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WASHINGTON
FIRST TOOK COMMAND
OF THE
AMERICAN ARMY
JULY 3, 1775



D E F E N S E
A N D A R M S
C O N T R O L
S T U D I E S
P R O G R A M

Annual Report • 1990–1991

MASSACHUSETTS
INSTITUTE
OF TECHNOLOGY



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DEFENSE AND ARMS CONTROL STUDIES PROGRAM

The Defense and Arms Control Studies (DACS) Program is a graduate level, research and training program based at the MIT Center for International Studies. It traces its origins to two initiatives. One is the teaching on international security topics that Professor William Kaufmann began in the 1960's in the MIT Political Science Department. The other is the MIT wide seminars on nuclear weapons and arms control policy that Professor Jack Ruina and Professor George Rathjens created in the mid 1970's.

Currently the program's teaching ties are primarily but not exclusively with the Political Science Department at MIT. The DACS faculty, however, includes natural scientists and engineers as well as social scientists. Of particular pride to the program is its ability to integrate technical and political analyses in studies of international security issues.

Several of the DACS faculty members have had extensive government experience. They and the other program faculty advise or comment frequently on current policy problems. But the program's prime task is educating those young men and women who will be the next generation of scholars and practitioners in international security policy making. The program's research and public service activities necessarily complement that effort.

The Center for International Studies is a major interdepartmental research facility at MIT and seeks to encourage the analysis of issues of continuing public concern. Key components of the Center in addition to DACS are Seminar XXI, which offers training in the analysis of international issues for senior military officers, government officials, and industry executives; and the MIT Japan Program, which conducts research and educational activities to further knowledge about Japanese technology, economic activities, and politics.



COVER PHOTO

REVOLUTIONARY WAR MEMORIAL
CAMBRIDGE COMMON, CAMBRIDGE, MASSACHUSETTS

"These cannon were abandoned at Fort Independence (Castle William) by the British forces when they evacuated the city of Boston, March 17, 1776," marking the site where, "Washington first took command of the American Army, July 3, 1775."

PHOTOGRAPHY BY JEAN MARIE COTÉ

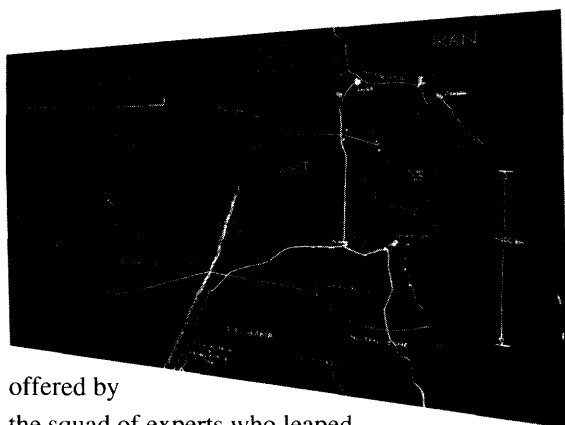
REPORT OF THE DIRECTOR

Some wonder why we study war. Would it not be better to study peace, diplomacy, international law, and negotiations among nations? We, of course, favor the peaceful resolution of international disputes. We study how wars are fought, but also how wars are prevented, contained, and stopped. We think about the causes and consequences of war as well as about the combat effectiveness of weapons and doctrines.

But we do believe that war is a very important topic to study. From it we learn how the costs of war may be reduced; what strategies bring wars to an end and what ones merely waste lives; what preparations are prudent and what ones are foolishly provocative. To study war is not to like war or to advocate it as a means for resolving disputes, but only to recognize that nations often resort to deadly violence in their relations with others and that some people besides generals and admirals should know how wars are initiated, fought, and concluded.

More should be known about wars. Consider the prelude to the Gulf War. Once U.S. forces and those of the United Nations coalition were committed to the defense of Saudi Arabia, fighting on a large scale was a very distinct possibility. In the nearly six months in which the coalition sought to use the threat of war to stop Iraqi expansion and then to remove Iraqi forces from Kuwait, there was much public speculation about what an actual conflict would be like and what would be the political consequences of a war. It was disturbing how inaccurate were the predictions of the many military experts — serving and retired officers as well as civilian security specialists — who gained media visibility. Tragically for tens of thousands of Iraqi soldiers and civilians, Saddam Hussein (and much of the public in the coalition countries) believed the predictions that the coalition would have to suffer a huge blood price to oust his army from Kuwait and doubted there would be a willingness to pay it. There was hardly any appreciation of how punishing the war would be for Iraq.

