

# Emerging Technology + International Security

17.449

Erik Lin-Greenberg

Assistant Professor of Political Science

Massachusetts Institute of Technology

# Historical Innovations: Stealth



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# Stealth: Key Questions

- Why did stealth develop when it did?
- Why factors drove/stymied stealth development?
- What effect did stealth have on international security and politics?

# Airpower 101



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# Three Views on Airpower Employment

- Close Air Support (CAS)
- Interdiction
- Strategic airpower
- Initially mirrored available technologies and dominant doctrines
- Debates about effectiveness continue (although modern air forces train to do all three)



# Three Views on Airpower Employment

- Close Air Support

- Provide direct support to ground troops
- Coordination tech helped diffusion
- Colonial wars ("Air Policing")



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- Proponents?

- Critiques

- Limited objectives
- Can support, but not win, wars



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# Three Views on Airpower Employment

- Interdiction
  - Cut off enemy reinforcements/supplies
  - Air Marshal John C. Slessor
    - *Air Power and Armies* (1936)
    - Later, strong proponent of strategic bombing
- (Self) Critique: Limited to land campaigns/land-based threats, hard to counter air campaigns



Image courtesy of [Flying Officer Stannus / Royal Air Force](#). Source: Wikimedia Commons.  
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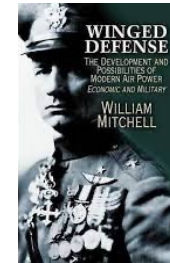


# Three Views on Airpower Employment

- Strategic Airpower/Bombing
  - Destroy morale, economic production
  - Billy Mitchell, Giulio Douhet
- “The bomber will always get through”
  - Stanley Baldwin to UK Parliament, 1932
- Proponents?
- Critique: Easy for states to recover



Image courtesy of [the 44th Bomb Group Photograph Collection](#). Source: Wikimedia Commons. This image is in the public domain.



Mitchell, William. *Winged Defense: The Development and Possibilities of Modern Air Power--Economic and Military*. Dover Publications, 2006. © Dover Publications. All rights reserved. This content is excluded from our Creative Commons license. For more information, see <https://ocw.mit.edu/help/faq-fair-use/>.



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Pape, Robert A. *Bombing to Win: Air Power and Coercion in War*. Cornell University Press, 1996. © Cornell University Press. All rights reserved. This content is excluded from our Creative Commons license. For more information, see <https://ocw.mit.edu/help/faq-fair-use/>.

