDA, *Arms Control and Disarmament Agreements*, p. 131.

Geneva Protocol, Ford issued an executive order renouncing the combat use of herbicides and tear gas, with a few exceptions requiring presidential approval in advance. Use of herbicides was limited to controlling vegetation within U.S. bases and their immediate defense perimeters, while the combat use of tear gas was restricted to "defensive military modes to save lives." Examples of such uses were to protect convoys in rear-echelon areas, control rioting prisoners of war, rescue downed aircrews behind enemy lines, and minimize civilian casualties in cases where noncombatants were used to mask or screen attacks.[124]

The Senate found these conditions acceptable, and on December 16, 1974, it gave its unanimous consent to U.S. ratification of both the Geneva Protocol and the BWC. The latter treaty entered into force on March 26, 1975, although its lack of formal measures to monitor compliance weakened its ability to prevent violations by the Soviet Union and other countries. Indeed, soon after signing the BWC in 1972, the Kremlin intensified its offensive BW program by building a top-secret complex of research and production facilities under the auspices of the ministries of defense, health, and agriculture, and a state-owned pharmaceutical company called Biopreparat. By the late 1980s, some 60,000 Soviet scientists and technicians were engaged in development and production of biological weapons.[125]

Conclusions

The past three decades have confirmed the wisdom of the U.S. renunciation of biological and toxin warfare. President Nixon's decision helped to delegitimate these weapons of mass destruction and facilitated the rapid negotiation of a multilateral treaty banning their development, production, stockpiling, and transfer. In July 1969 James Russell Wiggins, a former U.S. ambassador to the United Nations, stressed the importance of outlawing biological weapons before they proliferated widely. "When we have a situation in which no country in the world is far into this dreadful traffic," he argued, "it would be easier to stop it at the start—to use Churchill's phrase, 'to smother the baby in the cra-

124. Statement of Dr. Fred C. Iklé, Director, Arms Control and Disarmament Agency, before the U.S. Senate Committee on Foreign Relations, Hearing, *Prohibition of Chemical and Biological Weapons,* 93d Cong., 2d sess., December 10, 1974 (Washington, D.C.: Government Printing Office, 1974), p. 12.

125. Ken Alibek with Stephen Handelman, *Biohazard: The Chilling True Story of the Largest Covert Biological Weapons Program in the World—Told from Inside by the Man Who Ran It* (New York: Random House, 1999).

dle'—than it would be to wait ten or twenty years hence when military figures will have made a large investment of prestige and money in laboratory development and field trials in these weapons."[126]

Nevertheless, the fact that the United States had unilaterally renounced biological warfare reduced the incentive for U.S. negotiators to demand that the BWC include effective mechanisms for monitoring and enforcing compliance. As a result, the sole enforcement measure included in the treaty was extremely weak. Under Article 6, a member country can bring an alleged violation by another state party to the attention of the UN Security Council, which can then decide to launch an investigation. Yet any of the five permanent members of the Security Council has the power to veto a request. During the BWC negotiations, the United Kingdom sought to preclude such a veto by proposing that the convention be accompanied by a Security Council resolution preauthorizing the UN secretary-general to investigate credible allegations of noncompliance, but this idea was never adopted.

It is unclear which country was most responsible for weakening the BWC. According to one view, the United States pressured the United Kingdom to withdraw its proposal for preauthorized UN investigations.[127] Another analyst contends that the Soviet military agreed to support the BWC only when it became clear that the treaty would not include an intrusive verification regime.[128] In any event, the lack of formal compliance measures rendered the BWC almost entirely toothless and hobbled its effectiveness. During the 1980s the United States alleged on several occasions that the Soviet Union was violating the BWC and, in particular, that a suspicious epidemic of human anthrax in 1979 in the Soviet city of Sverdlovsk had resulted from the accidental release of the deadly bacteria from a military biological weapons production facility. Yet Washington did not ask the UN Security Council to launch an investigation of Soviet noncompliance with the BWC, as permitted under Article 6, because of the near certainty of a Soviet veto. (After years of denials by Soviet officials, Russian President Boris Yeltsin finally admitted in 1992 that the Soviet military had been responsible for the Sverdlovsk anthrax epidemic.) Over the three decades since the BWC was opened for signature, the number of states assessed

126. Ambassador James Russell Wiggins, quoted in *Proceedings of the Conference on Biological and Chemical Warfare*, p. 119.
127. Julian Perry Robinson, University of Sussex, England, personal communication, January 15, 1999.
128. Milton Leitenberg, "Biological Weapons and Arms Control," *Contemporary Security Policy*, Vol. 17, No. 1 (April 1996), p. 10.

to have offensive BW programs has grown from four in 1972 to roughly a dozen today.[129] Beginning in 1986, member states of the BWC have pursued various approaches to strengthen the treaty, so far without success.[130]

