

# NUCLEAR DETERRENCE

A presentation by  
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# **QUESTIONS TO BE ADDRESSED:**

- I. Why examining nuclear deterrence is necessary?**
- II. What can be learned from the military efforts at deterrence during WWII?**
- III. What were the first thoughts on nuclear deterrence?**
- IV. What does creating and maintaining a robust nuclear deterrent force require?**
- V. How sound are the most popular current views on deterrence and the first use of nuclear arms?**

# BRIEF ANSWERS

- I. If nuclear weapons reliably prevent aggression, they are a solution rather than a problem: more nuclear weapons would be better, and their spread need not be controlled. If they don't always deter, however, just the reverse would be the case.
- II. Three things: 1. you can't deter attacks you can't yourself survive; 2. preventing an adversary from using horrific weapons is more likely if you have and can use them; and 3. you have to anticipate and defend against all the ways you might be attacked if you wish to deter them.
- III. The nuclear attacker will always win; cities are the primary targets; there are no effective defenses; and international control of nuclear energy is imperative.
- IV. A robust nuclear deterrent force must overcome six minimum hurdles.
- V. Not very.

# **YEARS OF STUDY HAVE YIELDED COUNTLESS VARIATIONS OF NUCLEAR DETERRENCE**

**Finite deterrence**

**Existential deterrence**

**General deterrence**

**Minimum deterrence**

**Proportional deterrence**

**Minimal deterrence**

**Minimum credible deterrence**

**Maximum deterrence**

**Extended deterrence**

**Flexible deterrence**

**Graduated deterrence**

**Specific deterrence**

**Classical deterrence**

**Perfect deterrence**



# **AND A VARIETY OF NUCLEAR DETERRENCE DOCTRINES**

**Assured Destruction**

**Mutual Assured Destruction**

**Flexible Response**

**Graduated Response**

**Preventative/Preemptive Nuclear War**

**Nuclear De-escalation**

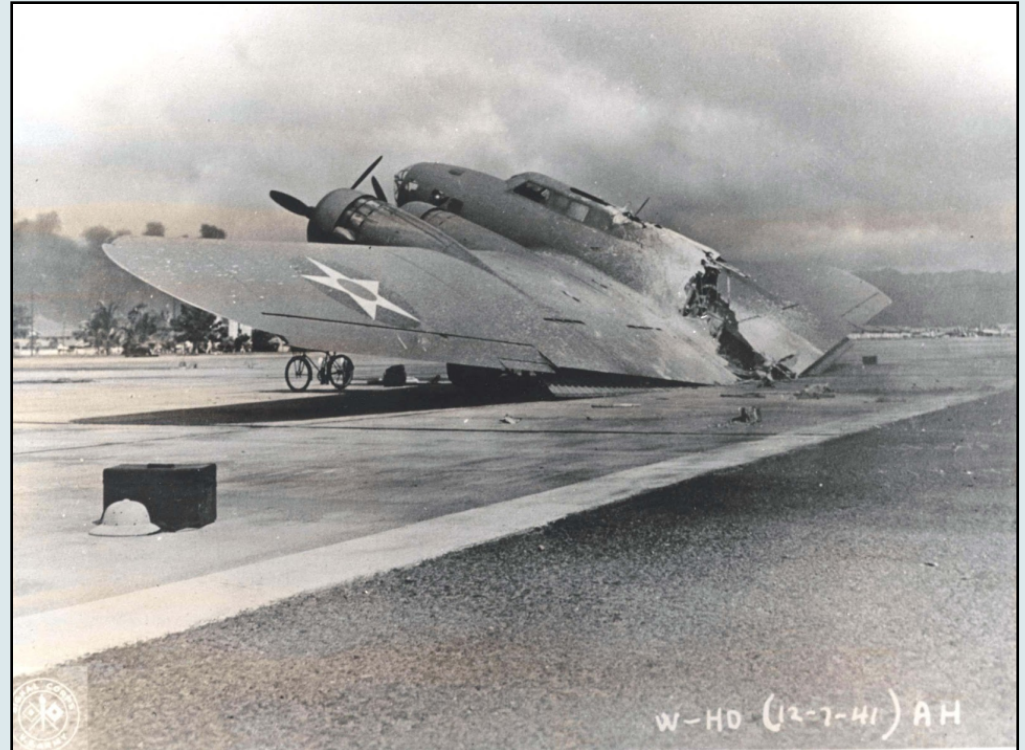