# Three Views on Airpower Employment

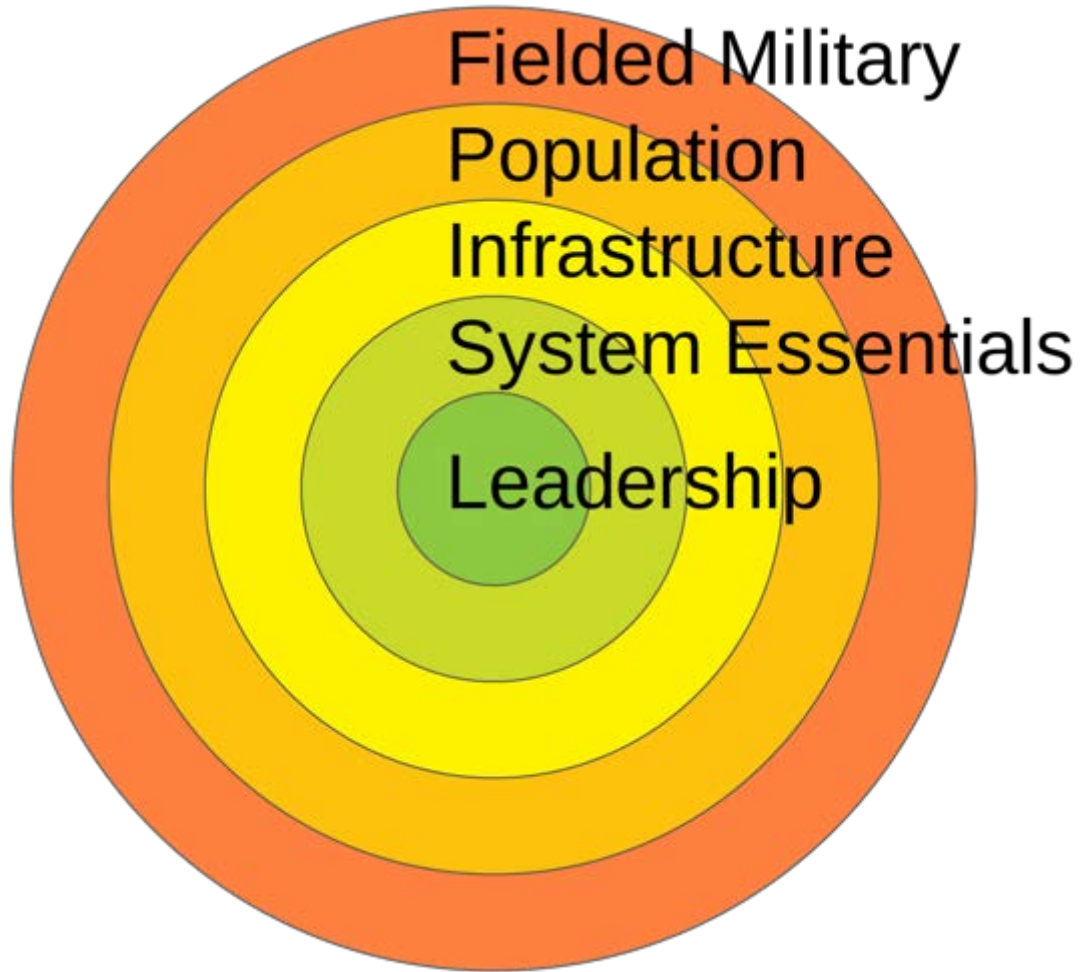