Our program had a much better understanding of the capabilities of coalition forces and the likely form of the fighting than did many of the pundits. Almost as soon as President Bush announced the dispatch of American units to the Gulf, the program's Conventional Forces Working Group led by Barry Posen began to collect information about the military situation. Within a short time the famous chalk map (see picture) appeared and there were daily discussions on possible tactics and results. The futility of Iraqi resistance was quickly apparent. As Barry pointed out, U.S. defense spending was nine times the entire Iraqi gross national product. The force the U.S. assembled was equipped and trained to fight the Soviet army on the central front. Those of us who had observed closely the buildup of American forces over the last decade were appalled by the dark predictions of likely American military performance



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offered by the squad of experts who leaped to inform the public about matters military. Many people apparently did not know what a powerful military a few trillion dollars can buy.

Some of our other working groups also focused on the Gulf situation when they reconvened at the start of classes in the fall. My own Defense Politics group began to examine airlift and sealift operations as possible examples of interservice conflict. Some time was spent cataloging capabilities and crisis activities. But before long it was obvious that the widespread belief that lift was a neglected mission was totally inaccurate. The United States had enormous air and sea lift resources to call upon. The Gulf War gave testimony once again to U.S. ability to move and support forces far from America. The only complaints about the experience we discovered came from various maritime interests that seek to use national security as justification for maintaining and even expanding their congressionally provided subsidies.

The New Directions Working Group led by George Rathjens and Jack Ruina also considered the Gulf situation, comparing it with other recent occasions for U.S. use of force including Grenada, Panama, and Liberia. Of particular interest was the New World Order that President Bush claimed to be initiating. The group sought to ensure that discussion of the New World Order would have legal and ethical groundings.

We seized every opportunity to explore the implications of the Gulf crisis. The DACS seminar series, a weekly forum to which outside speakers are invited, was restructured to include several sessions on the

Gulf. Our publications series were expanded to include papers on the crisis. And with the assistance of Professor Richard Velely we began planning a week-long series on the Gulf to be held during the MIT Independent Activities Period in January under the sponsorship of the program and the MIT Political Science Department. Months before the United Nations' declaration of a specific withdrawal deadline for the Iraqis, we chose the week of January 14 for the series.

The crisis at its peak, hundreds attended the sessions. Leading off with an examination of American interests in the region were Professors Hayward Alker, Nazli Choucri, and Stephen Van Evera. Next Professor Philip Khoury, a historian and Dean of the MIT School of Humanities and Social Sciences, explored the political and cultural history of the region. On January 16, hours before the first bombers flew, Barry Posen described in amazingly prescient detail the likely pattern of attacks. With the war underway on the 17th, I discussed its likely shape. I noted that all military and political incentives were to have a very short war with few Iraqi civilian and U.S. military casualties, but very high numbers of Iraqi military casualties. The last session was given by Professor Peter Lemieux and Amy Blitz, a political science graduate student, who explored public and media reactions to the fighting.

The program followed up that series at the war's end with a faculty symposium in Los Angeles co-sponsored by the MIT Alumni Club and the MIT Industrial Liaison Program. In a day-long session held at Hughes Aircraft facilities, George Rathjens, Theodore Postol, Barry Posen, and I reviewed the war and its likely implications for defense policy. The overall decline in defense spending triggered by the collapse of Communism seemed certain to continue, we said. The only uncertainties lay in the fate of particular weapons projects where politics were more likely to dominate than any national security considerations.

One of the greatest controversies of the Gulf War was the debate over the effectiveness of the Patriot missile against Scud missiles. The debate was especially heated because of possible lessons for near term strategic and theater ballistic missile defense programs. Theodore Postol in testimony before the House Armed Services Committee described the central issues of any attempt to extrapolate from the Patriot experience. With help from his Defense Technology Working Group, he has continued to play a central role in discussions of ballistic missile defenses.

Another important controversy was over the success of Iraq's nuclear weapons program. Some thought Iraq to be on the verge of a weapon capability; others doubted such a capability was near at hand. George Rathjens testified to the Senate Foreign Relations Committee on the issue, taking the skeptical stance. Marvin Miller and Avner Cohen also explored the problem in several publications on nuclear proliferation in the Middle East.

