

Magic Bullets: Historical Examples of Military Disruptive Technologies



Michael A. Hennessy, Ph.D
History and War Studies
Royal Military College of Canada

S&T Symposium 14 April 2003

Disruptive Technology?



- Disruptive vice Sustaining Technology (Christensen 1997)
 - **Dominant Paradigm of Sustaining tech. Undermined by what often appears cheaper and inferior**
 - **The DT offers new lines of development or application beyond bounds of Sustaining Tech**
 - **The DT's performance often undergoes rapid improvement as adoption spreads**
- 4 Historical Cases Examined.

The U-boat in the Great War

- USW campaigns 1915 & 1917
- A subversive tech with few champions of strategic effect until geo-strategic crisis
- Effectiveness Measured How?
- Nature of British response
- Geo-strategic downside--USA declares war on Germany



ASW Ahead Fired Weapons in 2nd World War

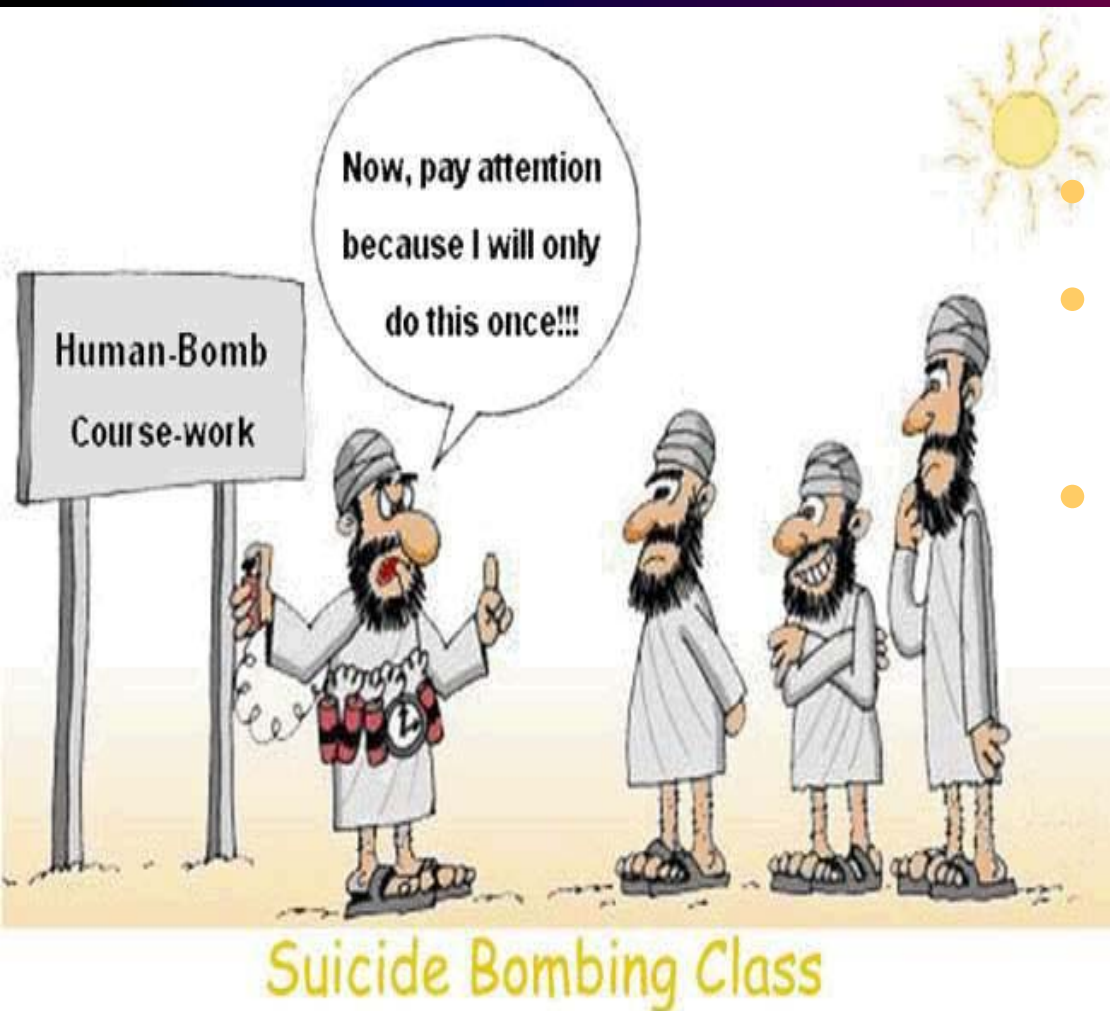


- Competing designs 'innovated' despite prevailing assumptions.
- Hedge Hog vs Squid:
- The miss-measure of effectiveness
- First Leader's installed advantages & path dependence
- Wartime pattern: easiest, cheapest, soonest vice 'too late.'

Air Cavalry in Vietnam

- **sustaining doctrines: “the helicopter is aerodynamically unsound...and no matter what the Army says, I know that it does not need any.” US Airforce Director of Requirements.**
- **Support of SecDef for a ‘bold new look for Army mobility.’ --The tipping point.**
- **cost savings (459 aircraft vice 2,339 vehicles) & operational flex.**
- **1st Cavalry Division (Air Mobile) formed June 1965 & deployed to South Vietnam, in ops by Sept.**

The Suicide Bomber



- innovator unknown
- existing technologies used in 'new ways'
- A disruptive technology for asymmetric war
 - are we surprised?

Conclusions



- DT vice MDT
 - Cost measured differently
 - Military Effectiveness different from commercial utility or popularity
 - ‘war’ is a two sided affair not easily likened to the ‘market’
 - military bureaucracies are similar and dissimilar to commercial ones