

17.462

INNOVATION IN MILITARY ORGANIZATIONS

Thursdays, 10am-12pm  
Meeting in E51-165

Professors Barry Posen, office in E38-634, phone: 3-8088, email [posen@mit.edu](mailto:posen@mit.edu)  
and  
Harvey Sapolsky, office in E38-674, phone: 3-5265, email [sapolsky@mit.edu](mailto:sapolsky@mit.edu)

Spring 2001

Topic List

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February 15	Military Organizations
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March 15	Tactical Airpower
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## Overview/Requirements

### INNOVATION IN MILITARY ORGANIZATIONS 17.462

Professors Harvey Sapolsky and Barry Posen

Innovations have frequently determined the course of wars. This seminar has three purposes. One, it inquires into the causes of military innovation by examining a number of the most outstanding historical cases. Two, it views military innovations through the lens of organization theory to develop generalizations about the innovation process within militaries. Three, it uses the empirical study of military innovations as a way to examine the strength and credibility of hypotheses that organization theorists have generated about innovation in non-military organizations.

Both the theoretical literature on innovation and the case literature on military innovation are of an uneven quality. We have selected theoretical literature largely on the basis of its accessibility to the general reader and the clarity and explicitness of the arguments. This course is not a substitute for a survey course in organization theory although it can profitably be taken by people without such a background. We have taken a broad approach to the selection of cases. Some of the innovations we will study concern the development and adoption of particular technologies; others involve changes in doctrine, tactics, command and control, and force structure. Some of the innovations have occurred in peacetime; others have only been achieved after the outbreak of combat. Some innovations seem to conform to hypotheses in the organization theory literature; others are more mysterious. Security studies specialists will find the study of these innovations a useful way to improve their general understanding of modern warfare.

Students will be required to write one paper, and to present that paper to the seminar at the end of the semester. Depending on class size, auditors may be required to make presentations as well, though not to write papers. Students should meet with Professor Sapolsky or Professor Posen to develop suitable paper topics. Students should be encouraged by the fact that the literature on military innovation is underdeveloped. It tends to be discursive, atheoretical, and unsystematic. But, there is a wealth of case material available for exploitation in student essays and doctoral dissertations. For purposes of this seminar, single case studies or comparative case studies will likely prove the best format. We expect to see a substantial theoretical component in every paper.

### Possible Paper Topics:

The seminar syllabus is a good starting point for paper topics. Students should feel free to explore any of those topics in greater depth. A sample of other possible topics is offered below, but the list is only suggestive.

- The adoption of the helicopter and the development of airmobile tactics.
- The adoption of the helicopter to naval warfare.
- The creation and use of SOSUS
- The adoption of the Machine gun in later 19th and early 20th century armies.
- A comparative study of the development of the aircraft carrier in Britain, the US, and Japan in the interwar period.
- The development of air defense suppression tactics and capabilities during and after the Vietnam War.
- The development of "precision guided" air and ground conventional munitions.
- The evolution of mine warfare at sea (19th century) and on land (the 20th century.)
- The development of dissimilar air combat training in the US Navy and US Air Force.
- The development of US armor and anti-armor forces in the Second World War.
- The development of the National Training Center.
- The creation of light infantry divisions in U.S. Army.
- The development of the cruise missile.
- The creation of airborne forces in U.S. and other armies.
- The development of Marine Pre-positioning Ships or air refueling
- The military use of space.
- The likely role of unmanned aerial vehicles in military operations.
- Airborne forces as a failed but persistent innovation



## Reading List

Please purchase the following books:

Wilson, James Q., Bureaucracy: What Government Agencies Do and Why They Do It, Basic Books, 1991.

Christensen, Clayton M., The Innovator's Dilemma, Boston: Harvard University Press, 1997.

Utterback, James M., Mastering the Dynamics of Innovation, Harvard Business School Press, 1996.

Owens, Bill, Lifting the Fog of War, Farrar, Straus, and Giroux, 2000.

### **Week 1, Feb. 8 Introduction**

Wilson, James Q., Bureaucracy, chapters 1, 2, 6, 7, 9, and 12

Wilson, James Q. and Peter Clark, "Incentive Systems: A Theory of Organization" *Administrative Science Quarterly*, 1961, Vol 6 pp. 129-166

Guillen, Mauro F., "The Age of Eclecticism: Current Organizational Trends and the Evolution of Managerial Models," *Sloan Management Review* (Fall 1994) pp. 75-86.

### **Week 2, Feb. 15 Military Organizations**

Huntington, Samuel P., The Soldier and the State, Harvard University Press, 1967.