Throughout the Gulf crisis there was speculation about Soviet behavior and reactions. Would the Soviets assist in the United Nations efforts to persuade the Iraqis to withdraw from Kuwait? What lessons did the Soviet military draw from the rapid defeat of Iraq's Soviet-equipped forces? Stephen Meyer, who heads our Soviet Security Studies Working Group, was constantly in demand for his opinions on these and related problems. More recently he has been involved in high level U.S. discussions about the convertability of Soviet defense industries which many see both as a prerequisite for Soviet economic reform and an insurmountable obstacle.

The environmental damage caused during the Gulf war prompted much concern. My Defense/Environmental Working Group, which had been considering the environmental legacy of the Cold War prior to the initiation of the fighting in the Gulf, switched in the second semester to this topic. Several of the student members prepared papers on assessments of the damage and found no scientific or political consensus. .

In May DACS marked the inauguration of MIT's new president, Charles Vest, by organizing a special two-day, Institute-wide symposium on potential changes in U.S. science policy. Using the various policy contributions of the late Vannevar Bush as panel themes, the symposium explored problems in government support of science. Bush, whose centennial occurred this spring, was a senior MIT official and the leader of the science effort during the Second World War. It was his initiatives that led to the design of postwar American science policy. We were pleased that so many of the nation's leading experts on science policy and industrial competition were able to participate in the symposium. We especially appreciate the contributions of Mitchell Kapor, the founder of Lotus and now chairman of ON Technology, who was the symposium dinner speaker and David Hamburg, the President of the Carnegie Corporation, who was the symposium's main luncheon speaker.

A number of colleagues played crucial roles in the program this year. Professor Richard Samuels, the director of the MIT Japan Program, assumed responsibility for the Security of the North Pacific Working Group. He kindly guided the studies of several of our students who wished to combine an area specialization with a security studies specialization. Dr. John Ehrenfeld of the MIT Hazardous Substances Management Program and Professor Michael Baram of Boston University Law School generously assisted in the formation and direction of the Defense/Environmental Working Group. Professors Leon Trilling, Earl Murman, Daniel Hastings, and Eugene Covert — all of the MIT Aeronautics and Astronautics Department — helped us develop an interest in the post Cold War aerospace industry. We look forward to a continuing collaboration. Dr. Marvin Miller, a senior scientist in the MIT Nuclear Engineering Department, once again helped us hold our reputation as a major international center for nuclear proliferation studies. And we appreciate as always the active participation in our courses, student

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advising, and research studies of Professor Carl Kaysen, of the MIT Science, Technology, and Society Program.

Several colleagues deserve special congratulations. Professor Hayward Alker was elected President of the International Studies Association. Professor Barry Posen won the Levitan prize which allows him additional research time. Professor Philip Khoury was appointed Dean of our school. And George Lewis, a post doctoral fellow in the program and a key member of our Defense Technology working group, won a MacArthur Foundation writing prize.

Among the students, Eric Labs and Wade Jacoby were awarded Jacob Javits Fellowships; Owen Coté and Steven Flank won Fellowships at the Center for Science and International Affairs at Harvard; Neta Crawford received a Visiting Scholar Fellowship at the University of Southern California; Judyth Twigg won Fellowships from the Institute for the Study of World Politics, the Social Science Research Council, and the U.S. Institute of Peace; Peter Liberman was selected for a Fellowship at the Olin Institute at Harvard; Katherine Magraw was awarded an American Association for the Advancement of Science Fellowship; Laura Reed was the recipient of a U.S. Institute of Peace Fellowship. Paul Nagy and John Shephard had an opportunity to be in Operations Desert Shield and Desert Storm as participant observers, the former as a naval reserve officer called to active duty and the latter as an army major with the 101st Air Assault Division.

We are grateful for the support provided by our several sponsors. The foundations from which we received support this year were The Carnegie Corporation of New York, The William and Flora Hewlett Foundation, The Ford Foundation, The Pew Charitable Trusts, and the John D. and Catherine T. MacArthur Foundation. Additional support was

received from Lincoln Laboratory, McDonnell Douglas, MITRE Corporation, Martin Marietta, and Lotus Development Corporation. We are especially pleased to report that the \$1.5 million Ford Foundation endowment challenge for security studies was met by MIT.

