International Seminar

DISRUPTIVE TECHNOLOGIES, STRATEGIC VULNERABILITY, AND THE FUTURE OF DETERRENCE

CLANDESTINE CAPABILITIES AND DETERRENCE IN WORLD POLITICS

Brendan Green, University of Cincinnati
Austin Long, Columbia University
OUTLINE

- What are clandestine capabilities?
- What are the challenges of clandestine capabilities for deterrence?
- What strategies can states adopt regarding clandestine capabilities?
- A preliminary case study: U.S. strategic anti-submarine warfare
CLANDESTINE CAPABILITIES

- Definition: Elements of military power that depend on secrecy for their effectiveness
  - U.S./U.K. naval codebreaking in World War II
  - Israeli early warning of war in 1973

- Most military capabilities derive some advantage from remaining clandestine

- Clandestine capabilities differ as they exploit adversary vulnerabilities that if fixed will sharply or totally attenuate the capability
  - CANOPY WING and Soviet command and control
  - Combat Tree and Soviet export MiG IFF
AN INCREASING ROLE IN THE 21\textsuperscript{ST} CENTURY

- Clandestine capabilities are not new—however, they have increasing salience in the 21\textsuperscript{st} century

- Vast improvements in command, control, communications, and intelligence (C3I) yield new ways to create vulnerabilities
  - Covert tagging, tracking, and locating (TTL) technologies
  - Covert unattended ground sensors (UGS)

- Increasing reliance on C3I systems and networks have also proliferated vulnerabilities
  - Offensive cyber operations
  - SIGINT based targeting
CHALLENGE OF CLANDESTINE CAPABILITIES

- Most rational theories of war and deterrence treat capabilities and the military balance as well understood by all parties in crisis. Clandestine capabilities undermine this assumption.

- Clandestine capabilities create a tension between military utility and political utility, requiring strategic management of information:
  - External information management - the Doomsday Machine problem
  - Internal information management - the Magic Pixie Dust problem
### FRAMING THE PROBLEM: OUTCOMES

<table>
<thead>
<tr>
<th></th>
<th>No Military Utility</th>
<th>Military Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Political Impact</td>
<td>Middle Age</td>
<td>Youth</td>
</tr>
<tr>
<td>No Political Impact</td>
<td>Death</td>
<td>Birth</td>
</tr>
</tbody>
</table>

State strategic choices: reveal, conceal, or partial reveal

Dependent on: military costs, political benefits, implementation considerations
## STATE CHOICE: MILITARY COSTS

<table>
<thead>
<tr>
<th>Capability</th>
<th>Adversary Reaction</th>
<th>Adversary Reaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy Replaced/Duplicated</td>
<td>Revelation Common</td>
<td>Revelation Intermittent</td>
</tr>
<tr>
<td>Irreplaceable</td>
<td>Revelation Uncommon</td>
<td>Revelation Rare</td>
</tr>
</tbody>
</table>
STATE CHOICE: POLITICAL BENEFITS

- States choose to reveal or conceal in three political environments: wartime, crisis, and peacetime.

- Wartime choices will be dominated by military considerations.

- Crisis choices characterized by:
  - Potential high pay-off to capability revelation.
  - However, possibility pay-off could be quickly reversed.

- Revelation in crisis therefore infrequent and dependent on opportunity to lock-in gains from revelation.
PEACETIME STRATEGIC CHOICE

- Peacetime environment is characterized by potential for long term strategic interaction

- Revelation therefore sends multiple types of signals
  - Near term military balance
  - Long term trends in military balance
  - Constitutional fitness for military competition

- Revelation also provides more diffuse and varied political benefits
  - General deterrence/assurance
  - Shaping adversary force posture/structure
  - Affects course of diplomacy and strategy
IMPLEMENTING INFORMATION STRATEGY

- Effective implementation of choices about revelation or concealment determined by
  - Effectiveness of intelligence and counter-intelligence
  - Target’s mindset

- Deception offers key opportunity to implement partial reveal
STRATEGIC ASW: A QUICK LOOK

- U.S. Passive Acoustic Advantage
  - SOSUS
  - SSNs
- U.S. SIGINT
  - IVY BELLS
  - Other COMINT (?)
- Changing Soviet Doctrine
  - Yankee/Delta transition
  - Barrier vs. Forward operations
## STRATEGIC ASW: OUTCOMES OVER TIME

<table>
<thead>
<tr>
<th>Political Impact</th>
<th>No Military Utility</th>
<th>Military Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Political Impact</td>
<td>[NIL]</td>
<td>1980s: Maritime Strategy</td>
</tr>
</tbody>
</table>

- CC: SOSUS
- Military Costs: Highly Unique, Soviets Responsive
- Signaling Choice: Conceal
- Outcome: Dominant under the sea, equality at the negotiating table
## Strategic ASW: Outcomes Over Time

<table>
<thead>
<tr>
<th>Political Impact</th>
<th>No Military Utility</th>
<th>Military Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Political Impact</td>
<td>[NIL]</td>
<td>1980s: Maritime Strategy</td>
</tr>
</tbody>
</table>

- Massive intelligence failure
- Soviets learn capabilities of SOSUS; trailing
- Retreat to the bastions: rearrange entire naval procurement program...again.
- Outcome: Soviet secure second strike from the sea
## STRATEGIC ASW: OUTCOMES OVER TIME

<table>
<thead>
<tr>
<th>Political Impact</th>
<th>No Military Utility</th>
<th>Military Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[NIL]</td>
<td>1980s: Maritime Strategy</td>
</tr>
</tbody>
</table>

- **CC:** Strategic ASW in the bastions. SSN Force acoustics, deployment.
- Costs and benefits different
- Signaling choice: partial reveal - military exercises; public statements
- Outcome: pressure on Soviet force posture + diplomacy
CONCLUSION

- How should we modify or amplify framework and hypotheses?

- Are there other examples we are missing?

- Are there hypothetical examples we could use to discuss sensitive capabilities in an unclassified manner?

- General thoughts, questions, or comments?