NDU Spacepower Theory Project Update

National Defense Industrial Association

2007 National Security Space Policy & Architecture Symposium

2 February 2007

Colonel Chuck Lutes, USAF
Senior Military Fellow
Project Director

Colonel Mike Bell, USA
Senior Military Fellow

Dr. Pete Hays
Visiting Fellow

Lt Col "Coyote" Smith, USAF
Visiting Fellow

Project Genesis, TOR, and Study Design

- 2005 QDR
- Feb 06 OSD Letter with TOR to NDU
- Study Design
  - *Yearlong effort: due Jun 07*
  - *Seminars, Workshops, Conferences*
  - *Product: Two Books*
    - *Volume I: Concise Spacepower Theory*
    - *Volume II: Comprehensive Spacepower Theory*

Seminars During Summer 2006

- Dennis Wingo*: Innovative Commercial Approaches to Space*
- Klaus Heiss: Strategic Importance of the Moon
- Joanne Gabrynowicz: *Space Law and Spacepower*
- Peter Teets: *National Security Space in the 21st Century*
- Roger Launius: *Exploration, Leadership, and Spacepower*
- Jon Sumida: *Mahan on Spacepower*
- Colin Gray: *Strategy and Spacepower Theory*
- Scott Pace: *Thoughts on Spacepower*
- Alex Roland: *Strategy, Spaceflight, and Spacepower*
- Karl Mueller: *Depolarizing the Space Weaponization Debate*
- John Logsdon: *Human Spaceflight and Spacepower*
- Theresa Hitchens: *International Perspectives of Spacepower*
- Phillip Baines: *Non-offensive Defenses in Space*
- Everett Dolman: *Astropolitik: Classical Geopolitics in the Space Age*
- Hal Winton: *On the Nature of Theory*
- Michael O'Hanlon: *Hedging Strategies: Neither Star Wars nor Sanctuary*
- Hank Cooper: *Missile Defense, the Space Connection and the 21st Century*

1st Workshop: *Merchants and Guardians*

Government's Role in Regulating, Licensing and Incentivizing Space Activity

- **NDU; 31 October 2006**
- **Approximately 40-50 attendees consisting of government and non-government experts**
- **Roundtable discussion**
- **Agenda included four panels:**
  - ***Panel 1*** **- Space Exploration: The Case for Public and Private Ventures**
  - ***Panel 2*** **- Current Commercial Space Activity: Incentives and Impediments**
  - ***Panel 3*** **- Crafting Laws and Policy to Facilitate Space Commerce and Exploration**
  - ***Panel 4*** **- Government as Regulator: The Good, the Bad, and the Ugly**

2nd Workshop: *International Perspectives*

- NDU; 4-5 December 2006
- Approximately 50-60 attendees with a strong international presence
- Roundtable discussion
- Agenda Included
  - Panel 1 - Major Space Actors
  - Panel 2 - Emerging Space Powers
  - Panel 3 - Non-State Actors
  - Panel 4 - Synthesis: Spacepower and the Interrelation of US, International and Non-State Actors in Space

Spacepower Theory: Volume II

VOLUME II CHAPTERS AND AUTHORS

Foreword: Implications of Spacepower for Geopolitics and Grand Strategy

Section I: Introduction to Spacepower Theory

Chapter 1: On the Nature of Theory: **Harold R. Winton**
Chapter 2: International Relations Theory and Spacepower: **Robert L. Pfaltzgraff, Jr.**
Chapter 3: Landpower, Seapower, and Spacepower: **John M. Collins**
Chapter 4: Airpower, Cyberpower, and Spacepower: **Benjamin S. Lambeth**

Section II: Spacepower and Geopolitics

Chapter 5: Orbital Terrain and Space Physics: **Martin E.B. France & Jerry Jon Sellers**
Chapter 6: Space Law and Governance Structures: **Joanne Irene Gabrynowicz**
Chapter 7: Building on Previous Spacepower Theory: **Colin S. Gray & John B. Sheldon**

Section III: Commercial Space Perspectives

Chapter 8: History of Commercial Space Activity and Spacepower: **Henry R. Hertzfeld**
Chapter 9: Commercial Space Industry and Markets: **Joseph Fuller, Jr.**
Chapter 10: Merchants and Guardians: **Scott Pace**
Chapter 11: Innovative Approaches to Commercial Space: **Ivan Bekey**

Section IV: Civil Space Perspectives

Chapter 12: History of Civil Space Activity and Spacepower: **Roger D. Launius**
Chapter 13: Affordable and Responsive Space Systems: **Sir Martin Sweeting**
Chapter 14: Human and Robotic Exploration: **Howard E. McCurdy**
Chapter 15: Competing Visions for Exploration: **Klaus P. Heiss & Dennis R. Wingo; Robert Zubrin**

Volume II (cont.)

Section V: Security Space Perspectives

- Chapter 16: History of Security Space Activity and Spacepower: **James Lewis**
- Chapter 17: Increasing the Military Uses of Space: **Henry F. Cooper, Jr. & Everett C. Dolman**
- Chapter 18: Preserving Freedom of Action in Space: **Michael Krepon, Theresa Hitchens & Michael Katz-Hyman**
- Chapter 19: Balancing Security Interests: **Michael E. O'Hanlon**

Section VI: International Perspectives

- Chapter 20: Russia: **James E. Oberg**
- Chapter 21: China: **Dean Cheng**
- Chapter 22: Europe: **Xavier Pasco**
- Chapter 23: Emerging Actors: **Randall R. Correll**

Section VII: Evolving Futures for Spacepower

- Chapter 24: Evolving U.S. Structures: **John M. Logsdon**
- Chapter 25: Evolving International Structures: **Dana J. Johnson**
- Chapter 26: Technological and Bureaucratic Drivers for Spacepower: **Taylor Dinerman**
- Chapter 27: Building Human Capital for Spacepower: **S. Peter Worden**

Afterword: The Future of Spacepower:

Appendixes

- Space Law: Outer Space Treaty, Registration Convention, Rescue and Return Agreement, Liability Convention, Moon Treaty, PAROS Proposals, IADC
- Orbits and Orbital Mechanics
- Basics of Space System Design
- Possibly Bibliographic Essay, Annotated Bibliography (assembled from COP), and Comprehensive Bibliography

Requirements for Concise Spacepower Theory

- **Volume I should:**
  - Account for the structure of the field:
    - the divergent world views of each sector and
    - the dynamics of their interactions.
  - Define the boundary conditions of the theory:
    - Cis-Lunar space as opposed to all of space
    - International perceptions of spacepower and their effect on US policy
  - Ask the key, fundamental questions regarding the uses and purposes of space to extract underlying principles.
    - Question hypotheses and present conditions.
    - Test counterfactuals.
  - Construct a framework that integrates divergent points of view and takes into account potential future scenarios.

- ***Roles of Theory: Define – Construct – Explain – Connect – Anticipate***

Upcoming Activities

- **NDU Capstone Symposium: *25-26 April 07***
  - Initial presentation of Volume I Spacepower Theory findings.
- **Community of Practice Website**
  - http://groups-beta.google.com/group/spacepower-theory
- **HAYSP@NDU.EDU**