A year ago I noted in my report that there was much concern about how the world would adjust to the end of the Cold War. The rigid division among nations between East and West, between Soviet ally and American ally surely would not hold. The forces of nationalism and ethnicity seemed on the march, threatening the fragile efforts being made to achieve democratization and economic liberalization in several once Communist nations. For some observers, economic competition seemed a likely replacement for the military and ideological competition of the Cold War. Others believed that the United States would be tempted once again by its traditional isolationist urges. There was a great deal to sort out in a world finally at peace after forty years of the Cold War.

In the intervening year America experienced a mobilization surpassing that of the Vietnam War. Over 500,000 American troops were sent to the Gulf and were involved in a brief but very intense conflict. Because of that conflict we must think again of the perils of nuclear proliferation, of the many complex disputes of the Middle East, of the dangerous trade in arms that preceded the Gulf crisis, and of the role Japan and Germany will play in world affairs. There are millions of new refugees. Saddam still rules in Baghdad. And all the problems mentioned a year ago remain unsolved.

I know I represent my colleagues when I say we would not mind a quieter time in the year ahead. There is much upon which to reflect.

Harvey M. Sapolsky



HARVEY M. SAPOLSKY is Professor of Public Policy and Organization in the Department of Political Science and Director of the Defense and Arms Control Studies Program. Dr. Sapolsky completed a B.A. at Boston University and earned an M.P.A. and Ph.D. at Harvard University. He has worked in a number of public policy areas, notably health, science and defense where his work examines the effects of institutional structures and bureaucratic politics on policy outcomes. In defense he has served as a consultant to the Commission on Government Procurement, the Naval War College, the Office of Naval Research, and the RAND Corporation, and has lectured at all of the service academies. He is currently focusing his research on the relationship among the armed services and between them and the civilian leadership. In July 1989 he succeeded Professor Ruina as Director of the MIT Defense and Arms Control Studies Program. Professor Sapolsky's most recent book is titled, *Science and the Navy*, and is a study of defense support of academic research. An edited volume on telecommunications policy will appear shortly.

STEPHEN M. MEYER is Professor of Defense and Arms Control Studies and Director of Soviet Security Studies at MIT. Prior to joining the MIT faculty in 1979, he was a post-doctoral fellow at Harvard University's Center for Science and International Affairs. He received his Ph.D. at the University of Michigan, Ann Arbor in 1978. Dr. Meyer's areas of particular interest are Soviet defense decision-making, military economics, force planning and analysis, and arms control. He is currently completing a book that examines the evolution of Soviet military power in the 1970s and

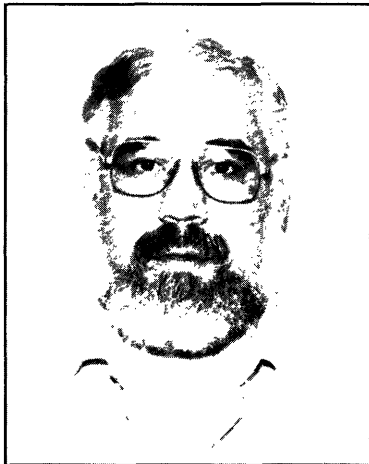


FACULTY

1980s, and the ways in which organizations and institutions influenced Soviet defense policy. Dr. Meyer serves as an advisor on Soviet security affairs to the Department of Defense, the State Department, the Office of Technology Assessment, and other government agencies. At White House request he has briefed President Bush and the Secretaries of Defense and State on a number of occasions. Dr. Meyer has testified numerous times in open and closed hearings before the House Armed Services Committee, the Senate Armed Services Committee, the Senate Foreign Relations Committee and the Senate Select Committee on Intelligence.



