



Historical Trends and the Biological Weapons Threat

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Securing High Consequence Pathogens and Toxins

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The Challenge of Biological Weapons

- Biological Weapons:
 - The use of living organisms or the byproducts of living organisms against an adversary's military forces or civilian population to cause injury or death through disease and sickness
- Types
 - Bacteria
 - Viruses
 - Rickettsia
 - toxins

An Old Problem

- 1346:** First recorded use of biological agents in armed conflict at (now Fedossia, Ukraine), where plague-infected bodies of Tartar soldiers were catapulted over city walls
- 1763:** British soldiers at Fort Pitt distributed smallpox-infected blankets to Indians fighting with French

World War I

- German agents attempt to introduce glanders into horses in Baltimore to be sent to U.S. cavalry units in Europe

The 1930s

- After Japan invaded China, it established a BW-operation named Unit 731 in Manchuria
- 3,000 to 10,000 deaths as a result of Unit 731 BW experimentation

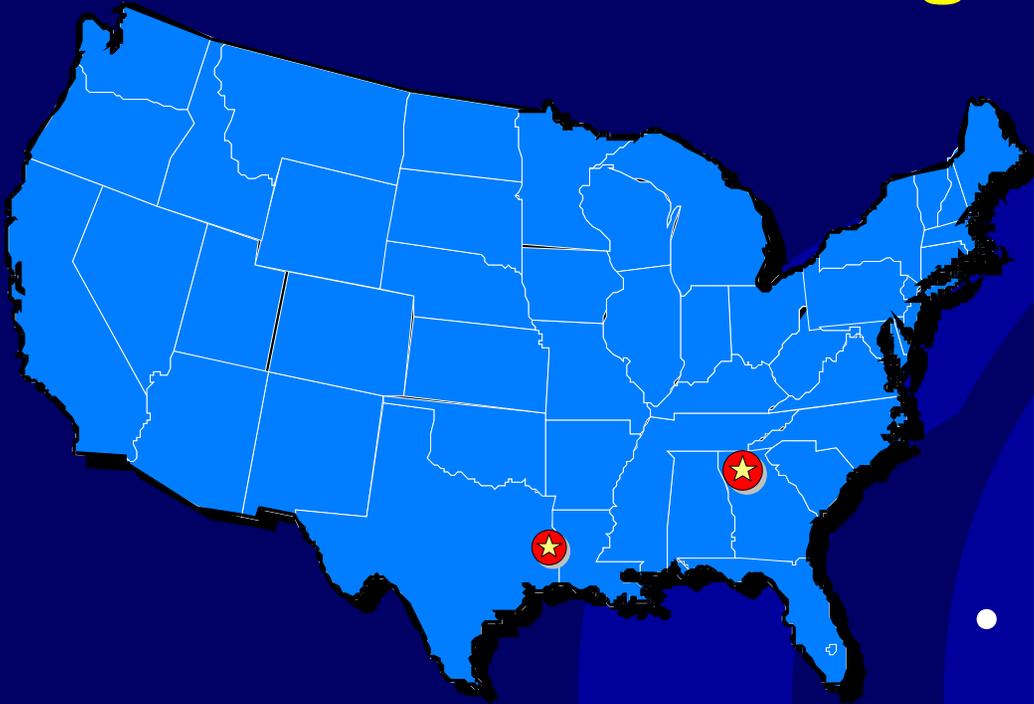


Sites of Unit 731 Operations

World War II

- Both Axis and Allies conducted BW R&D
- U.S. and Britain developed such agents as anthrax, and a wide-range of munitions and delivery systems
- **BUT...**
 - no confirmed use of biological agents by either side

Post-War U.S. Program



Major U.S. Facilities:

Fort Detrick, Frederick, Maryland

Pine Bluff, Arkansas

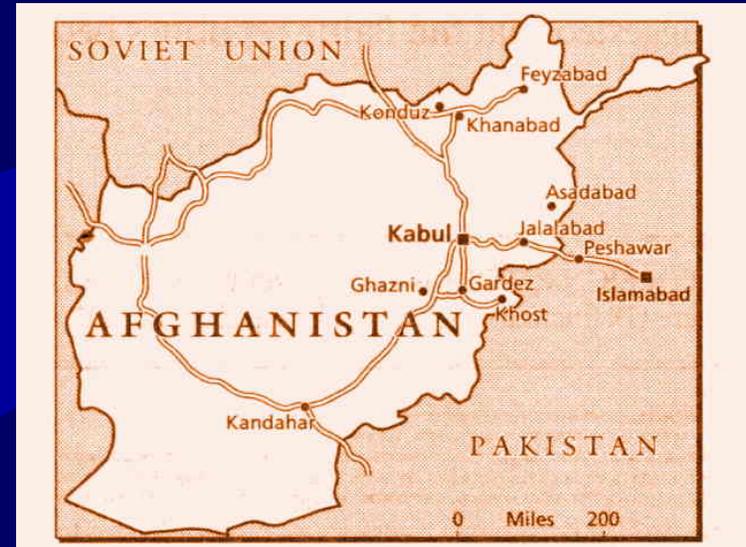
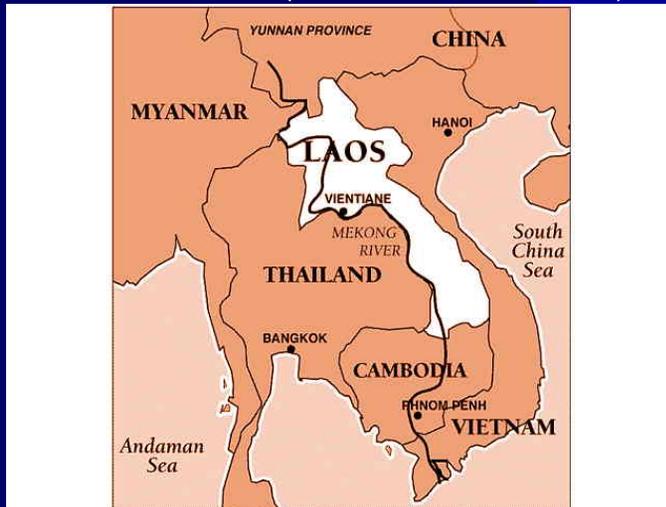
Work with anthrax, botulinum toxin, Venezuelan equine encephalitis, cobra venom and other agents

- Program terminated unilaterally by President Nixon in 1969

Cold War BW Controversies

“Yellow Rain”

Alleged Soviet
use of mycotoxins
in Cambodia
(1979-1981) and
Laos (1975-1981)



Alleged Soviet use
in Afghanistan
(1979-1981)

The Illicit Soviet Program

1930s: Military Program

1970s: *Biopreparat*

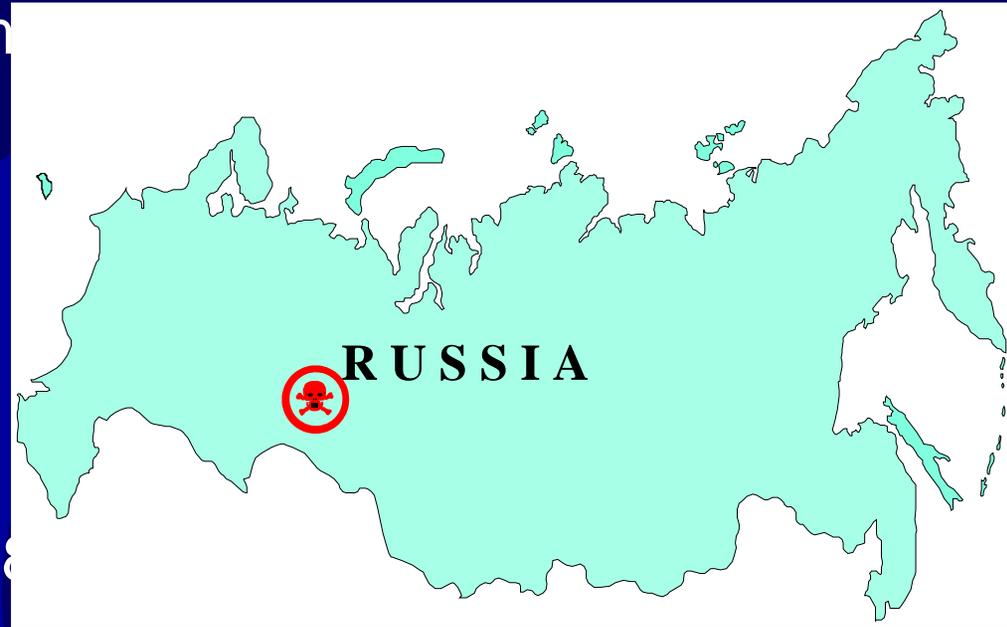
- a chain of research facilities and production plants
- 200 billion ruble budget
- 15,000 employees



