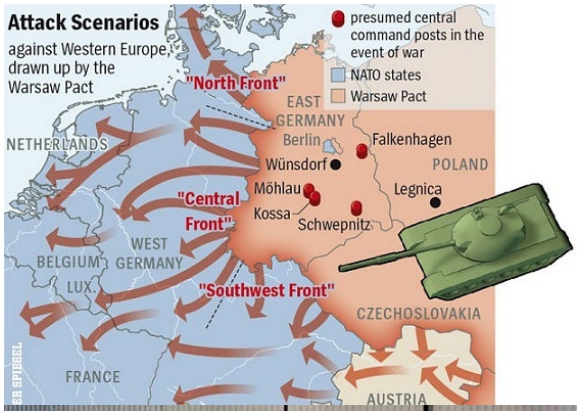
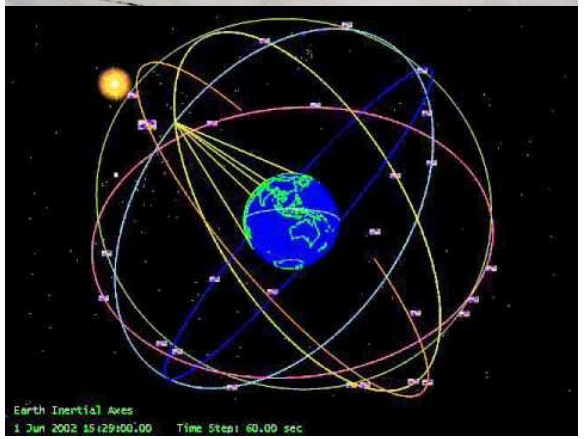
Digby in Context

- **Digby's paper, published in 1975, is incredibly forward thinking despite looking at a specific set of operational problems and a limited number of historical case studies**
  - Focused on problems facing NATO in western Europe vis-à-vis a Soviet combined arms assault on West Germany
  - PGM use up to that point had been against specific targets (e.g., ships, key bridges)
  - First inklings of their widespread use in Vietnam and Yom Kippur wars
- **What is more remarkable about Digby's writing is that it predates many key developments in modern precision-strike systems**
  - Space-based positioning, navigation, and timing (i.e., GPS)
  - Persistent overhead space-based surveillance
  - Widespread battlefield use of drones





Proposition 1: Concentration of value

"It will become much less desirable to concentrate a great deal of military value in one place or in one vehicle. This will be especially true where a great deal of value can be destroyed by a single warhead."

- **Pre Digby:**
  - Concentration of value was necessary to bring sufficient forces and firepower to bear against the enemy
  - Inaccuracy and limited reach (both sensing and strike) forced concentration of forces and effort to achieve effectiveness
  - Lack of persistent enemy observation and accuracy allowed concentrated value to be defended and survive
- **Where are we now?**
  - Our militaries still look a lot like those of the pre-Digby era, despite that evidence says Digby was right
  - Targeting concentrated value is a cornerstone of China's counter-intervention strategy
  - Ukraine has used precision to target key Russian supply and command nodes
- **Some concentration is always going to be necessary**
  - Where do I have to have concentrated value and where can I get away from it?

Proposition 2: If it can be seen…

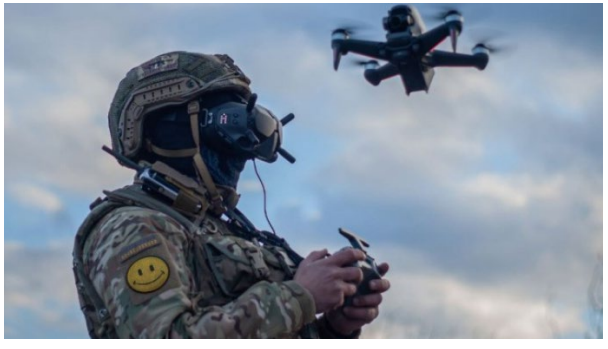
"With PGM, seeing a target can usually lead to its destruction. Concentrations…will be less practical, and concealment will become more important. Smallness and mobility will make hiding easier…"

- **Pre Digby**
  - Not only were the means of locating enemy forces far less effective
  - Even if a side was able to locate the enemy, there was no guarantee that its forces would be able to strike at it
- **Where are we now?**
  - Space dramatically increases battlefield visibility at most levels
  - The side that can degrade their enemy's reconnaissance and sensing first is likely to have a significant advantage
  - The disaggregation of reconnaissance strike is a big change
  - Sensing can come from myriad sources; and so can the weapon

Proposition 3: Small Units

"Even small units can be very powerful when equipped with PGM or with designators that can call in and guide remotely-launched PGM – and they might carry air defense weapons as well."

- **Pre Digby**
  - Large concentrations of forces, especially for ground maneuver, were necessary given inaccuracy and limited reach
  - Partisans or special forces could conduct small-scale actions on the periphery that often amounted to simple harassment
- **Where are we now?**
  - Small, special purpose units (including irregulars) now have more tools at their disposal that extend their range
  - Partisans and special units can now do far more than just harass; they can conduct operationally and strategically significant strikes
- **Especially for territorial defense, smaller units are likely to have an advantage**
  - Logistics, communications, and sensing support are critical but interior lines make the task easier



Proposition 4: Forward Observer / Rearward Shooter

"Where forward units serve as spotters and designators, not all the munitions used need to be hauled all the way to the forward edge of the battle area…the higher hit probability of PGM means that…the weight of munitions delivered to the launch point need not be nearly as great as in the past."