BARRY R. POSEN is Professor of Political Science. Dr. Posen did his undergraduate work at Occidental College and his graduate work at the University of California at Berkeley, where he earned an M.A. and Ph.D. Prior to coming to MIT, Dr. Posen was Assistant Professor of Politics and International Affairs at Princeton University. He has also held a number of prestigious positions: Guest Scholar at the Brookings Institution; Post-Doctoral Fellow at the Center for International Affairs at Harvard; Council on Foreign Relations International Affairs Fellow; Rockefeller Foundation International Affairs Fellow and Guest Scholar at the Georgetown Center for Strategic and International Studies; and Woodrow Wilson Center Fellow, Smithsonian Institution. His most recent book, *Inadvertent Escalation*, is expected from Cornell University Press in Fall 1991. His first book, *The Sources of Military Doctrine*, won the American Political Science Association's Woodrow Wilson Foundation Book Award for the best book published in political science in 1984, and Ohio State University's Edward J. Furniss, Jr. Book Award for the best first book in the field of security studies. Dr. Posen's current activities include work on the control of escalation, U.S. military strategy and force structure, and nationalism.



THEODORE A. POSTOL is Professor of Science, Technology and National Security Policy in the Program in Science, Technology, and Society at MIT. He did his undergraduate work in Physics and his graduate work in Nuclear Engineering at the Massachusetts Institute of Technology. After receiving his Ph.D., Dr. Postol joined the staff of Argonne National Laboratory, where he used neutron, x-ray and light scattering, along with computer molecular dynamics techniques, to study the microscopic dynamics and structure

of liquids and disordered solids. Subsequently he went to the Congressional Office of Technology Assessment to study methods of basing the MX Missile, and later worked as a scientific adviser to the Chief of Naval Operations. After leaving the Pentagon, Dr. Postol helped to build a program at Stanford University to train mid-career scientists to study developments in weapons technology of relevance to defense and arms control policy. In 1990 Dr. Postol was awarded the Leo Szilard from the American Physical Society.

GEORGE W. RATHJENS became Professor in the Department of Political Science after service with the Institute for Defense Analyses, the U.S. Arms Control and Disarmament Agency, the Advanced Research Projects Agency of the Department of Defense, the Office of the President's Science Advisor, and the Weapons Evaluation Group of the Department of Defense. Dr. Rathjens received his B.S. from Yale University and completed his Ph.D. in chemistry at the University of California at Berkeley. He is active in a number of associations, including the Council for a Livable World of which he has been Chairman and the Federation of American Scientists of which he is Sponsor, Councilor, and Past Chairman.

Dr. Rathjens' major policy interests are nuclear arms issues, post-Cold War international security questions, and environmental problems, with special emphasis on conflict and the environment.



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JACK RUINA is Professor of Electrical Engineering. Dr. Ruina was an undergraduate at the City College of New York and did his graduate work at the Polytechnic Institute of Brooklyn, earning his M.E.E. and D.E.E. there. He taught at Brown University and the University of Illinois; at the latter he also headed the Radar Division of the Control System Laboratory. While on leave from the University of Illinois, he served in several senior positions at the Department of Defense, the last being Director of the Advanced Research Projects Agency. He also held the post of President of the Institute for Defense Analyses. At MIT, he has held the position of Vice President for Special Laboratories and is currently Secretary of the MIT Faculty. He was instrumental in establishing the Defense and Arms Control Program and was its first Director. Dr. Ruina's special interest is in strategic relations between the U.S. and the Soviet Union.



In addition to the core faculty who are listed above and who take prime responsibility for advising program affiliated students, there are a number of other faculty members who help supervise student research and who participate in the intellectual life of the program. At MIT these were Hayward Alker, Professor of Political Science; Suzanne Berger, Ford International Professor of Political Science and Chair, MIT Political Science Department; Donald Blackmer, Professor of Political Science; Joshua Cohen, Professor of Linguistics and Philosophy; Douglas Forsyth, Assistant Professor of History; Carl Kaysen, David W. Skinner Professor of Political Economy in the Program in Science, Technology and Society; Marvin Miller, Senior Research Scientist in the Department of Nuclear Engineering; Lucian Pye, Professor of Political Science; Richard Samuels, Professor of Political Science and Director of the MIT Japan program; Kenneth Oye, Associate Professor of Political Science; Richard Vaelely, Associate Professor of Political Science; and Stephen Van Evera, Assistant Professor of Political Science. Among those assisting who have appointments outside of MIT were Donald David, Naval War College; Robert Legvold, Columbia University; Steven Miller, Council on Foreign Relations; Barry O'Neill, York University; and Notra Trulock III, Los Alamos National Laboratory.

