

Book Reviews

Edited by Gregg R. Murray

Milton Leitenberg, Raymond A. Zilinskas, and Jens H. Kuhn, *The Soviet Biological Weapons Program: A History*. (Cambridge: Harvard University Press, 2012), 921 pages. ISBN 978-0-674-04770-9. Hardcover, \$55.00.

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What will be the legacy of the Soviet Union? For much of its seventy-three years, its totalitarian government punished citizens with mass internal exile, censorship and heavy restrictions on travel, and terroristic “purges” for perceived unpatriotic behavior. Despite successes in literacy and industrial manufacture, and the unforgettable defeat of Hitler’s army in the Great Patriotic War, the USSR’s Orwellian propaganda machine fostered lies among top officials and factual distortions everywhere else. To construct a reliable history of any aspect of the Soviet state is at best difficult. To bring to light a secret Soviet military program—in this instance, its ultimately sprawling biological weapons (BW) venture—would seem impossible. Yet the authors of *The Soviet Biological Weapons Program* have succeeded in giving us a unique and comprehensive overview of just such a phenomenon. Their tendency to rely on undocumented and second-hand sources, perhaps unavoidable, leaves room for further investigation and scholarship. Nonetheless, the book is now the definitive source in a policy area where both authors have for many years made outstanding contributions. (Kuhn, a virologist at U.S. National Institutes of Health, also worked in Russia).

Fortunately, the end of the Cold War gave the authors access to new archives about the covert Soviet pursuit of a germ weapons capability, especially starting in the

1970s when it became especially aggressive. In addition to thoroughly combing these documents, the authors interviewed anonymous microbiologists formerly employed at various levels in the enterprise. The book also profits from named, firsthand accounts by several scientists once in positions of authority.

The authors posit two distinct generations of the Soviet offensive BW program. The first, dating from 1928 to 1970, was based, of course, on traditional microbiology. Although the documentation for a nascent Soviet BW program is fragmentary at best, it still raises the important question of scientific expertise as a key factor in determining just how dangerously effective germ weapons might be. In military terms, the tested capabilities of a weapon must be suitable for integration into a realistic war plan. Scientists could experiment extensively with anthrax, plague, and smallpox pathogens and test how to disperse them with munitions, but the question was always whether they might rival or outperform conventional arms. Historically, the answer was certainly negative. The French military, whose biological weapons program began in 1922, drew on considerable scientific expertise (especially with infective aerosols), but its military leaders were never convinced that germ weapons were operationally viable compared to conventional munitions or even chemical weapons, which had been battlefield tested in World War I. The other early BW program, that of the Japanese Imperial Army from 1933 to 1945, similarly failed to persuade military minds of its worth in war. To the contrary, in Japan’s 1942 BW attacks on China, thousands of its own soldiers inadvertently contracted cholera meant for enemy civilians.

Soviet biology in this first phase was degraded by the influence of agronomist Trofim Lysenko, who, with Stalin’s support, rejected Mendelian genetics and retarded Soviet biology for at least a decade after his patron’s death in 1953. Lysenko (who died in 1976) was merely one symptom of the cost of being cut off from progressive life sciences in the West. According to the authors, the second generation of the Soviet biological

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weapons program started in 1971 as part of an attempt to free Soviet science from political ideology. But the bargain was Faustian: in a single, schizophrenic organization called *Biopreperat*, the new funding for contemporary genetics research was twinned with funds for biological weapons development, including the production of munitions for mass use.

The key instigator of this bargain, according to the authors, was Yury Ovchinnikov, a boy genius in protein chemistry who rose quickly in the post-Lysenko era to become a confidant of Leonid Brezhnev, at the time the General Secretary of the Communist Party. The ultimate scale of *Biopreperat* was enormous. By the authors' estimate, some 65,000 people were employed by the enterprise and facilities proliferated. Existing science centers for physics and chemistry, like one in Novosibirsk, were augmented by biological weapons facilities, and new BW centers were built, like the enclave Obolensk south of Moscow. Production facilities for pathogens and munitions proliferated; one in Kazakhstan had ten 20,000-liter fermenters for growing anthrax bacilli.