Major Biopreparat Facilities

Sverdlovsk: The 1979 Accident

- Containment failure from military microbiology facility
- Less than one gram of dry anthrax spores
- Cloud drifted 4km downwind
- 77 people infected; 66-68 people died
- Livestock infected up to 50 kilometers downwind



The Illicit Soviet Program

- **1980s:** Work on genetically engineered agents (pneumonic plague and tularemia)
 - 1985 Five Year Plan: new, more deadly agents
- **1988:** Defector revealed the program
 - “The information was stunning; a whole ministry exposed, billions of rubles spent, a complete organization shown to be a front; and there was the clear involvement of Gorbachev.” -- British Report

The Illicit Soviet BW Program

- **1992:** Russian President Boris Yeltsin admits former Soviet Union conducted illegal program;
 - Calls for termination of program
 - Confirmed Sverdlovsk anthrax outbreak an unintentional release
- **1998:** Allegations continue
 - Former Biopreparat official, “Ken Alibek,” declares Soviet program massive and sophisticated

The Iraqi BW Program



- Begun in the 1970s
- Part of integrated WMD acquisition strategy to transform Iraq into the “Sword of the Arabs” and fulfill Saddam Hussein’s goals of regional hegemony
- Important tool of coercion and intimidation against Gulf foes and Kurdish insurgents R&D on entire spectrum of agents

On the eve of Desert Storm, Iraq had an extensive BW program.

- R&D on entire spectrum of agents
- Large scale weaponization begins in December 1990
 - 10,000 liters of botulinum
 - 6,500 liters of anthrax
 - 1,580 liters of aflatoxin
- A variety of delivery systems
 - 166 aerial bombs
 - 25 al-Hussein missile warheads



Alleged or Suspected BW Proliferators

Admitted past programs: United States (pre-BWC), Britain (pre-BWC), Soviet Union, South Africa, and Iraq



East Asia
China
North Korea
Taiwan

Middle East:
Iran, Iraq, Israel
Libya, Syria

Other past or current programs alleged:
Brazil, Argentina,
India, Pakistan, Laos

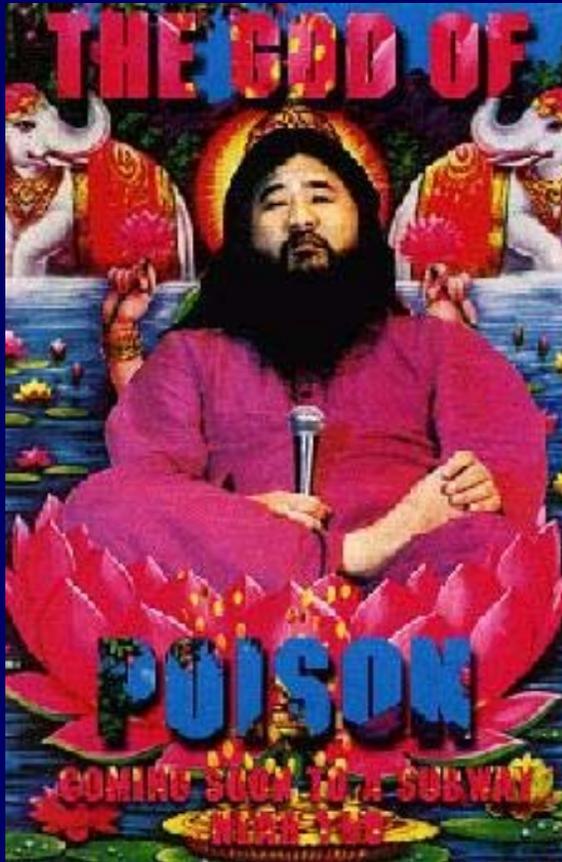
Source: Unclassified, non-government assessments

The Escalating Risk of Bioterrorism



- geopolitical shift to asymmetric warfare
- enhanced access to materials and knowledge
- covert production facilitated by lack of 'signatures' for easy surveillance
- major gaps in deterrence/defence; requires special action for health preparedness
- advances in biotechnology will increase threat diversity and complexity
- may cause public panic, social disharmony, or economic disruption

Terrorist Interest in BW



Aum Shinrikyo

- R&D efforts with anthrax and botulinum
- 1994: Attempted anthrax attack in Tokyo using sprayer equipped truck
- Attempts to secure ebola samples through "mercy mission" to Zaire