Another serious drawback of Nixon's executive order was that it delegated responsibility for implementing the new CBW policy to the Department of Defense, with no effective control or follow-up by the NSC staff. Because of this lack of oversight, problems of implementation and coordination developed. The Central Intelligence Agency violated the stockpile destruction order by retaining a secret cache of biological and toxin agents, including 100 grams of dried anthrax spores and 5.2 grams of saxitoxin (paralytic shellfish poison), as well as seed cultures of the causative agents of smallpox, tularemia, brucellosis, and VEE. In 1975 the existence of the illicit cache was made public during Senate hearings on the CIA convened by Senator Frank Church (D-Idaho).[131] Subsequently, the CIA destroyed its stocks of microbial pathogens and donated its precious supply of saxitoxin to academic scientists conducting neurophysiology research.[132]

Also during the 1970s, U.S. military intelligence used the double agents Sgt. Joseph Cassidy and Dmitry Polyakov to feed false information to Moscow that the United States was maintaining a secret program to develop a new generation of biological and chemical weapons. The purpose of the disinformation campaign was to lead the Soviet military to squander resources on areas of CBW research and development that the U.S. Army had earlier pursued and found unpromising.[133] In fact, this risky gambit backfired. Soviet leaders, skeptical that the United States had really abandoned a field of weapons development in which it held the technological lead, believed the U.S. disinformation

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129. On November 19, 2001, John Bolton, the U.S. Under Secretary of State for Arms Control and International Security, accused six states of violating the BWC: Iran, Iraq, Libya, and North Korea (all parties to the treaty), Syria (which has signed but not ratified), and Sudan (which has neither signed nor ratified). Bolton also noted that additional states, which he declined to name, were violating the BWC. Dana Milbank, "Bush Would Update Germ Warfare Pact," *Washington Post,* November 2, 2001, p. A16. Other states often listed in unclassified sources as having offensive BW programs include China, Egypt, Israel, Russia, and Taiwan.

130. Elizabeth Olson, "Conference on Biological Weapons Is Stalled by Deep Divisions," *New York Times,* December 8, 2001, p. A7.

131. U.S. Senate, Select Committee to Study Governmental Operations with Respect to Intelligence Activities, 94th Cong., 1st sess., Hearings, Vo1. 1, *Unauthorized Storage of Toxic Agents,* September 16, 17, and 18, 1975 (Washington, D.C.: Government Printing Office, 1976).

132. Regis, *The Biology of Doom,* pp. 213–218, 232.

133. David Wise, *Cassidy's Run: The Secret Spy War over Nerve Gas* (New York: Random House, 2000); and Raymond L. Garthoff, "Polyakov's Run," *Bulletin of the Atomic Scientists,* Vol. 56, No. 5 (September/October 2000), pp. 37–40.

campaign and used it as a rationale to intensify Soviet CBW development efforts. The resulting one-sided "arms race" spawned some major Soviet breakthroughs, including development of highly lethal, stable, and persistent formulations of the microbes that cause anthrax, plague, tularemia, and smallpox, as well as advanced delivery systems such as refrigerated warheads for intercontinental ballistic missiles. Thus, at least in part because of a miscalculation by U.S. military intelligence, the Soviet biological warfare program, far from being a wasteful dead end, came to pose a major strategic threat to the United States during the Cold War.

Finally, the Department of Defense was allowed to define for itself the scope of "defensive" biological research authorized by Nixon's 1969 executive order (NSDM-35) and, after 1975, by the BWC. As mentioned above, the executive order contained a small but significant exemption authorizing "research into those offensive aspects of bacteriological/biological agents necessary to determine what defensive measures are required." Yet the Nixon White House and subsequent administrations never specified exactly what types of research into the "offensive aspects" of biological weapons could legally be pursued for defensive purposes.

For the first two decades after President Nixon's renunciation of biological weapons, the United States conducted its biodefense program in an open and transparent manner. The program was unclassified and documented in annual reports to Congress and, after 1991, in "confidence-building" declarations to other member states of the BWC. This high level of transparency contributed to the belief among foreign governments and the American public that the United States had indeed renounced offensive biological warfare. During the late 1990s, however, the Pentagon and the intelligence community backed away from the policy of openness without informing Congress or the NSC staff. In early September 2001, the *New York Times* reported the existence of three classified biodefense projects conducted by the Department of Defense, the CIA, and the DIA. All three of these projects appeared to skirt, if not cross, the legal limits laid down in the BWC.[134]

- From 1997 to 2000, a CIA contractor (Battelle Memorial Institute of Columbus, Ohio) conducted a classified research program code-named Clear Vision, which involved building and testing a model of a Soviet biological

134. Judith Miller, Stephen Engelberg, and William J. Broad, "U.S. Germ Warfare Research Pushes Treaty Limits," *New York Times,* September 4, 2001, pp. A1, A6.

submunition that agency officials feared might be available on the international market. Battelle conducted two test runs with a harmless bacterial simulant to determine the bomblet's dispersal characteristics and how it might be used in an attack.[135]