- **Pre Digby:**
  - Forward observers were generally limited in role
  - Tied to artillery batteries or calling in air strikes using unguided or area-effect weapons
- **Where are we now?**
  - In this instance we have achieved much of what Digby envisioned
  - Forward observers and air controllers can now call in virtually any asset needed to achieve the desired effect
  - Still need to have the right shooters paired with the right weapons
  - Communications and ability to pass targeting data to supporting fires is critical

Proposition 5: Collateral Damage

"A natural consequence of having their high hit probability is that PGM are likely to cause much less collateral damage to civilian populations and economies."

- **Pre Digby**
  - Collateral damage was an accepted reality due to a lack of effective targeting and lack of precision
  - Massed use of firepower was used to compensate for these shortcomings resulting in large-scale collateral damage
- **Where are we now?**
  - This is an area that the US especially paid close attention to in post-Cold War era
  - Especially when targeting despotic regimes, the goal was to separate people from the regime
  - PGMs provided the means to do exactly that
  - NATO intervention in former Yugoslavia is a prime example
  - The same holds, even for nuclear weapons with better sensing and precision targeting the need for high-yield thermonuclear weapons is much reduced
  - Precision not only enables, but now arguably demands judiciousness in targeting

Proposition 6: Air Defenses

"Ground-based anti-aircraft defences will become extremely lethal… The result may be a shift in methods of protecting ground forces against enemy aircraft: more protection is likely to be provided by ground-based anti-aircraft defences, and less by air-to-air duels and attacks on enemy air bases."

- **This is an area that could up end much of Digby's propositions**
- **Pre Digby**
  - Ground-based air defenses were largely used to protect rear areas
  - Had limited effectiveness protecting ground forces
- **Where are we now?**
  - The advent of precision defenses both against aircraft but also against PGMs themselves has radically changed dynamics
  - We have achieved accuracy irrespective of range, but not cost independent of range
  - There is an unfolding competition between offensive strike with PGMs and counter-PGM defenses
  - Currently, cost of offensive strike is generally assessed to be lower than defense
  - Future trends may change that or may not

Proposition 7: Roles and Missions

"Finally, the properties of these new weapons may well lead to a major revision of the assignment of roles and missions to the different services. It is no longer important what form of transportation carries a munition to the place where it is launched…"

- **This is where Digby was simultaneously most right and most wrong**
- **He is right in principle. The advent of PGMs *should* have compelled an organizational shift away from modes of locomotion and towards a target-centric approach**
- **However, he underestimated the staying power of service monopolies, especially in the US military, that gave services exclusive right to warfighting in their respective domains**
  - Air Force to fight other air forces
  - Navy to fight other navies
  - Army to fight other armies
- **The Key West agreement strictly enforced these domain monopolies**

Possible New Propositions

- **Expeditionary power projection is likely to become unacceptably risky in the face of domain transparency and long-range precision strike**
  - Fixed infrastructure (airfields, ports, other generative bases) are easy to find and attack from long range
  - Large platforms are easy to find and target, harder to hide especially at scale (e.g., aircraft carriers, strategic airlift, transport ships)
  - Intra-conflict force deployment will likely be highly risky
- **Same dynamics make exercising domain denial easier than achieving domain control**
  - A land power with space-based sensing can track naval forces and attack hostile ships with land-based missiles and aircraft, denying free use of the seas without needing a navy to contest for sea control
  - Hard to target mobile layered air defenses can deny hostile air dominance/superiority despite having an inferior air force
  - Proliferated low-cost precision weapons combined with mines and fortifications have made combined arms maneuver extremely fraught in Ukraine
- **More operationally, dramatic reduction in cost of short-range PGMs makes defending/denying territory easier than seizing it, especially if the terrain is your own**
  - Precision attack within 10mi can now be achieved with drones as cheap as $800, targets out to 70+ mi for about $4,000. *If industry can meet demand, few targets will cost less than the weapons attacking them*
  - If there is no equivalently low-cost counter to these systems, and defensive precision mass can be adequately commanded and controlled, enemy combined arms attacks may be defeated at extremely low cost
  - This would seem to indicate that we are entering a new defense-dominant era compared to that of the 20th Century

QUESTIONS

- **What happens when PGM magazines run out?**
  - In the event of a protracted conflict where both sides begin to run low or completely out of guided weapons, how would that affect the continued prosecution of a war?
  - How might you consider the use of nuclear, chemical, or biological weapons in that context?
    - Do I consider using tactical nuclear weapons to achieve my operational goals where conventional strike has failed? Or
    - Do I demonstrate a willingness to escalate to nuclear weapons in a bid to terminate the conflict on favorable terms?
    - Other options?
- **How might we think about the interplay between intercontinental conventional strikes and strategic nuclear deterrence?**
  - We've dealt with strategic nuclear deterrence and unconventional small-scale attack
  - May be entering a world where adversaries have the means of intercontinental conventional warfare
  - How does that change things? Does it?

Q&A