**Option Enhancing Policy**

**Deterrence Only Strategy**

## **II. WHAT CAN BE LEARNED FROM THE FIRST CONSCIOUS MILITARY EFFORTS AT DETERRING?**

*THE SECOND WORLD WAR*

# AERIAL DETERRENCE: BEING POISED TO STRIKE CAN INCREASE VULNERABILITY



**America's B-17 bombers at Clark Air Base in the Philippines were so vulnerable they enabled a Japanese first strike**

# NAVAL DETERRENCE: MORE FORWARD VULNERABILITY, PEARL HARBOR

President Roosevelt ordered the pacific fleet from San Diego to Pearl Harbor to deter Japanese attack in far East. Again, it didn't work.





# BIO CHEM DETERRENCE: SEEMED TO WORK WITH BOTH SIDES ARMED



- Hitler didn't use chemical weapons
- Japanese used biological and chemical weapons against defenseless Chinese
- No Japanese use of biological or chemical weapons against U.S. or British troops
- No Allied use of these weapons against Axis forces



### **III. WHAT WERE THE FIRST THOUGHTS ABOUT NUCLEAR DETERRENCE?**

# 1ST THOUGHT ON NUCLEAR DETERRENCE: WHOEVER SHOOTS 1ST WINS

Two men in a small room with machine guns



The Jeffries Report

# FINAL THOUGHT: INTERNATIONAL CONTROLS ARE IMPERATIVE



**Harry Truman, Clement Attlee, and  
Mckenzie King November 15, 1945**



# COUNTERARGUMENTS

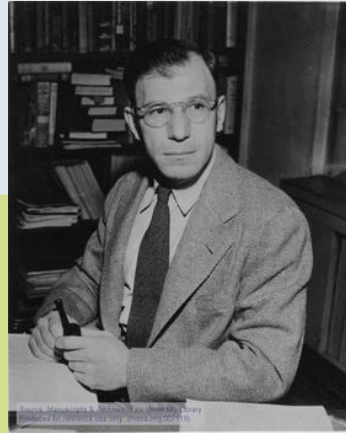
- **Otto Frisch, Rudolph Peierls, Bernard Brodie—  
nuclear deterrence**
- **Jacob Viner and William L Borden— strategic  
forces, not cities are the primary target,  
defenses and deterrence are possible,  
international government is unlikely**