A good part of the narrative of *The Soviet Biological Weapons Program* concerns U.S. politics at critical Cold War junctures. Pivotal was President Nixon's 1969 decision to renounce U.S. biological weapons and, in effect, terminate the enormous offensive program that had burgeoned after World War II—the first elimination of an arsenal in U.S. history. The follow through from Nixon's decision was the 1972 Biological Weapons Convention, which bans state development, production, and possession of germ and toxin weapons. Then, in 1975, the United States ratified the 1925 Geneva Protocol, which bans the use of chemical and biological weapons in war, and aligned itself with the many other nations already party to the treaty.

The path to the Nixon decision and these other momentous restraints was laid in the early 1960s, just at the time of revolutionary innovations in genetics which U.S. Army scientists surely would have exploited to pioneer new weapons. A key policy organization was the U.S. Arms Control and Disarmament Agency (ACDA), formed in 1961 to integrate arms control objectives into national security policy. In 1963, its full-time consultant for BW issues, Harvard biochemist Matthew Meselson, was given a tour of Fort Detrick in Maryland, then the thriving center for the U.S.

offensive program. There, an official explained that germ weapons were destined to be the cheap alternative to nuclear weapons, a money-saver for taxpayers. Surprised and dismayed, Meselson began a campaign to motivate other scientists and U.S. government officials to end the program and promote an international ban on exploiting the biological sciences for hostile use. The media also alerted the public and created momentum; in 1968, journalist Seymour Hersh wrote his exposé on *Chemical and Biological Warfare: America's Secret Arsenal*.¹

As Meselson argued in articles, speeches, private memos, and Congressional testimony, biological weapons offered little or no military advantage and could spur proliferation dangerous to American interests. In early 1969, Nixon's National Security Advisor, Henry Kissinger, asked Meselson, a former Harvard colleague, "What should we do about *your* issue?" Meselson then wrote papers that, with others, informed Nixon's decision. Simultaneously, the United Kingdom, its offensive program shut down, prepared a draft for what became the 1972 Biological Weapons Convention (BWC).

The authors offer a gripping account of how, during this important time in arms control history, high-level Soviet leaders like Brezhnev failed to act with integrity and instead talked out of "both sides" of their mouths (pp. 63–64). While officials from the Soviet Ministry of Foreign Affairs publicly supported the BWC, apparently unknown to them, the Ministry of Defense moved to create a massive germ weapons program in direct violation of the accord. The authors also explore the U.S. intelligence effort immediately following the Nixon decision to persuade Soviet intelligence that Americans were covertly continuing their offensive BW program. Although this "grossly misguided program" ended before 1972, Soviet distrust of the United States endured and was likely some part of the justification for its BW build-up.

In the 1980s, the Soviet Union struggled with a backward economy eroded by military overspending, and then, in December 1991, it broke apart. The transition years provide a compelling background for the later chapters of *The Soviet Biological Weapons Program*, as contacts between East and West increase, not without difficulty. One signal event was the fatal April 1979 anthrax outbreak at Sverdlovsk, an industrial city in the Urals which, since World War II,

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housed a large military base. News of the catastrophe soon reached the West and the cause of the deaths was debated in U.S. intelligence circles: had the population consumed anthrax-infected meat, had an aerosol of anthrax spores been released from an illegal production site at the military base, or had an aerosol release killed livestock later consumed by the victims? In 1988, Moscow authorities allowed General Pyotr Burgasov, deputy head of Soviet public health in the late 1970s, to travel to the United States for a series of presentations on his explanation of the Sverdlovsk outbreak. His was also the official Soviet explanation, namely that 64 people (of 96 infected) had died from eating contaminated meat from unvaccinated livestock sold on the black market. Behind the scenes, the Ministry of Defense speculated that a technical failure of the air filtration system at the Sverdlovsk military facility might have been at fault. Although the presentations were more propaganda than fact, they were a start. Burgasov turned over to Americans the 1979 official public health report describing the general epidemiology and public health response and later shared the records of animal deaths from anthrax in the Sverdlovsk area.