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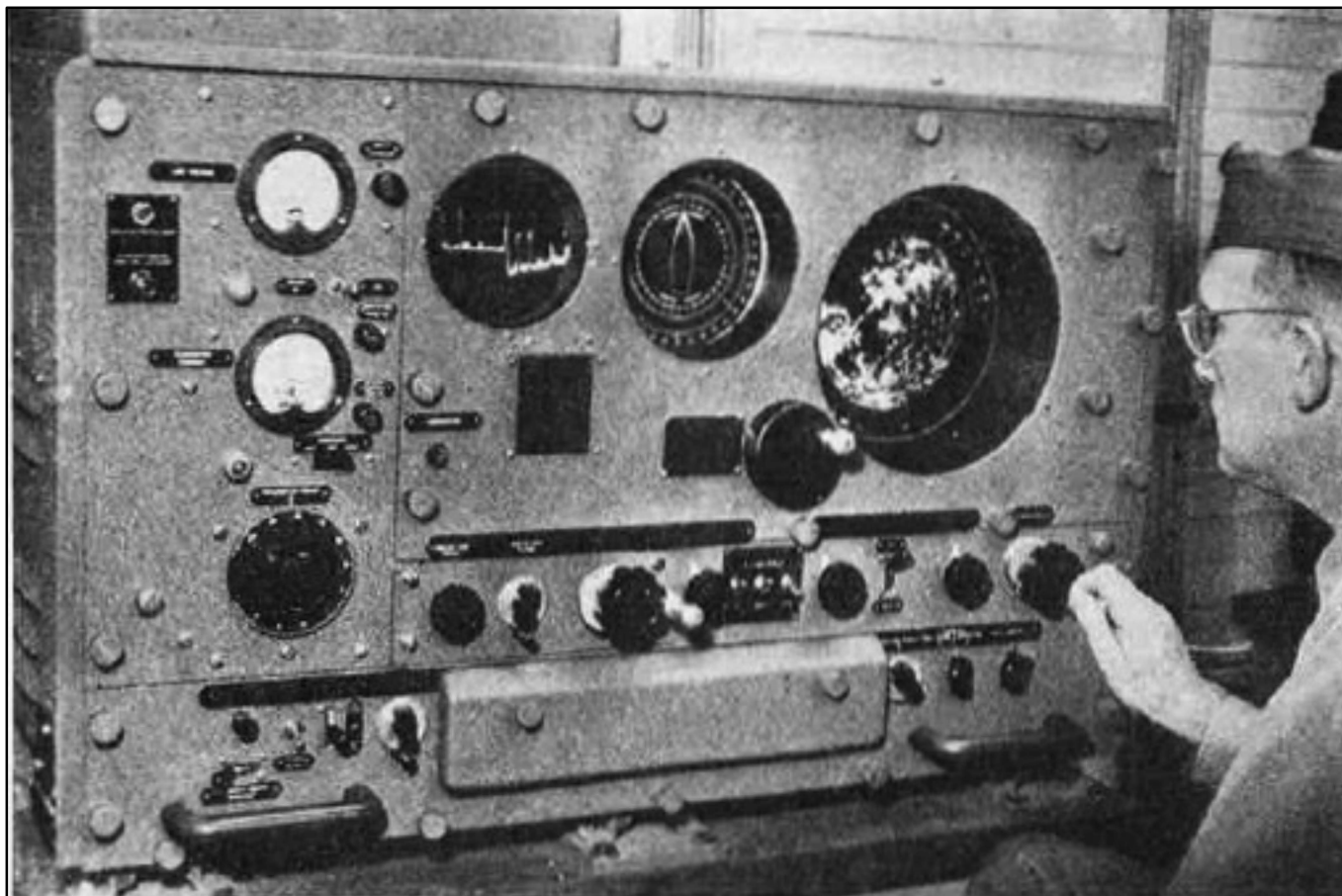




