

Military Biological Weapons Programs

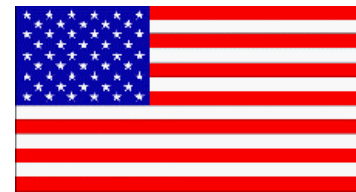
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April 3, 2002

We now know what terrorists want from Biological Weapons, but what does a military want?

I will examine two programs we know a lot about:



Voluntarily eliminated BW program in 1969 and declassified much information



Forced to “eliminate” program and much information gained from inspectors. 1

Report Documentation Page

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Estimates of Historical Weapons Effectiveness

Combatants



- Precision Guided Munitions: 0.75 Casualties/ton
- World War I Chemical Weapons: 10 Casualties/ton (0.2 deaths/ton)
- Iran-Iraq War Chemical Weapons: ~35 Casualties/ton

Civilians



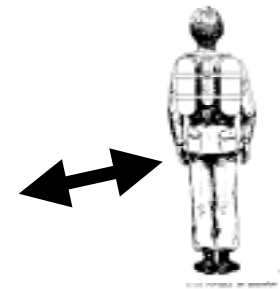
- 1995 Tokyo Sarin Attack (CW): ~2200 Deaths/ton
- Atomic Bomb (Hiroshima): ~100,000 Deaths/ton
- Anthrax Attacks (October Incident): ~1,000,000 Deaths/ton
- Thermonuclear: ?