After the demise of the Soviet Union in December 1991, personal contacts among scientists forged during the Cold War—particularly between Matthew Meselson and Alexey Yablokov, President Boris Yeltsin's Minister of the Environment, and between Martin Kaplan, president of the Pugwash Conferences, and Academician chemist Vitaly Goldansky—created opportunities to gain more access. In June 1992, after consultation with Yablokov, a team of researchers led by Meselson was allowed to conduct an on-site investigation of the outbreak. As part of that team, I conducted interviews with the families of victims that were the basis for an epidemiological map (reproduced in this book) locating those individuals infected directly southeast of the military base, in line with prevailing winds on April 2, 1979, just before the outbreak began. The map clearly implicated the military facility where, it soon became known, anthrax production in violation of the BWC was taking place.

Just before the arrival of the Meselson team, President Yeltsin (the Communist Party chief in Sverdlovsk at the time of the outbreak) was under pressure from a Duma representative from the city (now renamed Yekaterinburg) to investigate the cause

of the anthrax deaths. He was also under international pressure to affirm Russia's commitment to the BWC. In May 1992, and afterwards, Yeltsin publicly attributed the cause of the outbreak to the military, but neither his admission nor publication of our team's research in *Science* settled the question.² In Russia, the idea that the Soviet military could cause the deaths of its own civilians was anathema to some, especially former generals. Disinformation proliferated in international meetings and in the press, and worse: in 1999 the Russian public health report on anthrax reiterated the infected meat explanation.

Ovchinnikov died in 1988, as the Soviet Union was collapsing from within, and by early 1992 its second BW phase had ended. Despite the heavy investment, it seems that the Soviet program had been troubled by institutional and scientific problems. In one lab, employees had to be bribed with alcohol to finish their experiments; in another, a high-handed bureaucrat arbitrarily halted a promising experiment to increase the virulence of a *tularemia* strain. Some lab accidents were fatal, none on the scale of the Sverdlovsk outbreak, but revelations about a 1971 smallpox epidemic caused by an accidental military aerosol release over the Aral Sea remain shocking.

Although the list of the Soviet program's accomplishments appears meager, the authors remain convinced that the Russian Ministry of Defense continues some secret BW offensive initiatives to this day that Yeltsin and former Soviet President Mikhail Gorbachev may not have halted. Just the suspicion of such retrograde activity in pursuit of the "cheap" WMD threat to civilians is alarming. More than 40 years after the Biological Weapons Convention, Russia and the United States should be promoting adherence to the treaty, particularly in the Middle East where it has been generally rejected, and setting a positive example for trust and transparency among states. To agree on reciprocal visits to defense establishments would be a bold first step towards ending the history of this dreadful category of weapons.

Note

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The Investigation of a Deadly Outbreak (1999) on the Sverdlovsk anthrax incident, *Biological Weapons: From the Invention of State-sponsored Programs to Contemporary Bioterrorism* (2005), and *American Anthrax: Fear, Crime, and the Nation's Worst Bioterror Attack* (2011) on the 2001 anonymous letters sent in the aftermath of 9/11.

References

1. Seymour M. Hersh, *Chemical and Biological Warfare: Inside America's Hidden Arsenal* (Indianapolis: Bobs-Merrill, 1968).
2. Matthew Meselson, Jeanne Guillemin, Martin Hugh-Jones, Alexander Langmuir, Irina Popova, Alexis Shelokov, and Olga Yampolskaya, "The Sverdlovsk anthrax outbreak of 1979," *Science*, 1994, 266(5188): 1202–1208.