Chapter 1: "Officership as a Profession," pp. 7-18

Chapter 3: "The Military Mind: Conservative Realism of the Professional Military Ethic," pp. 59-79

Janowitz, Morris, The Professional Soldier Part II, New York: The Free Press, 1964

Chapter 2: "Technology and Decision-Making," pp. 21-37

Chapter 3: "Discipline and Combat Goals," pp. 38-53

Chapter 4: "The Military Hierarchy," pp. 54-75

Hastings, Max and Simon Jenkins, The Battle for the Falklands, New York: W.W. Norton & Company, 1983.

Chapter 9: "A War At Sea," pp. 143-163

Moore, Lt. Gen. Harold, and Joseph L. Galloway, We Were Soldiers Once...and Young, New York: Random House, 1993

Chapter 5: "Into the Valley," pp. 55-64

Chapter 8: "The Storm of Battle," pp. 92-105

Orange, Vincent, A Biography of Air Chief Marshal Sir Keith Park, London: Methuen, 1984

Chapter 8: "A 'Possible but Unlikely Evacuation': Dunkirk," pp. 84-90

Chapter 9: "The Battle of Britain: Meeting Them," pp. 91-119

Brodie, Bernard, "Technological Change, Strategic Doctrine, and Political Outcomes," in Historical Dimensions of National Security Problems, Lawrence: University Press of Kansas , 1976, pp. 263-306

### **Week 3, Feb. 22 Militaries & Innovation**

Wilson, James Q., "Innovation in Organization: Notes towards a Theory," in J. O. Thompson (ed) Approaches to Organizational Design, : University of Pittsburgh Press, 1971, pp. 195-218

Posen, Barry R., The Sources of Military Doctrine: France, Britain, and Germany Between the World Wars, Ithaca: Cornell University Press, 1984.  
Chapter 1: "The Importance of Military Doctrine," pp. 13-33  
Chapter 2: "Explaining Military Doctrine," pp. 34-80

Rosen, Stephen P., Winning the Next War, Ithaca, NY: Cornell University Press , 1991, Chapters 1 & 9, pp. 1-55, 251-262.

Christensen, Clayton M., The Innovator's Dilemma, pp. 1-96; 187-212.

Sapolsky, Harvey M., "On the Theory of Military Innovation", Breakthroughs, Vol. IX, No.1, Spring 2000, pp. 35-39.

### **Week 4, March 1 The Evolution of Land Warfare**

Delbruck, Hans The Dawn of Modern Warfare: History of the Art of War, Vol IV, Lincoln, NE: University of Nebraska Press, 1985  
Chapter III: "Maurice of Orange," pp. 155-163, 168-171

Lynn, John A., The Bayonets of the Republic, : University of Illinois Press, 1984  
Chapter 7: "The *Ordinaire* and Motivation," pp. 163-182

Irvine, Dallas, "The Origins of Capital Staffs," *The Journal of Modern History*, Vol. X, No. 2, June 1938, pp. 161-179

Showalter, Dennis E., Railroads And Rifles, Shoe String Press Inc, 1975.  
Part I: pp. 7-75

Posen, Barry R., "Nationalism, the Mass Army, and Military Power," *International Security*, Vol 18 No. 2, pp. 80-124

Griffith, Paddy, Battle Tactics of the Western Front, New Haven, CT: Yale University Press, 1994  
Chapter 8: Artillery, pp. 135-157

Alex Roland, "Technology, Ground Warfare, and Strategy: The Paradox of American Experience," Journal of Military History Vol 55 (October 1991), pp. 447-467.

Jablonsky, David, "US Military Doctrine and the Revolution in Military Affairs," *Parameters*, Autumn 1994, pp. 18-36

Echevarria, Antulio J. and John M. Shaw, "The New Military Revolution: Post-Industrial Change," *Parameters*, Winter 1992-93, pp. 70-79

Institute for National Strategic Studies, "Discussion II: Operational Challenges," *Strategic Forum*, November 1994, p. 3.

Koli, Markku, Development of Military Technology and its Impact on the Finnish Land War Doctrine, (Finnish Defence Studies 4), pp. 45-73

Lambeth, Benjamin Desert Storm and its Meaning: The View from Moscow, Santa Monica, CA: RAND, 1992, pp. 63-93

Collins, James C. and Jerry I. Porras, "The Ultimate Vision", *Across the Board*, January 1995 pp. 4-8

Mazarr, Michael, The Revolution in Military Affairs: A Framework for Defense Planning, Carlisle Barracks, PA: Strategic Studies Institute, US Army War College, 1994.