The U.S. Biological Weapons Program

1. Artillery shells



2. Stationary generator left behind by special forces.



3. Boat mounted line spray source



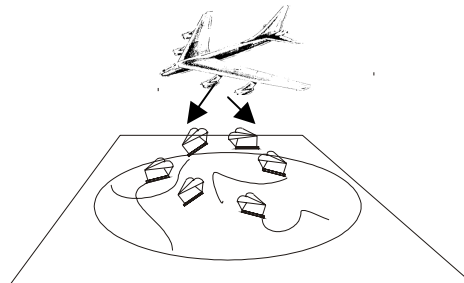
4. Naval point source



5. Self-dispersing spheres



6. Flettner rotors



7. Drone mounted line spray source.

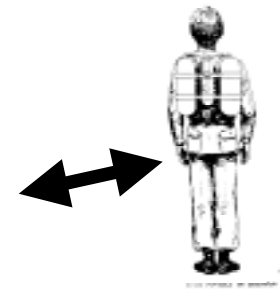


1. ~~Artillery shells~~

~~Abandoned~~



2. Stationary generator left behind by special forces.

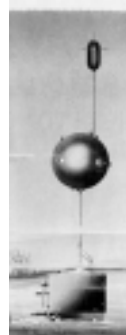


3. Boat mounted line spray source



4. ~~Naval point source~~

~~Abandoned~~



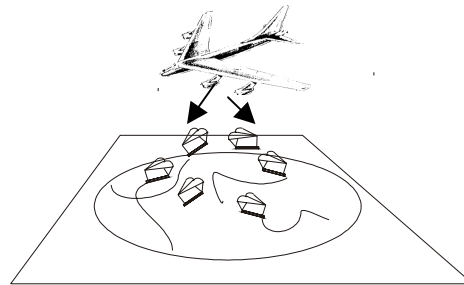
5. ~~Self-dispersing spheres~~

~~Obsolete~~



6. ~~Flettner rotors~~

~~Obsolete~~



7. Drone mounted line spray source.

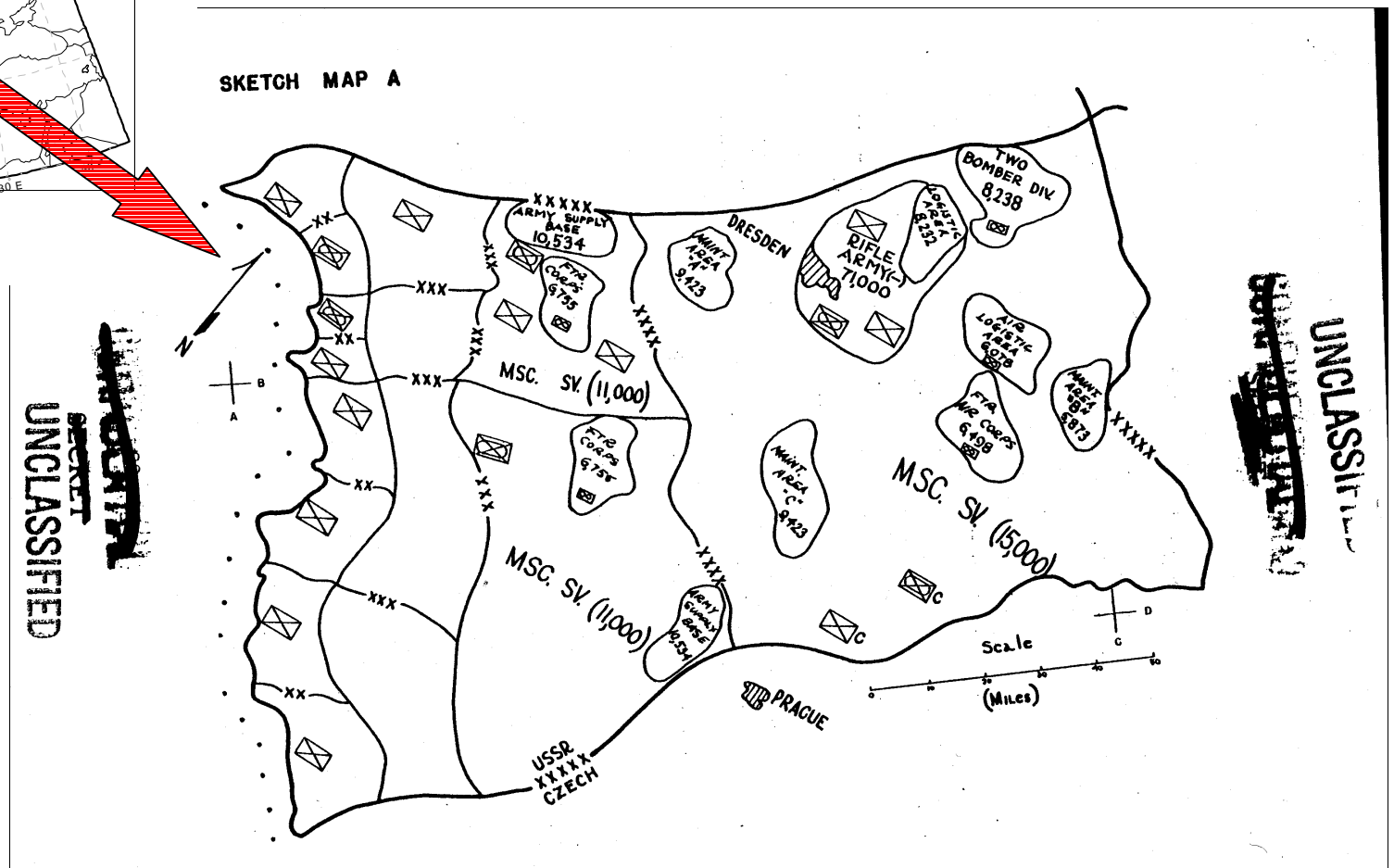
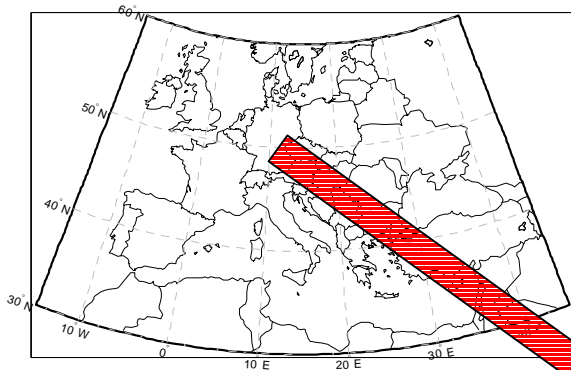


Overview of Various BW weapon Systems.