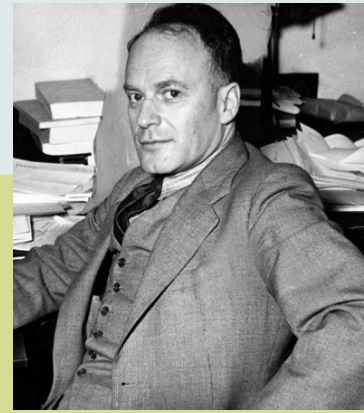
Frisch



Peierls



Brodie



Viner



Borden

# WHY NUCLEAR DETERRENCE IS NOT LIKE TWO MACHINE GUNNERS



**The gunner uses defensive barriers.**



**Or one side has many more machine gunners**



**Or the location of the machine guns is unclear**

# NEXT THOUGHT ON NUCLEAR DETERRENCE: GETTING A FEW BOMBS CREATES AN AUTOMATIC “BALANCE OF TERROR”

Winston Churchill

**“Safety will be the sturdy  
child of terror, and survival  
the twin brother of  
annihilation”**

March 1, 1955

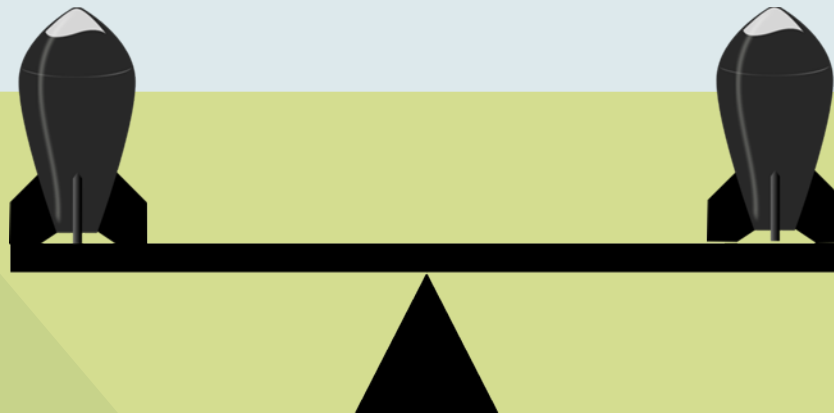
Last speech before the House  
of Commons

Lester Pearson

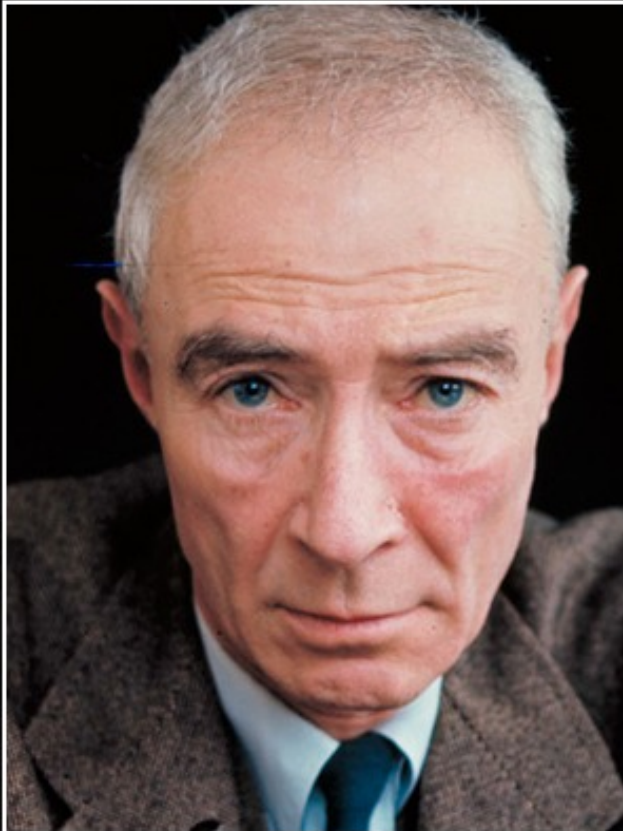
**“The balance of terror has  
replaced the balance of power”**

June 1955

At the 10th anniversary of the  
signing of the UN Charter

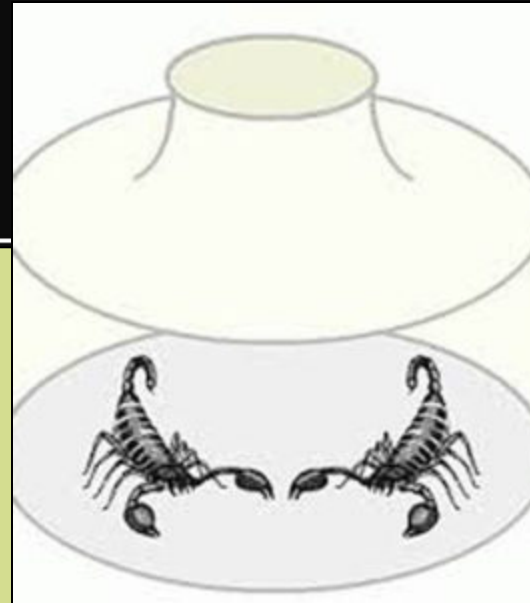


# NEXT THOUGHT: MOST LIKELY WAR WILL KILL BOTH SIDES



We may be likened to two scorpions  
in a bottle, each capable of killing  
the other, but only at the risk of his  
own life.