### **Week 5, March 8 Battleships and Massed Fleets**

Kennedy, Paul M., The Rise and Fall of British Naval Mastery, London: A. Lane, 1976

Chapter 7: "Mahan versus Mackinder," pp. 177-202

Chapter 8: "The End of Pax Britannica," pp. 203-237

Morison, Elting E., Men Machines, and Modern Times, MIT Press, 1966.

Chapter 2: "Gunfire at Sea: A Case Study of Innovation," pp. 17-44

Sumida, Jon Tetsuro, "British Capital Ship Design and Fire Control in the Dreadnought Era: Sir John Fisher, Arthur Hungerford Pollen, and the Battle Cruiser," in *The Journal of Modern History*, 51(2), pp. 205-230.

Sumida, Jon Tetsuro, In Defence of Naval Supremacy: Finance, Technology and British Naval Policy, 1889-1914, London: New York: Routledge, 1993.

Chapter 5: "Confusion: Fire Control and Capital Ship Design, 1908-1909," pp. 146-184

Fairbanks, Charles H., "Choosing among Technologies in the Anglo-German Naval Arms Competition, 1898-1915," in Naval History: The Seventh Symposium of the U.S. Naval Academy, pp. 127-142

Padfield, Peter, The Battleship Era, London: Rupert Hart-David, 1972.

Chapter 16: "Fire Control and the Dreadnought," pp. 183-211

### **Week 6, March 15 Tactical Airpower**

Boog, Horst, "Higher Command and Leadership in the German Luftwaffe, 1935-1945," in Air Power and Warfare: Proceedings of the Eighth Military History Symposium USAF Academy 1978 pp. 128-158 .

Hallion, Richard P., Strike from the Sky: The History of Battlefield Air Attack, 1911-1945, Washington DC: Smithsonian Institution Press, 1989.

Chapter 12: "The Genesis of Anglo-American Air Support: The British Experience in the Western Desert," pp 149-162

Chapter 13: "The Necessary Interlude: Doctrine and the American Experience in the Pacific, Tunisian, and Italian Campaigns," pp. 163-187

Richard Muller, "Close Air Support: The German, British, and American Experiences," in Williamson Murray, et. al., Military Innovation in the Interwar Period," Cambridge University Press, 1996, pp. 144-190

U.S. Government, Commission on the Organization of the Government for the Conduct of Foreign Policy

Chapter 8: "Smart Bombs," pp. 191-198

Watts, Barry D., "Unreported History and Unit Effectiveness," The Journal of Strategic Studies, Vol 12, No. 1 (1989), pp. 88-98

### **Week 7, March 22 Strategic Airpower**

Young, Robert J., "The Strategic Dream: French Air Doctrine in the Inter-War Period, 1919-39," in *The Journal of Contemporary History*, 9(4), pp. 57-76

Smith, Malcolm, "'A Matter of Faith': British Strategic Air Doctrine before 1939," in *Journal of Contemporary History*, Vol. 15, pp. 423-442 .

Overy, R. J., "From 'Uralbomber' to 'Amerikabomber': The Luftwaffe and Strategic Bombing," in *The Journal of Strategic Studies*, 1(2), pp. 154-17

McFarland, Stephen L., "The Evolution of the American Strategic Fighter in Europe, 1942-44," in *The Journal of Strategic Studies* 10(2) pp. 189-208

Frankland, Noble, "The Combined Bomber Offensive: Classical and Revolutionary, Combined and Divided, Planned and Fortuitous," in Command and Commanders in Modern Warfare: Proceedings of the Second Military History Symposium U.S. Air Force Academy, pp. 283-300

McFarland, Stephen, "Daylight Precision Strategic Bombing against Germany," in America's Pursuit of Precision Bombing, 1910-1945, Smithsonian Institution Press, 1995, pp. 165-190.

MacIsaac, David, "Voices from the Central Blue: The Air Power Theorists," in Makers of Modern Strategy: From Machiavelli to the Nuclear Age, Princeton University Press, 1986, pp. 624-647

Werrell, Kenneth P. "The Strategic Bombing of Germany in World War II: Costs and Accomplishments," Journal of American History (December, 1986), pp. 702-713

Quester, George H., "The Impact of Strategic Air Warfare," Armed Forces and Society (February, 1978) pp. 179-205

Thompson, Wayne W., "After Al Furdos," *Air Power History*, (Summer 1996) pp. 48-65.

Cohen, Eliot A., "The Mystique of U.S. Air Power," *Foreign Affairs* (Jan/Feb 1994), pp. 109-124.