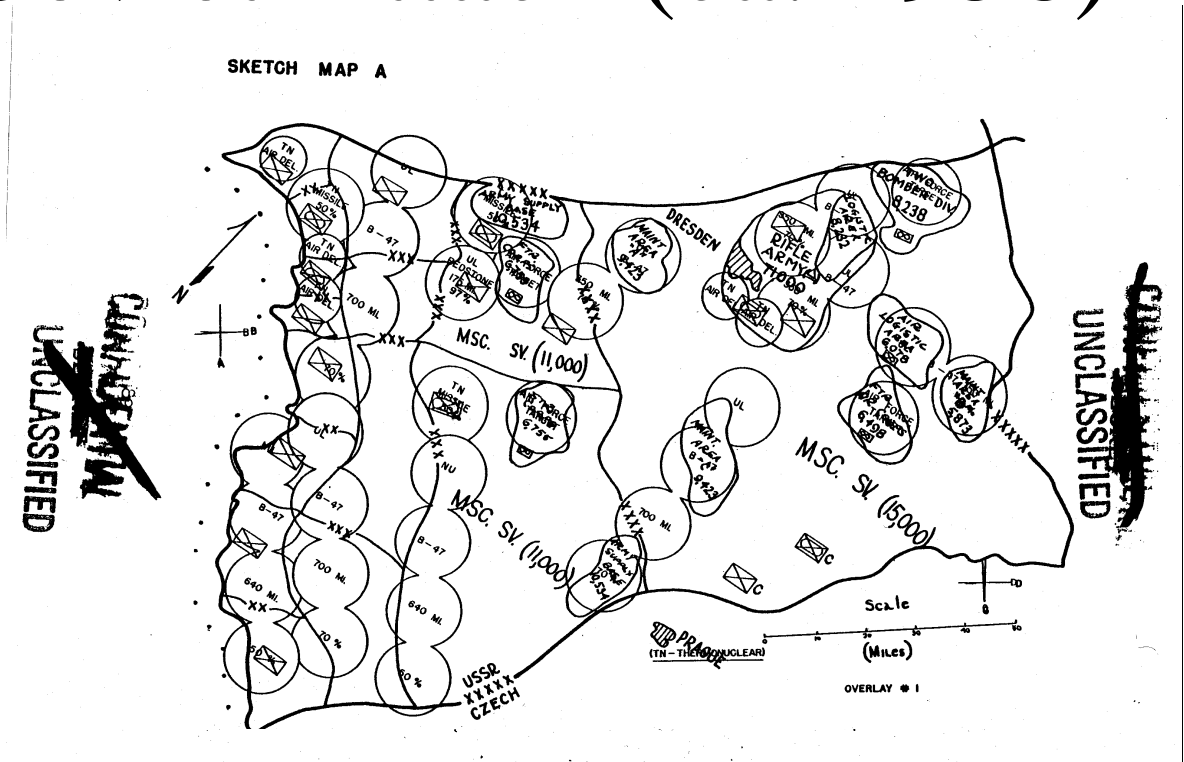
Military Uses of Biological
Weapons:
Serious Suggestions, Far from
being actual war plans!

Using Tactical BW in General War: blunting a Soviet Attack (ca. 1958)



Using Tactical BW in General War: Blunting a Soviet Attack (ca. 1958)

Resources required
for BW mission:



	Military	Civilian
AW Killed	31,800	12,000
AW Injured	31,800	12,000
AW Total	63,600	24,000
BW Killed	39,600	46,000
BW Incapacitated	118,800	134,500
BW Total	158,400	180,500
GRAND TOTAL	222,000	204,500