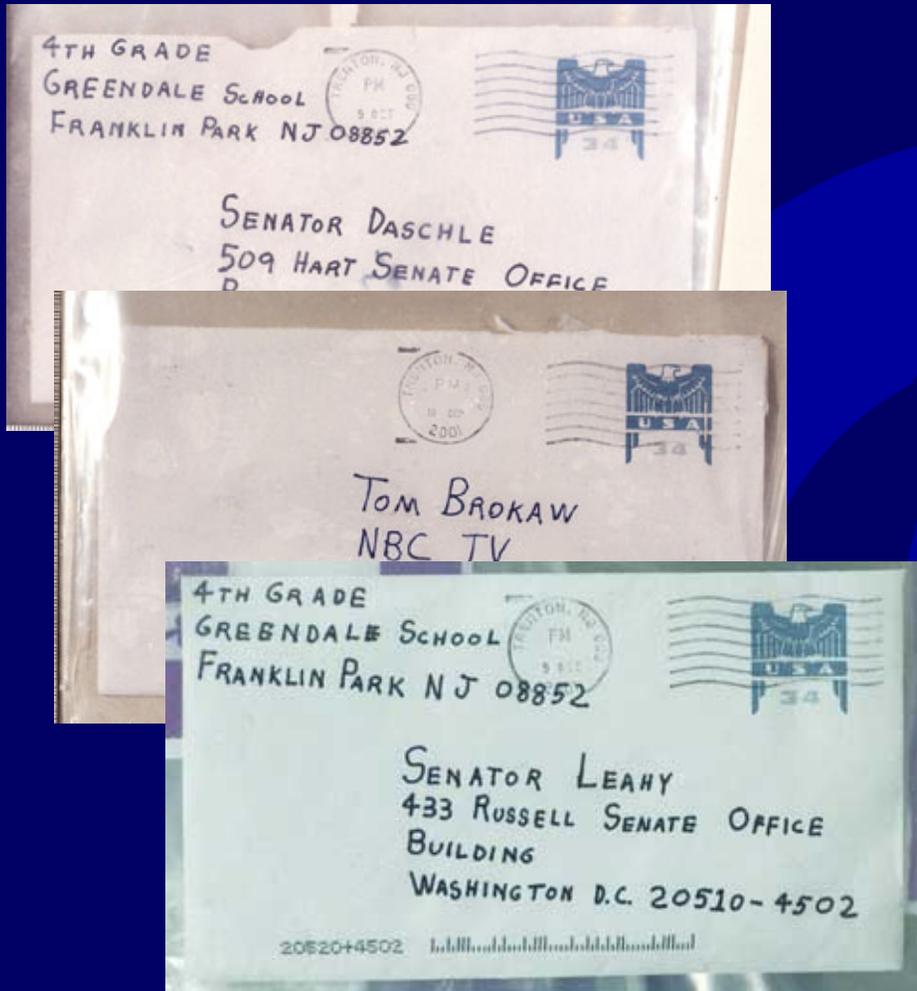
Terrorist Interest in BW



Al Qaeda

- Elaborate rationale
- Documented interest
- Unsuccessful attempts at acquisition
- Unknown current capabilities

Terrorist Interest in BW



Anthrax Letters

- Very high quality
- 5 Victims disperse around the country
- Perpetrator still unknown
- Unanswered questions:
 - Domestic or foreign?
 - Intent?

Bioterrorism Threat



Actors



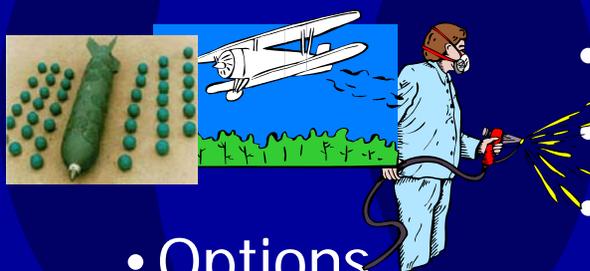
- Motivations
- Objectives
- Capabilities
 - Organizational
 - Technical
 - Financial
 - Logistical

Agents



- Clinical
- Technical
- Objectives

Delivery



- Options
- Technical
- Efficiencies

Targets



- People
- Locations
- Symbols
- Events
- Food Supply
- Plant & Animal

Selective Responses to the BW Challenge

Actor Focus	International	National
State Actor	<ul style="list-style-type: none"> •BWC •Australia Group •Proliferation Security Initiative •Cooperative Threat Reduction •Intell Cooperation 	<ul style="list-style-type: none"> •Export Regulations •National Laws
Terrorist	<ul style="list-style-type: none"> •Intell and Law Enforcement Cooperation •Cooperative Threat Reduction •Global Health Security Action Group 	<ul style="list-style-type: none"> •National Laws •Preparedness Efforts •Prevention Efforts Biosecurity