- In 1999–2000, the Defense Threat Reduction Agency (DTRA), a component of the Department of Defense, pursued a project code-named Bachus after the Roman god of fermentation. (The name was also an acronym for "Biotechnology Activity Characterization by Unconventional Signatures.") The goals of this project were to determine if terrorists could build an anthrax production facility with commercially available materials and equipment, and if such an effort could be detected through distinctive patterns of equipment purchases and other telltale signatures. DTRA successfully built the model facility, which produced about 2 pounds of a harmless bacterial simulant in a series of test runs.[136]
- In early 2001, U.S. intelligence officials decided to re-create a vaccine-resistant strain of anthrax bacteria that Russian scientists had developed by inserting a toxin gene from *Bacillus cereus*, a bacterium that causes food poisoning. The task of re-creating the genetically engineered anthrax strain was assigned to a classified DIA program code-named Project Jefferson, which had been founded in early 1998 to analyze standard biowarfare agents. DIA contracted Battelle Memorial Institute to develop the genetically engineered anthrax, which would be produced in quantities of a gram or less to test whether it could defeat the U.S. vaccine.[137]

Yet another disturbing fact came to light in December 2001, as the Federal Bureau of Investigation was trying to determine the source of the finely powdered spores used in the anthrax letter attacks. In response to a report in the *Baltimore Sun*, the U.S. Army admitted that it had manufactured batches of several grams of dried, powered anthrax spores that had been processed and chemically treated so that they would become readily airborne. The army's rationale for producing such highly lethal material was that it was needed for realistic open-air testing of battlefield detectors and other defensive equipment at Dugway Proving Ground.[138] This statement was the first acknowledgment

135. Judith Miller, Stephen Engelberg, and William J. Broad, *Germs: Biological Weapons and America's Secret War* (New York: Simon and Schuster, 2001), p. 292.
136. Ibid., pp. 297–298.
137. Miller, Engelberg, and Broad, "U.S. Germ Warfare Research Pushes Treaty Limits," p. A6.
138. Scott Shane, "Anthrax Matches Army Spores," *Baltimore Sun*, December 12, 2001, p. 1A.

that the U.S. government had produced a weapons-grade biological agent since President Nixon's decision to renounce the offensive BW program in 1969.[139] Neither President Bill Clinton nor his senior aides had been briefed on some of the classified projects identified by the *New York Times*, or the production of dried anthrax spores at Dugway Proving Ground.[140] Moreover, the United States did not include any of the classified projects in its annual confidence-building declaration of biodefense activities to other members of the BWC.

Although Defense Department lawyers argued that the secret biodefense projects reported in the press were "fully consistent" with the BWC, this view was not universally accepted. Senior diplomats from friendly countries and former Clinton administration officials, including the former general counsel of ACDA, expressed concern that at least two of the projects—the construction of a bomblet for the delivery of biological agents, and the production of weaponized anthrax powder—may have violated the BWC. The critics noted that Article 1 of the convention categorically bans "weapons, equipment or means of delivery designed to use [biological] agents or toxins for hostile purposes or in armed conflict."[141] Thus, constructing a munition suitable for the delivery of biological agents, even for the purpose of assessing defensive requirements, was inconsistent with the treaty. Moreover, because the dried anthrax spores produced by the army were so volatile and infectious that they did not require a delivery system, the powder itself could be viewed as a "weapon."

Even if the secret U.S. biodefense work did not violate the letter of the BWC, it created serious political problems. Because of the blurry line between offensive and defensive research and the inherently dual-use nature of commercial bioindustrial facilities such as vaccine plants, an assessment of intent plays a key role in BWC compliance judgments. Based on the revelations in the press, other countries could easily perceive the U.S. biodefense projects as being offensively oriented. As the *New York Times* pointed out, "Simultaneous experiments involving a model of a germ bomb, a factory to make biological agents, and the development of more potent anthrax . . . would draw vociferous pro-

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139. Scott Shane, "Army Confirms Making Anthrax in Recent Years," *Baltimore Sun,* December 13, 2001, p. 1A.
140. Interview with Elisa D. Harris, University of Maryland, December 15, 2001.
141. Article 1, Paragraph 2, *Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction,* www.state.gov/www/global/arms/treaties.bwc1.html.

tests from Washington if conducted by a country the United States viewed as suspect."[142] Because of these inherent ambiguities, openness about national biodefense activities is critical for the health of the biological disarmament regime. As long as the United States pursues classified projects, other members of the BWC have no way of knowing that these activities are treaty-compliant and must accept U.S. assurances on faith. Suspicion—however unfounded—that the United States is secretly engaged in offensively oriented R&D could have a corrosive political effect and even promote the proliferation of BW programs.

A reasonable level of transparency, such as describing biodefense programs in general terms while omitting technical details, would help to build confidence in U.S. compliance with the BWC without making it easier for hostile states to circumvent the planned defenses. If a compelling rationale exists for a few classified biodefense projects by U.S. government agencies or contractors, all such work should be briefed to the NSC staff and vetted by State Department lawyers for strict compliance with the BWC. In addition, the intelligence, armed services, and government operations committees of the Congress should hold periodic oversight hearings on the U.S. biodefense program—if necessary in closed session—to ensure that such activities are implemented in a manner fully consistent with the letter and spirit of President Nixon's landmark decision and U.S. treaty obligations.

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142. Miller, Engelberg, and Broad, "U.S. Germ Warfare Research Pushes Treaty Limits," p. A6.