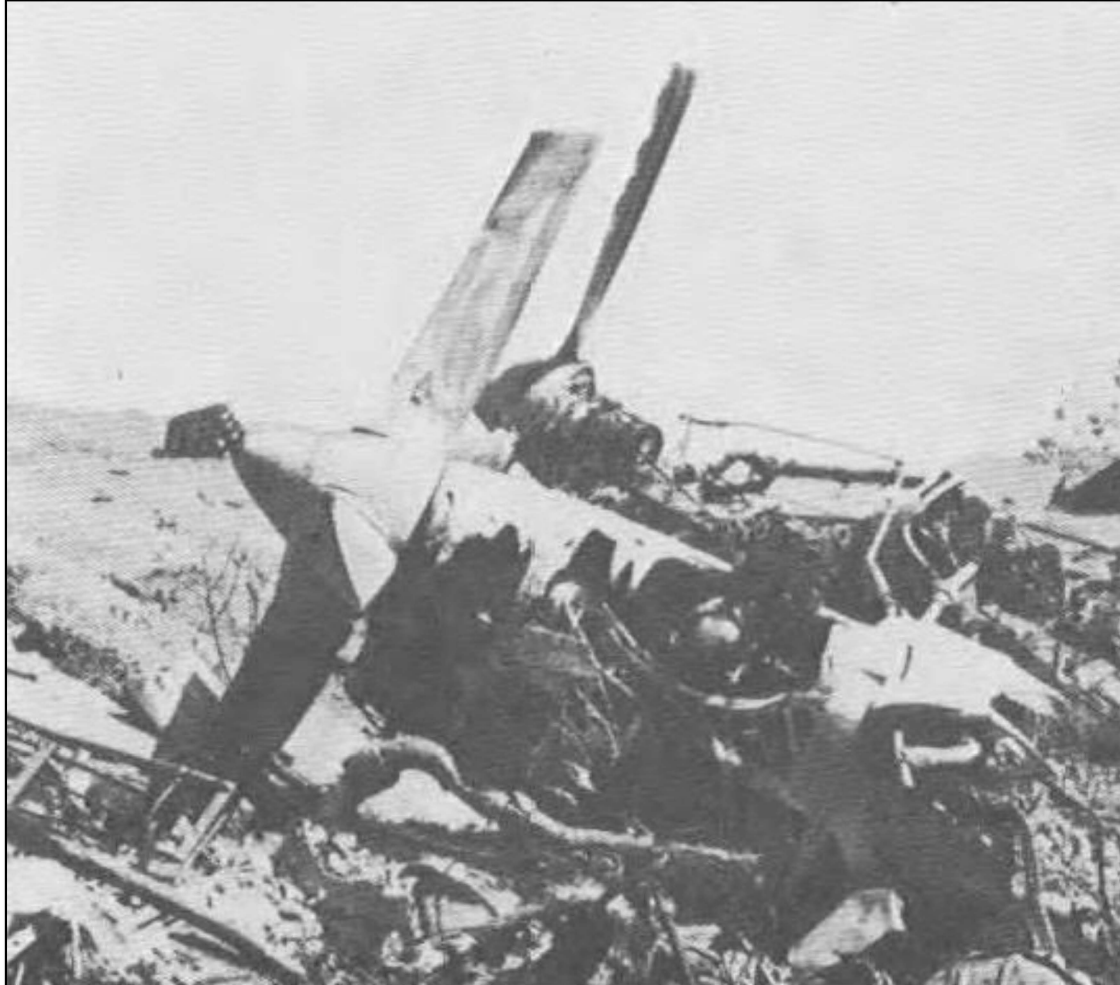
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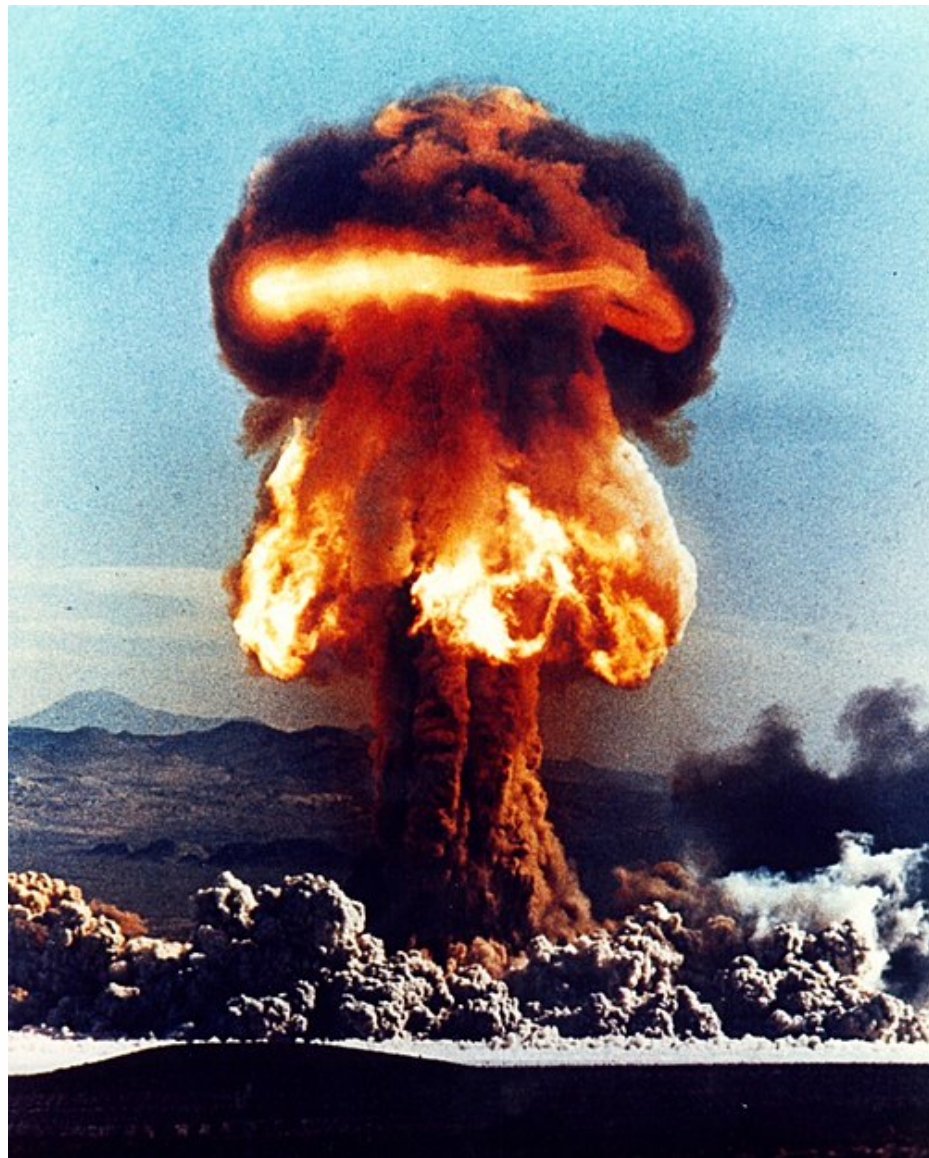


