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17.462 Innovation in Military Organizations  
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## **STRATEGIC BOMBING**

Begin with Four Questions:

### **1. What is the Innovation?**

- Is it technology? Long Range Bombers?
- Is it a set of targets? Transportation? Industry? The civilians? The leadership?
- Is it doctrine? A way of fighting?
- Is it just a false promise? The bloodless war?

### **2. Why has it been practiced by very few nations?**

- Where is the French Strategic Bombing Corps?
- Why didn't the "Amerika" Bomber bomb America?
- Is strategic bombing cheap or expensive compared to conventional forces? What about geography?

### **3. Has it worked?**

- How effective was it WWII?
- What about Korea, Vietnam and the Gulf War?
- What is its value? AF independence? Is it moral?

#### **4. What is the Strategic Bombing future?**

- Precision non-nuclear---but what are the centers of gravity?
- Non-lethal, information war, the Gas of Peace?
- Can nuclear weapons be used?
- Aren't we driven to preemption?

Strategic (Bombing) offers the ability to gain victory in war by applying direct pressure against the enemy's vital center. But what killed targets unravel a government? A nation? A movement?

#### **Born with airplanes and the First World War**

Voices from the Deep Blue:

- Giulio Douhet 1865-1930
  1. No distinction between combatants and non-combatants
  2. No successful offensive by surface forces
  3. No defense against air attack
  4. Hit first and harder
  5. Need a separate strategic force
- General Billy Mitchell 1879-1936
  - Need for centralization
- Alexander de Seversky 1894-1974
  - Independent USAF

## First World War

65 million soldiers mobilized

9 million killed

22 million wounded

The promise of Airpower had some obvious appeal

- > Germans staged 100 raids (half Zeppelin, half bombers )  
Killed less than 1000 (Giant nearly size and capacity of B-17; 11 crew)
- > British organize retaliatory raids –not so deep but kill about same.

Raids not effective but do cause panic and led to immediate creation of Royal Air Force. Plans for deeper, bigger raids.

## Second World War

AF Corps sets Tactical School which develops doctrine:

1. Air power decisive arm and strategic bombing its dominant form.
2. Most effective when directed at economy, not population.
3. Must bomb key industries
4. Need for accuracy
5. High speed, high altitude bombers don't need fighters

Force the technology

range  
speed  
altitude  
payloads  
accuracy  
defensive armament

B-17	30,000 ft
B36/47	40,000
B-52	47,000
B-58	50,000
B-70	60-75,000

AWPD-1 General Hal George

Calls for 251 Groups

Acquired 243 Groups  
60 B-29 Groups/ planned 64

US built 300,000 aircraft---about 35,000 bombers

### **Europe US/UK Complementary, *not* Combined Strategy**

Casablanca Conference calls for combined

UK does night bombing

forced out of unescorted daylight raids 1941  
does night firebombing –dehousing campaign  
Hamburg July 1943---kills 40,000  
lost battle of Berlin Nov 1943- March 44 lost 1000 bombers

US does daylight unescorted bombing beginning 1943

Schweinfurt Oct 43 lost 60 bombers/600 airmen –last  
time without fighter escorts

US beginning in February 1944 brings in escorts, attacks

aircraft factories (Big Week---cuts 2500 aircraft from German  
inventory---escorts knock down German fights (533 in one month)

US said it could be precise (couldn't) but solved the air defense problem

UK had to bomb at night because it couldn't solve air defense, but got  
to be fairly precise through radar and their bombers carried big loads

Skies cleared by US so British bombers could get through

**Japan** US fire bombed---had to fight our way across Pacific; when we arrived  
had surplus of resources; High winds over Japan and very dispersed industry  
made accurate bombing unlikely; Japanese cities wooden construction;  
competitive strategy.

Racist? The war in Pacific was worse than Western front: No Japanese unit larger  
than a company surrendered>Where were the US Japanese POW camps.

## Cost of Strategic Bombing

UK Bomber Command lost:

8, 300 bombers

suffered 64,000 casualties

bombing was about one third of British war effort

US 8<sup>th</sup> and 15<sup>th</sup> Air Forces lost

8,000 bombers, 4,000 fighters

73, 000 casualties, 29,000 dead

thousands more died in training accidents

Marines lost 20,000 in entire war

Normandy cost 16,000 US lives

about a quarter of US war effort

Germany suffered 600-900,000 civilian dead

France lost 50-60,000 civilians

UK lost 60,000 civilians in German bombing of Britain

Soviets---Stalin killed off proponents; Red Army dominant

Luftwaffe---Advocate died, hung up on dive bombers, aircraft construction bottlenecks, built only 1000 bombers (short range; low capacity)

French---No independent units; strategy was to attack mobilization areas

Fight over interpretation ---US Bombing Survey/ creation of USAF

## **Cold War and Beyond**

A bomb solves accuracy problem

US Strategy? Preemption? Massive bomber force –2,000 B-47s  
800 B-52s

Ballistic Missiles kill bombers

Korea—few targets, switch to cities but bombers (B-29s and 50s) vulnerable.

Vietnam---few targets, B-52s vulnerable, strategic campaign fought with fighter-bombers; Rolling Thunder: Linebacker I and Linebacker II

Lost 5-7,000 fighter aircraft; 7,000 helicopters; 12 B-52s

Post-Modern War

We can't: lose our own pilots  
kill enemy civilians  
hit vital infra-structure---dams, food system, electrical system

Precision Weapons---the silver bullet

But what is use of strategic bombing ---Shock and Awe didn't work  
Decapitation didn't work? Deterrence?

## **Future of the U S Air Force**

- Precision kills numbers
- UAVs can do some of the jobs
- Missiles with conventional warheads do global strike

Air Combat Control Center ---manage the fight