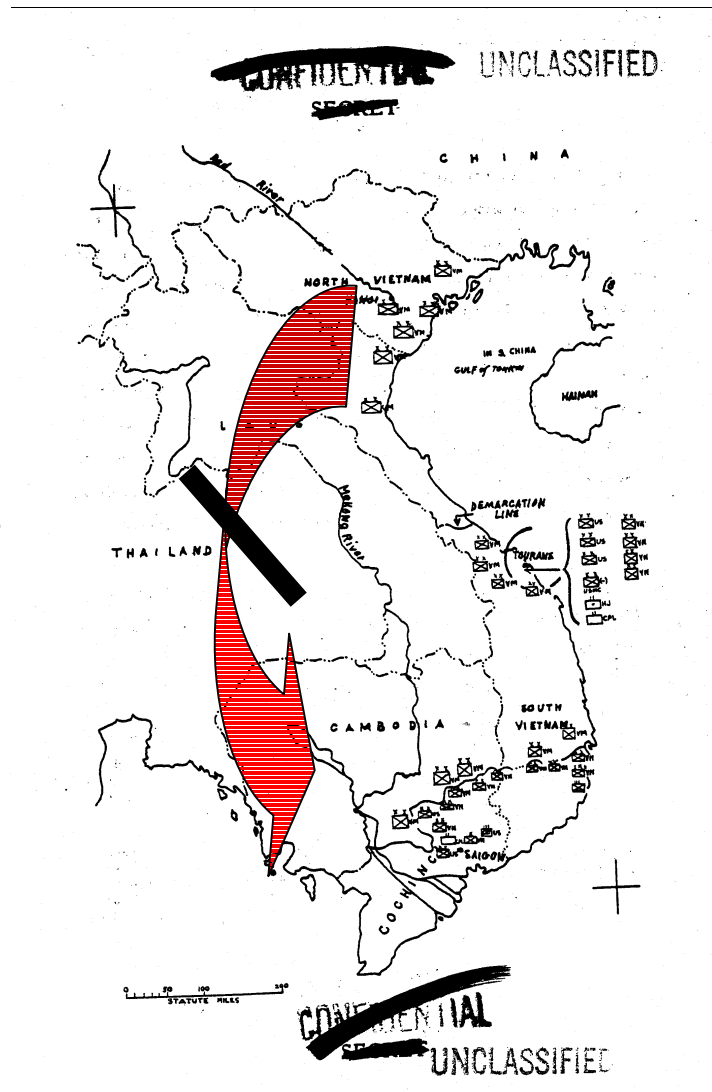
+thermonuclear weapons in the north

NOTE: Total ground troops in southern army front, 429,250.

Using “Strategic” BW in a Peripheral War: blunting a Soviet Attack (ca. 1958)

Goals:

- 1) Block troop transfer from the North to the South.
- 2) Incapacitate enemy troops in the South to reduce their effectiveness at defense.



Assumption:

US fights a static defense until all its forces are in place. It can then launch an offensive at a time of its choosing, i.e. 7 days after BW attack.

Resources required for BW mission:



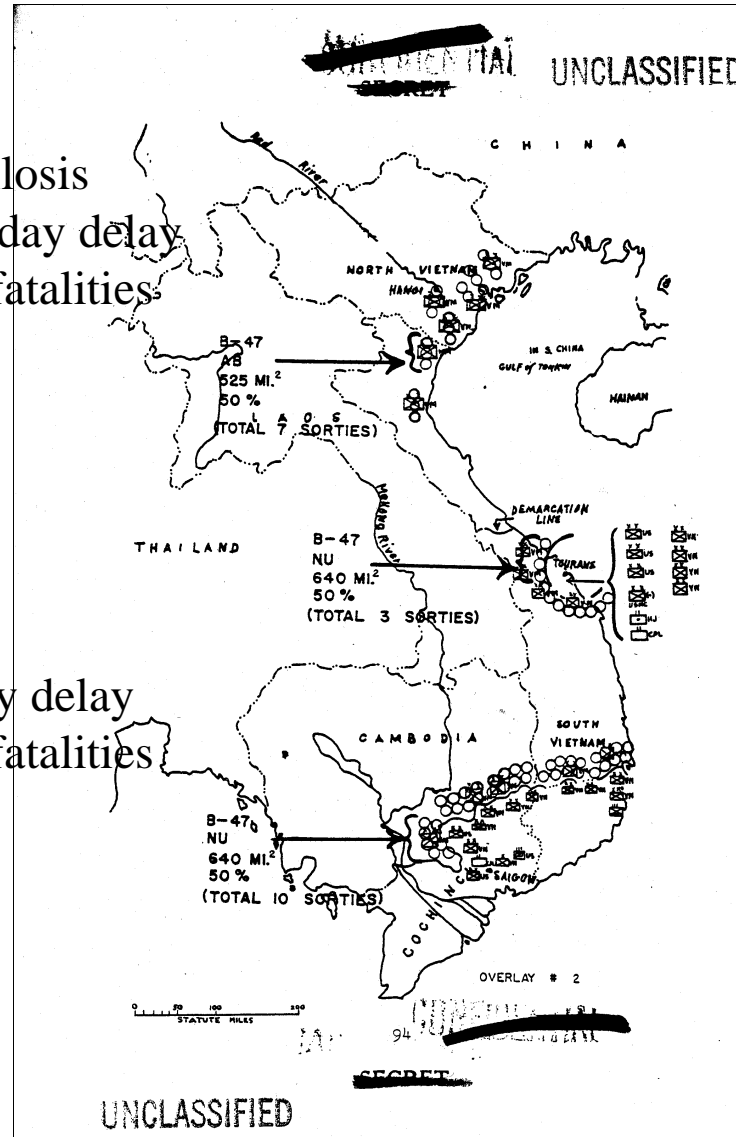
<u>Saigon and Tourane Perimeters</u>			
	<u>Military</u>	<u>Civilian</u>	
Total in Area	137,000	243,200	
Total Incapacitated	68,500	130,000	
Total Lethalities	0	0	
Total Casualties	68,500	130,000	
<u>Tonkin Delta</u>			
	<u>Military</u>	<u>Civilian</u>	
Total in Area	84,000	1,128,000	
Total Incapacitated	40,200	497,000	
Total Lethalities	800	11,000	
Total Casualties	41,000	508,000	