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# The New York Times.

LATE CITY EDITION

6. A regular home delivery price of 10 cents. Daily delivery, weekly 40c. Partly cloudy and some showers. Temp. range: 50-60. Wind: S.W. 10-15.

NEW YORK, FRIDAY, MAY 4, 1966

FIVE CENTS

Virginia Poll Kennedy Gain

LAWRENCE

DILLON CONSULTS A.F.L.-C.I.O. AIDE IN ARAB SHIP CASE

Seeks Way to End Picketing Here as Michael Boycott of U. S. Vessels Spreads

**SOVIET DOWNS AMERICAN PLANE; U.S. SAYS IT WAS WEATHER CRAFT; KHRUSHCHEV SEES SUMMIT BLOW**

CAPITAL EXPLAINS

Reports Unarmed U-2 Vanished at Border After Difficulty

PREMIER IS BITTER

Assails 'Provocation Aimed at Wrecking' May 16 Parley

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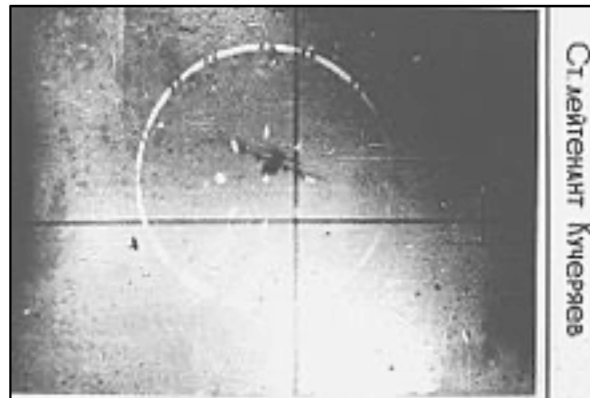


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**The Weather**  
Today—Cloudy, chance of rain, high near 75. Thursday—Cloudy and warm. Probability of rain is 40 per cent today and 20 per cent tonight. Temp. range Today, 54-76. Yesterday, 50-67. Details on Page D7.