VISITORS

Avner Cohen

Department of Philosophy,
Tel Aviv University,
Tel Aviv, Israel
Visiting Scholar
September 1990 – present

Hugh Gusterson

Department of Cultural Anthro-
pology, Stanford University,
Stanford, California
SSRC-MacArthur Pre-Doctoral
Fellow in International Peace
and Security
September 1990 – June 1991

Yair Evron

Department of Political Science,
Tel Aviv University,
Tel Aviv, Israel
Visiting Scholar
September 1990 – December 1990

George Lewis

Department of Physics, Cornell
University, Ithaca, New York
Post-Doctoral Fellow
September 1989 – present

Kenneth Freeman

United States Naval War College,
Newport, Rhode Island
Adjunct Research Associate
January 1990 – August 1991

Gerasimos Tsandoulas

Space-Radar Technology Program,
MIT Lincoln Laboratory,
Lexington, MA
Visiting Scholar
September 1990 – June 1991

DACS - AFFILIATED DEGREE RECIPIENTS

1990 / 1991

Jeffrey Checkel
Ph.D. (Political Science), June 1991

"Organizational Behavior, Social Scientists and Soviet Foreign Policymaking"

James Moore
Ph.D. (Political Science), June 1991

"Nuclear Stability in the Post-Cold War Era"

Richard Phillips
Ph.D. (Political Science), February 1991

"The Evolution of Soviet Threat Assessment in the Gorbachev Era"

Robert Forrester
S.M. (Political Science), June 1991

"The Army and the New Look: A Study of Organization Reaction to Conditions of Uncertainty"

GRADUATE STUDENTS • 1990 / 1991

PH.D. CANDIDATES — POST-GENERALS

John Beldecos	Princeton University, <i>Politics</i>	Daniel Lindley	Tufts University, <i>Int. Relat./French</i>
John Brown	United States Military Academy, <i>Physics</i>	Katherine Magraw	Yale University, <i>History</i>
Larry Brown	Howard Payne University, <i>Poli. Sci./Econ.</i> University of New Mexico, <i>M.A., Mngmnt./Poli. Sci.</i>	Gregg Martin	United States Military Academy, <i>Civ. Eng.</i>
Jeffrey Checkel	Cornell University, <i>Physics</i>	Brian Nichiporuk	University of Chicago, <i>Poli. Sci.</i>
Dean Cheng	Princeton University, <i>Politics</i>	Kevin Oliveau	Massachusetts Institute of Technology, <i>Comp. Sci.</i>
Owen Coté	Harvard University, <i>Soc. Stud.</i>	Matthew Partan	Harvard University, <i>Physics</i>
Neta Crawford	Brown University, <i>Ind. Stud.</i>	Richard Phillips	University of Mississippi, <i>Poli. Sci.</i>
Steven Flank	Cornell University, <i>Physics</i>	Laura Reed	Harvard University, <i>Sociol./Anthro.</i>
Randall Forsberg	Barnard College, <i>English</i>	Jeffrey Sands	Amherst College, <i>Amer. Stud.</i>
Sybil Francis	Oberlin College, <i>Chem.</i>	Robert Snyder	United States Military Academy, <i>Soc. Sci.</i>
Christopher Herrick	Cornell University, <i>Govern./Comp. Sci.</i>	Jeffrey Starr	University of Illinois, <i>Math./Biology</i> University of Illinois, <i>M.A., Int. Relat.</i>
Shannon Kile	Rice University, <i>History</i>	Judyth Twigg	Carnegie Mellon University, <i>Physics</i> University of Pittsburgh, <i>M.A., Poli. Sci.</i>
Eric Labs	Tufts University, <i>Poli. Sci./Classics</i>	Robert Zirkle	University of Illinois, <i>Physics/ Poli. Sci.</i>
Peter Liberman	Reed College, <i>Philos.</i>		

Dana Isaacoff
S.M. (Political Science), June 1991

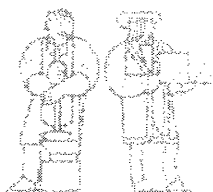
“Personal Problem as Political Statement: *Vis Inertiae* in the Life and Work of Henry Adams”

Jerrard Sheehan
S.M. (Technology & Policy), June 1991

“Commercialization and Transfer of Technology in the U.S. Jet Aircraft Engine Industry”

Timothy Temerson
S.M. (Political Science), June 1991

“Double Containment and the Origins of the U.S.-Japan Security Alliance”



PH.D. CANDIDATES — PRE-GENERALS

Keith Berner Northwestern University, *Speech*
Johns Hopkins University, *M.A.*,
Intern. Rela.