~~CONFIDENTIAL~~
~~SECRET~~

UNCLASSIFIED

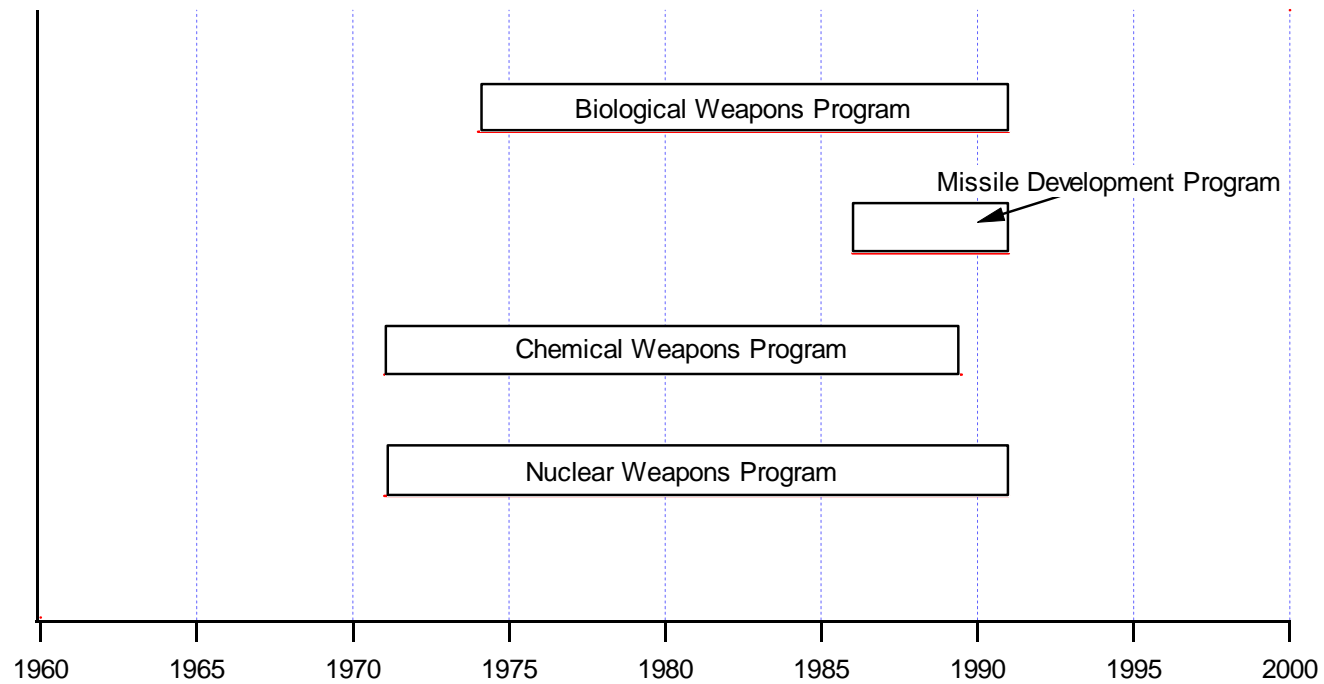
Brucellosis
12-15 day delay
< 2% fatalities