— *J. Robert Oppenheimer* —



## **IV. WHAT DOES A ROBUST NUCLEAR DETERRENT FORCE REQUIRE?**



# HURDLE 1: STABLE PEACETIME OPERATION

**solid fueled, silo-based missile in the 1970s**



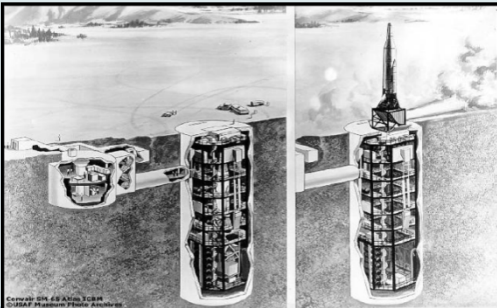
**VS.**

**vulnerable, non-storable liquid fueled Jupiter in the early 1960s**



# HURDLE 2: ABILITY TO SURVIVE A FIRST STRIKE

Hard to target  
submarines, silos,  
and mobile missiles



vs.

vulnerable strategic  
airpower deployments

*Clark Air Base, Philippines*

Japan attacked on December 8, 1941



# CARSWELL AFB TORNADO 9/1/1952: PUT 2/3<sup>RDS</sup> OF SAC BOMBER FORCE OUT OF ACTION





# HURDLE 3: SECURE C<sup>3</sup>I SYSTEM

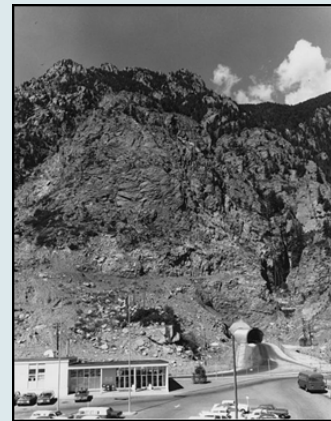
**air-based C<sup>3</sup>I**



**2<sup>nd</sup> Airborne Command & Control Squadron**

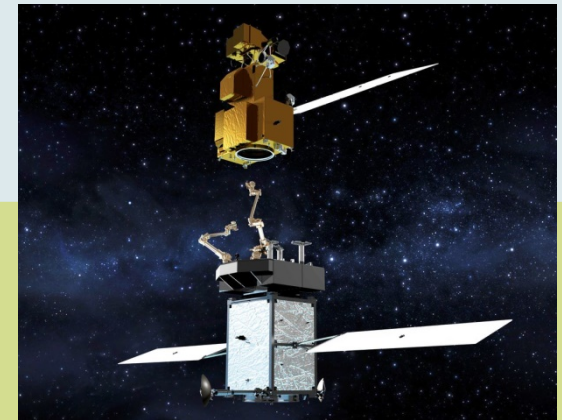
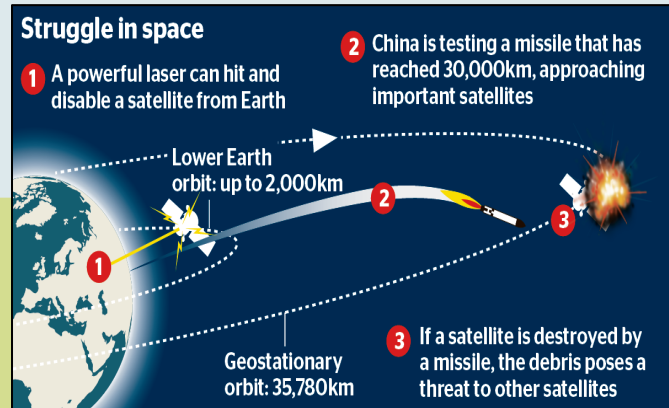
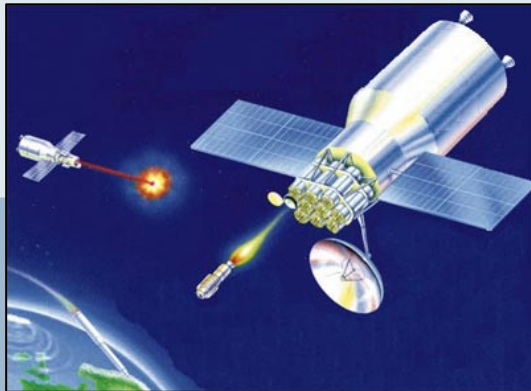
**vs.**