**The Washington Post**  
Times Herald  
924 Year No. 132 WEDNESDAY, APRIL 16, 1969 Phone 223-6000 Circulation 555,438 10c

**N. Korea Claims It Downed U.S. Plane**

**Nixon Sends \$192.9 Billion Budget to Hill**  
By Don Oberdorfer  
Washington Post Staff Writer  
The Nixon Administration unveiled its \$192.9 billion economy budget yesterday, stripping the mystery from program cuts and from a modest "re-direction" of Government resources.  
The 4-inch-thick package of proposed spending changes, transmitted from the White House to Congress by a messenger at noon yesterday, constituted the first available definite details of Mr. Nixon's immediate plans and intentions for the Government and Nation.  
The immediate reaction on Capitol Hill was restrained, except for cries of anguish from insatiable economists who declared the cuts weren't half deep enough.  
Mr. Nixon had already trimmed \$4 billion from proposed spending by the reckoning of his officials. When the details became known yesterday, there were only a few surprises. For the most part, the new team had wielded the scalpel instead of the broadsword. Because of the demand for budget cuts to fight inflation, the few new initiatives proposed were carefully re-

**GIs Repulse 1200 Enemy At Border**  
By Russell Clarke  
Review  
DIANHONG BASE III, South Vietnam, April 15—U.S. troops, aided by air support, repulsed 1200 Communist troops early Tuesday when 2200 North Vietnamese charged this base two miles from the Cambodian border.  
Thirteen men of the U.S. 1st Infantry Division were

**Czechs Dismayed Smrkovsky Shifts To Pro-Soviet Line**  
By Kenneth Ames  
Review  
PRAGUE, April 15—Josef Smrkovsky, Czechoslovakia's most popular reformist politician, today made a last-ditch attempt to save his position and left the nation disillusioned and bewildered.  
Smrkovsky, 58, is a special article for the Communist Party paper Rude Prava, came

**'Spy' Craft And 31 Lost, U.S. Admits Hunt Is Pressed For Survivors In Sea of Japan**  
By George C. Wilson  
Washington Post Staff Writer  
North Korea claimed yesterday that it had shot down "with one stroke" an American reconnaissance plane that had intruded into its air space.  
The Pentagon took note of the report and said a Navy EC-119 reconnaissance plane with 31 men aboard was missing from a mission over the Sea of Japan off North Korea's coast.  
The first move or less official confirmation that North Korea shot it down came last night when Vice President Spiro T. Agnew said in Manchester, N.H., that the EC-119 was "attacked by two big jets" more than 100 miles off the coast "as far as we know at this time." The Pentagon had no comment on his re-

A Navy EC-119 reconnaissance plane like this one is missing. Radar bubbles are atop the fuselage and radio antennas are below.

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For if we fail to act today to defend ourselves against unprovoked attack, we only invite a more serious challenge tomorrow....

With these considerations in mind, and after the most painstaking examining of all the courses open to us, **I have today ordered a carrier strike force in the Sea of Japan to launch an air attack against a North Korean air base.**