VEE
2-5 day delay
< 2% fatalities



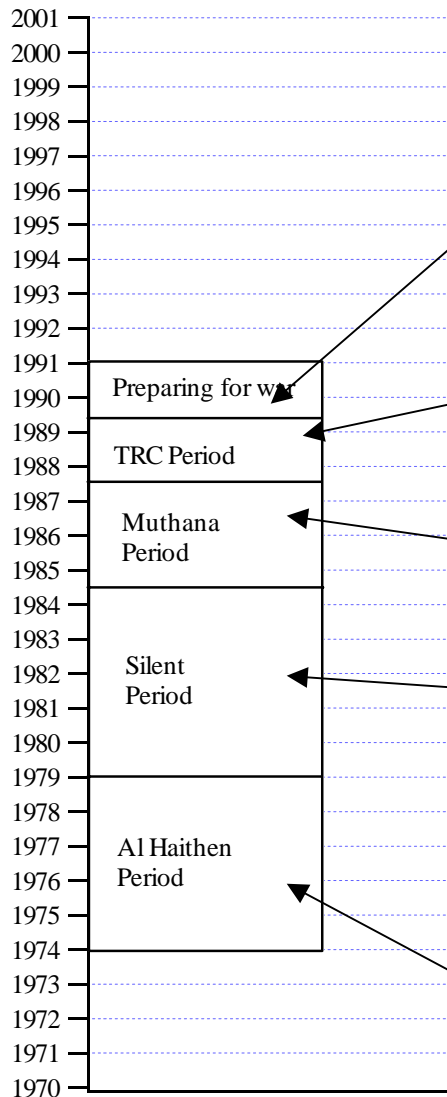
Iraq's Biological Weapons Program

Timeline of Iraq's WMD Programs



The Different Periods of Iraq's

BW Program



Concepts of operations were formed but UNSCOM does not know much about these since they are prohibited from inquiring about military matters.

A procurement network was established (for importing needed items from outside the country) and planning took place, but not much else is known about Iraq's activities.

This period was dedicated to weapons development, with some research.

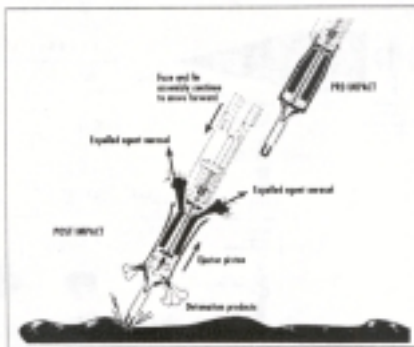
This was primarily a training period with students sent abroad for PhDs (mostly to the UK). Existing facility was closed. During this period, Iraq isolated bacteria and viruses, investigated drying processes, taught students, and built up an institute.

During this period, the goals of the program were "dirty tricks" associated with assassination of political opponents (staining shirts with ricin) and protection of the President (food poison testing). But the program failed with people being sent to jail because of fraud, for instance. However, the people who ended up leading the BW program were associated with it at this period.

Weaponization of Iraq's BW Agents

Biological Munitions

Example—modifying a Cardoen PM-1 submunition



Iraq tried to set up a factory for these tactical warheads that could be filled with either CW or BW. They are made to look just like normal HE 155 mm rounds, presumably to prevent Iranians from taking CBW defense measures.

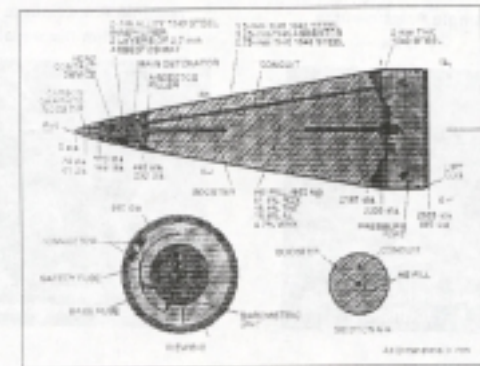
UAV delivery of BW



Iraq tried to develop remotely controlled Mirage fighters with large drop tanks filled with BW, even into the Gulf War.