**vulnerable command centers**



**NORAD Cheyenne Mountain Complex**

# HURDLE 3: CYBER WEAPONS, EMP, AND ASATS THREATEN C<sup>3</sup>I

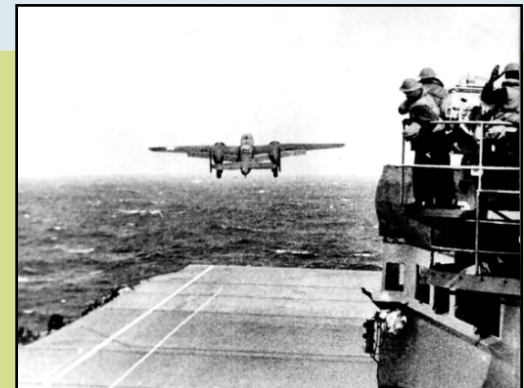
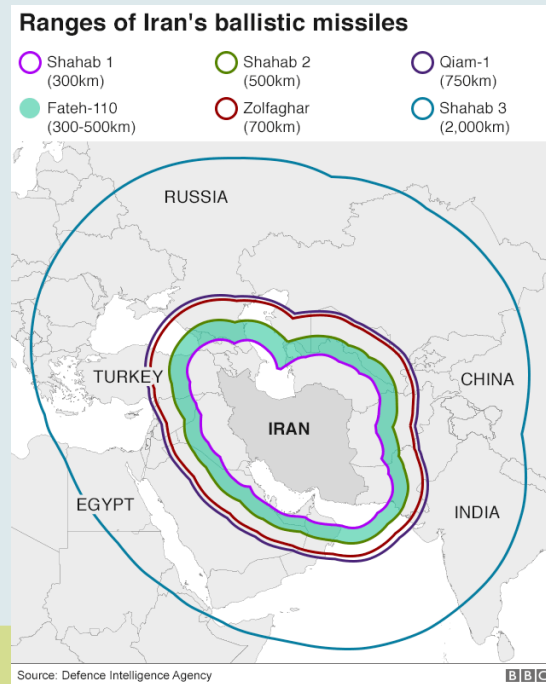


# HURDLE 4: CARRY ENOUGH FUEL TO HIT TARGET AND RETURN

long-range aerial  
refueling



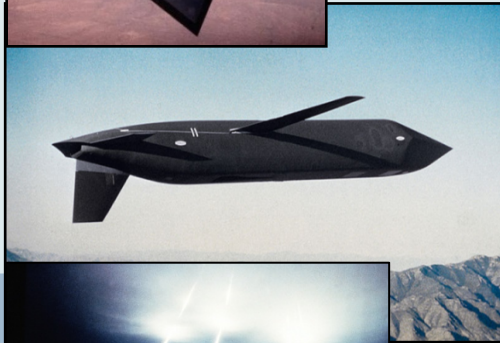
Doolittle Raids: Not enough  
fuel; crash landed in China