Meilinger, Phillip S., "Air Targeting Strategies: An Overview," In R. Hallion, ed., *Air Power Confronts an Unstable World*, (London: Brassey's, 1997) pp. 51-80.

### **Week 8, April 5      Submarine Warfare**

Compton-Hall, Richard, "Holland's *Hollands*: An Irish Tale," *Proceedings*, February 1991, pp. 59-63

Burns, Richard D., "Regulating Submarine Warfare, 1921-41: A case Study in Arms Control and Limited War," *Military Affairs*, April 1971, pp. 56-63

Cohen, Eliot A. and John Gooch, *Military Misfortunes: The Anatomy of Failure in War*, (New York: Free Press, 1990) "Failure to Learn: American Antisubmarine Warfare in 1942" pp. 59-94.

Beesly, Patrick *Very Special Intelligence*  
Forward: pp. ix-xvii  
Chapter 2: "The First Twelve Months: A Lean Time", pp. 24-41  
Chapter 10: "Triton to the Rescue," pp. 154-171  
Chapter 11: "January-May 1942: Climax of the Battle of the Atlantic," pp. 173-185

Lautenschlager, Karl "The Submarine in Naval Warfare, 1901-2001," *International Security*, Vol 11, No 3, 1986, pp. 94-140

Cote, Owen R., Jr., "The Third Battle: Innovation in the US Navy's Silent Cold War Struggle with Soviet Submarines", MIT Security Studies Program, March 2000.

### **Week 9, April 12    Missiles**

George K. Williams, "AWACS and JSTARS," in *Technology and the Air Force*, J. Neufeld et. al, eds., (Washington DC: Air Force, 1997) pp. 267-287.

Sapolsky, Harvey M., *The Polaris System Development: Bureaucratic and Programmatic Success in Government* (Harvard University press, 1972)  
Chapters 1, 2, 4 and 8

Harvey M. Sapolsky, Eugene Gholz, and Allen Kaufman, "Security Lessons from the Cold War," *Foreign Affairs* (July/August 1999) pp. 77-89.

Janet R. Daly Bednarek, "Damned Fool Idea: The American Combat Glider Program, 1941-1947," *Air Power History* (Winter 1996), pp. 38-49.

S.J. Liebowitz and Stephen E. Margolis, "The Fable of the Keys," *Journal of Law and Economics* (April 1990), pp. 1-25.

Thomas C. Hone, Norman Friedman, & Mark D. Mandeles, American & British Aircraft Carrier Development, 1919-1941 (Annapolis: US Naval Institute Press, 1999) pp. 188-199.

### **Week 10, April 19    Armored Warfare**

House, Captain Jonathan M., Toward Combined Arms Warfare: A Survey of 20th-Century Tactics, Doctrine, and Organization  
Chapter 3: "The Interwar Period," pp. 43-78

Bond, Brian, British Military Policy between the Two World Wars, Oxford: Clarendon Press, 1980.  
Chapter 6: "Mechanization: the second phase, 1933-39" pp. 161-190

Larson, Robert H., The British Army and the Theory of Armored Warfare, 1918-1940, Newark: University of Delaware Press, 1984.  
Chapter 5: "The Years of Experiment: 1927-34," pp. 132-170

Cooper, Mathew, The German Army: 1933-1945, New York: Stein and Day, 1984.  
Part II: The Battle for Ideas," pp. 113-166

Johnson, David E., Fast Tanks and Heavy Bombers: Innovation in the U.S. Army 1917-1945, Cornell University Press, 1998. Chapter 10, "Alternatives for Armor," pp. 116-152.

Horowitz, Dan, "Flexible Responsiveness and Military Strategy: The Case of the Israeli Army," Policy Sciences 1 (1970) pp. 191-205

Griffith, Paddy, Battle Tactics of the Western Front, Yale University Press, 1994.  
Chapter 11: "Conclusion," pp. 192-200

### **Week 11, April 26    Revolution in Military Affairs**

Andrew F. Krepinevich, Jr., "Competing for the Future: Searching for Major Ellis," *Marine Corps Gazette*, November 1996, pp. 28-37.

Jeremy Shapiro, "information and War: Is it a Revolution?" in Z. M. Khalizad and J. P. White, eds., THE CHANGING ROLE OF INFORMATION IN WARFARE (Santa Monica CA: RAND, 1999) pp. 113-154.

James Utterback, Mastering the Dynamics of Innovation, chapters 7 and 10

Admiral Bill Owens, Lifting the Fog of War (entire book)

**Week 12, May 3        Student Papers**

**Week 13, May 10     Student Papers**

**Week 14, May 17     Student Papers**