Bio Warhead—Munitions

Bulk fill high explosive theater missile



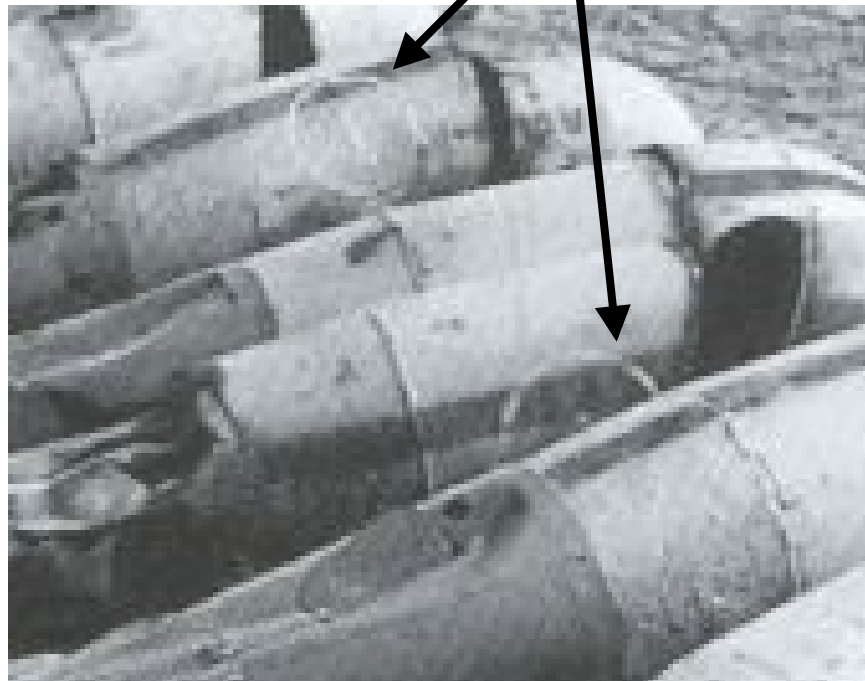
25 SCUD warheads were filled with anthrax. These were filled in the period before the 1991 Gulf War.

Weaponization of Iraq's BW Agents (Cont')



These gravity bombs were filled with CW, as indicated by the empty circle. BW bombs had an Arabic A in side the circle.

CW markings,
BW bombs had an Arabic
“A”



Supergun—A new way of getting Intercontinental Distances



A supergun (termed little Babylon), with 350 mm diameter, as actually built but apparently not tested. This version was built as a fixed direction/launch angle. But it could have been weaponized to a more mobile version.

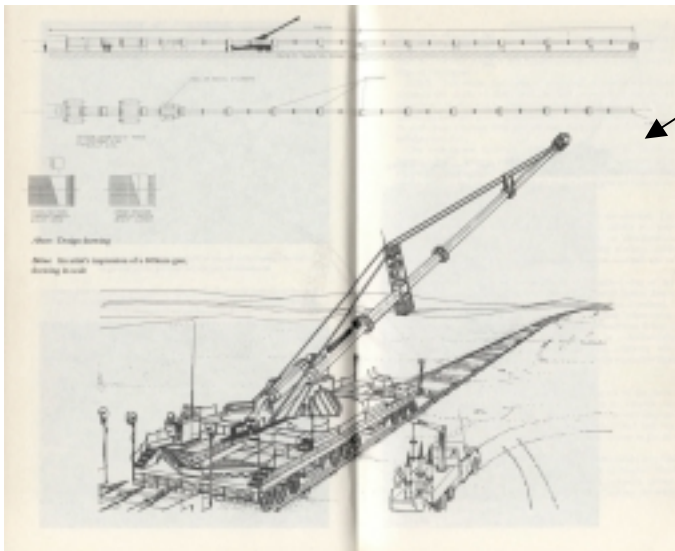


FIGURE 57 PAYLOAD CAPABILITIES OF HIGH ALTITUDE PHASES

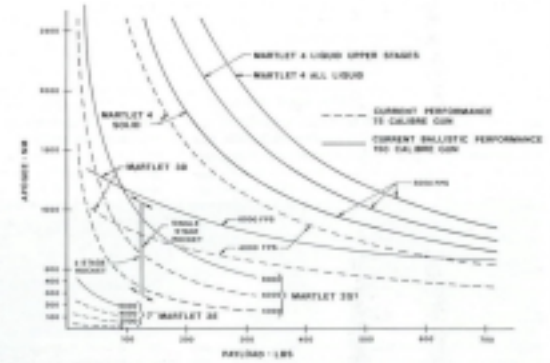
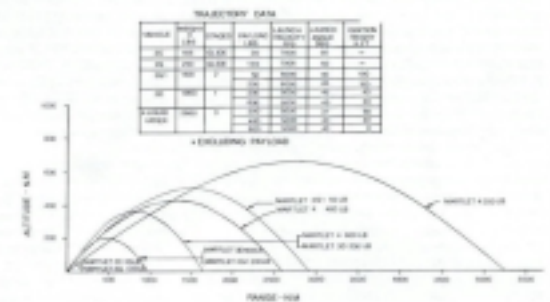


FIGURE 58 LONG RANGE PERFORMANCE, 16 INCH GUN



Clandestine BW Dispersal