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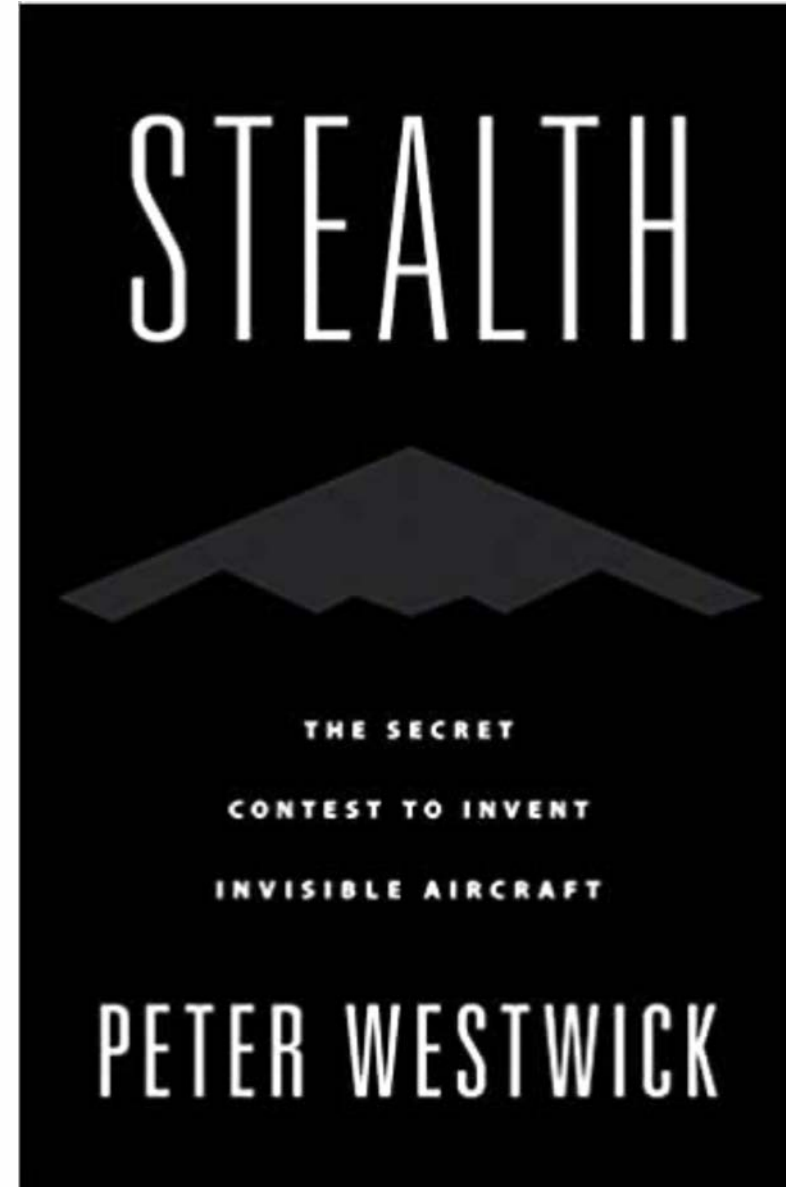
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Westwick, Peter. *Stealth: The Secret Contest to Invent Invisible Aircraft*. Oxford University Press, 2020. © Oxford University Press. All rights reserved. This content is excluded from our Creative Commons license. For more information, see <https://ocw.mit.edu/help/faq-fair-use/>.