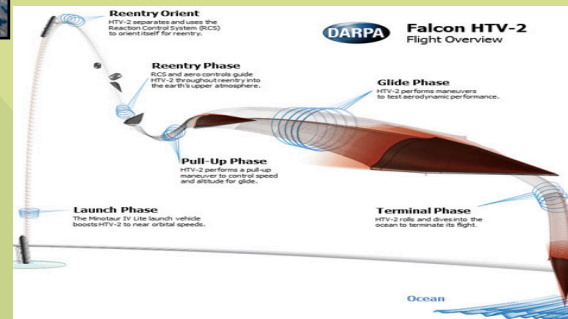
# HURDLE 5: OVERCOME ENEMY AIR DEFENSES

## U.S. air offensive efforts



## Schweinfurt–Regensburg Mission, WWII

- Daylight raid, ball bearing works, Germany, 8/17/1943
- 376 B-17s left London, 60 shot down, 95 bombers heavily damaged, ~600 MIA, KIA.



# HURDLE 6: DESTROYING THE TARGET DESPITE PROTECTIVE PASSIVE DEFENSES

fixed silos are becoming more vulnerable, other structures getting harder



China's Underground Great Wall, road mobile missiles, Russian Yamantau Complex



Ultra Performance Concrete  
30-60,000 PSI



## **VI. WHAT ARE THE MOST POPULAR VIEWS OF NUCLEAR DETERRENCE ABOUT?**

*FINITE DETERRENCE AND NO FIRST USE*

# FINITE DETERRENCE: A FRENCH AND U.S. NAVY IDEA



**1<sup>st</sup> French Nuclear Test, *Blue jerboa*,  
Feb. 13, 1960**



**Pierre Marie Gallois**



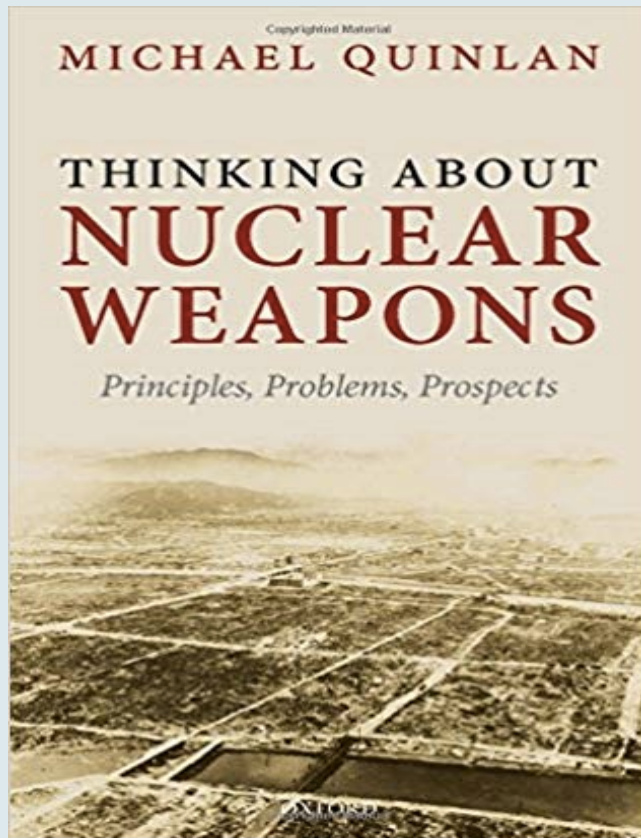
**Polaris SLBM**



**Arleigh Burke**



# QUINLAN QUESTIONED NO FIRST USE





# **PLAUSIBLE CASES OF NUCLEAR DETERRENCE: DIFFICULT TO BELIEVE THAT NONE ARE VALID AT ALL**

- **The Korean War (1950-1953)**
- **Suez (1956)**
- **The Cuban Missile Crisis (1962)**
- **Vietnam-U.S. ASW Operations Against Soviet Subs**
- **Israeli Nuclear Weapons and the 1973 “October War”**
- **South African Nuclear Weapons to Deter Communist Angola (1984)**