# Early Efforts



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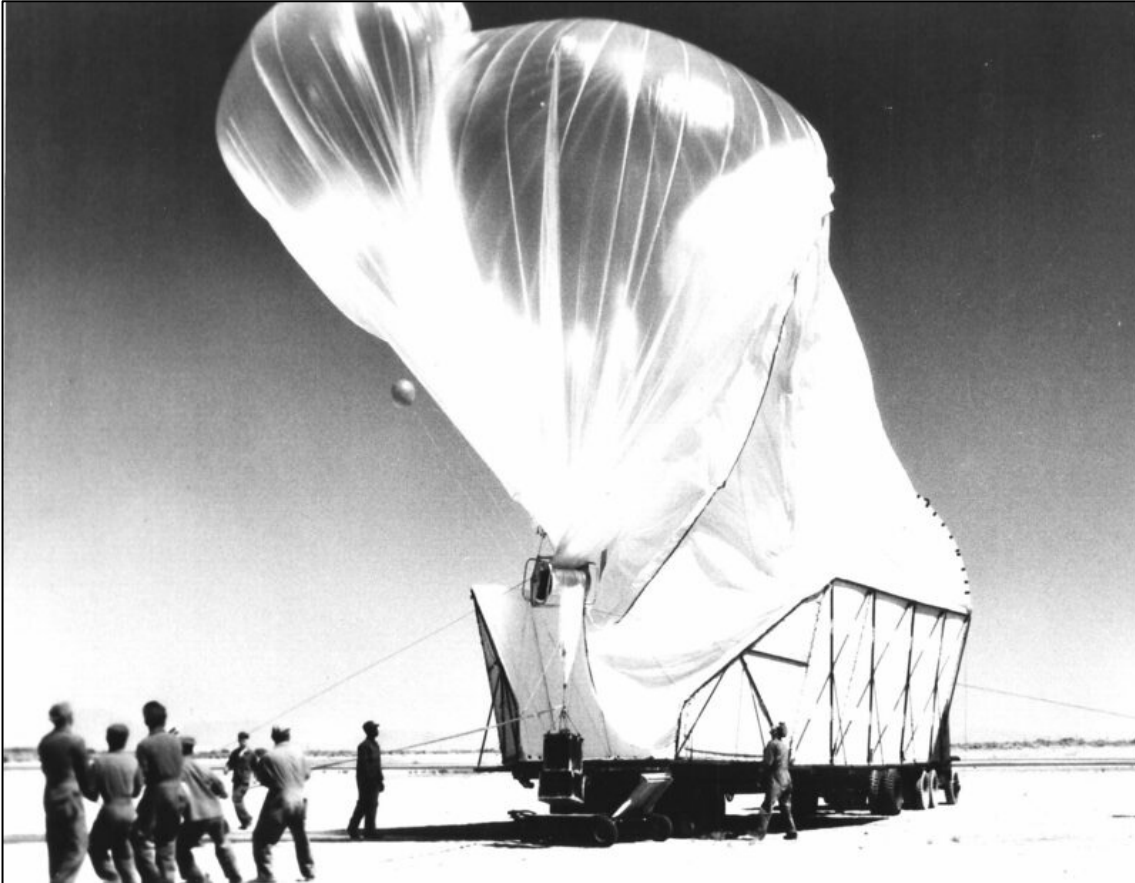
# Early Efforts



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# Early Efforts

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Project Palladium: Cuban Missile Crisis

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# The Second Offset Strategy

- SecDef Harold Brown (1977-1981)

- Prior Secretary of the Air Force
- Director, DDR&E
- Nuclear physicist
  - Bronx Science, Age 15
  - Columbia PhD, Age 21
- President, CalTech

- August 1980: Confirms stealth

I am announcing today a major technological advance of great military significance. This so-called “stealth” technology enables the United States to build manned and unmanned aircraft that cannot be successfully intercepted with existing air defense systems. We have demonstrated to our satisfaction that the technology works.



Image courtesy of [the United States Department of Defense](#).  
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# The Second Offset Strategy

- Why does Brown announce stealth?
  - Bomber proposals?
  - Leaks?
  - Elections?
- Goals of stealth
  - Does it need to be completely invisible?
  - AirLand Battle
  - Tactical and Deterrent Effects
- What are the obstacles to stealth development?
  - Bureaucratic politics
  - Costs



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# Obstacles: The Fighter Mafia



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# Some Final Stealth Thoughts

- Did stealth help end the Cold War or prolong it?
  - Offset strategies vs. triggering arms racing
- Is stealth as important today as it was during the Cold War?
  - Tradeoffs?



**So we have this new technology...**  
**Do we reveal it?**

# Capabilities Revelation

- Most IR literature suggests states should hide capabilities
  - Little discussion about revelation
- But...states reveal new technology
- Why?
- When?



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# Capabilities Revelation

- Green and Long focus on **clandestine capabilities**
- If revealed loses significant operational value



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# Capabilities Revelation

- Leaders weigh the military and political benefits
  - Political: Use revelation of clandestine capabilities to signal to rivals
- Why might signaling be beneficial?
  - 1. Deterrence (general deterrence)
  - 2. Divert rival's resources
  - 3. Force rival back to bargaining table



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# Capabilities Revelation

- More likely to reveal when
  - 1. Less **unique** capability (more replaceable)
  - 2. Less **responsive adversary** (unlikely to develop countermeasures)
- Think back to Horowitz's adoption-capacity theory
  - But...what if a state faces multiple adversaries?

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