James Chung Stanford University, *Poli. Sci.*
Stanford University, *M.A.*, *Intern.*
Poli. Stud.

Eric Heginbotham Swarthmore College, *Poli. Sci.*

Dana Isaacoff Cornell University, *Labor Relat.*
New School for Social Research,
M.A., *Media*

Wade Jacoby Certificate, University of Bonn,
Euro. Stud.
Brigham Young, *Euro. Stud.*

Jane Kellett Oberlin College, *English*

Byoung-Joo Kim University of Wisconsin-Madison,
Poli. Sci./Econ./Intern. Rela.

Jonathan Ladinsky University of Chicago, *Intern. Rela./*
Sec. Stud.

Kevin O'Prey Grinnell College, *Intern. Rela.*

Christopher Savos Dartmouth College, *Poli. Sci.*

Taylor Seybolt University of Chicago, *Poli. Sci.*

Michael Shirer University of Iowa, *History*
University of Maryland, *M.P.M.*,
Nat. Sec.

Brian Taylor University of Iowa, *Poli. Sci.*
London School of Economics,
M.Sc., *Sov. Politics*

Timothy Temerson Grinnell College, *Poli. Sci.*

Trevor Thrall University of Michigan, *Poli. Sci.*

Jeanette Voas University of Virginia, *Russ. Stud.*
University of Michigan, *M.A.*, *Sov.*
Stud.

Sharon Weiner Northeast Missouri State University,
Poli. Sci./Econ.
Lancaster University, England, *M.A.*,
Strategic Stud.

Hong Xue Peking University, *Intern. Politics*
Nanjing University-The Johns
Hopkins School, *Certificate*,
Intern. Rela./US Defense Policy

MASTERS CANDIDATES

Paul Nagy Boston University, *Intern. Rela.*

Robert Forrester United States Military Academy,
Poli. Sci.

Jerrard Sheehan Massachusetts Institute of Technol-
ogy, *Electr. Eng.*

Craig Wheeler University of California-San Diego,
Defense Stud.

Cynthia Womack Duke University, *Pub. Policy*

The working groups bring together on a regular basis, faculty and students interested in examining a focused topic through individual and collaborative projects. Group sessions include research reviews, thesis presentations, guest speakers and research design efforts. All groups report on their progress in the spring at a DACS symposium.

AMPO

An outgrowth of last years' Security of the North Pacific (NORPAC) Working Group, AMPO (the Japanese acronym for the Treaty of Mutual Cooperation and Security signed by the US and Japan in 1951) is examining the future of US-Japan relations. Recent research has focused on the controversy over Japanese assistance in the Gulf war, the long-standing debate over burden-sharing, and further changes in the US-Japan security relations. Research includes analysis of the political, technical, and trade issues involved.

Richard Samuels (MIT Japan Program), *Working Group Leader*

CONVENTIONAL FORCES

The Conventional Forces Working Group explores military doctrines and strategies for non-nuclear forces that may be employed in a variety of settings. The group's recent work on armored breakthrough battles has been used to develop an understanding of the determinants of success in conventional warfare, and implications for encouraging stability.

Barry Posen, *Working Group Leader*

DEFENSE ENVIRONMENTAL ISSUES

Jointly offered by DACS, the Law and Technology Center of the Boston University Law School, and the Hazardous Materials Program at the MIT Center for Technology Policy and Industrial Development, this group explores the interaction of security and environmental problems. Research has focused on the possibility of limiting the environmental effects of the Gulf War. Currently underway is an examination of the effects of the fighting including the Kuwaiti fires, the Gulf spill, and the environmental hazards of bombing facilities in Iraq.

Harvey M. Sapolsky (MIT), **Michael Baram** (Boston University Law School), and **John Ehrenfield** (MIT Hazardous Materials Program), *Working Group Leaders*

DEFENSE POLITICS

The Defense Politics Working Group is concerned with the internal politics of the U.S. military and with civil-military relations in an era of reduced defense expenditures. The working group's effort this year has focussed on the question of lift—the capacity to transport military equipment and personnel by air and sea from the United States to areas of potential conflict on a timely basis.

Harvey M. Sapolsky, *Working Group Leader*

NEW DIRECTIONS IN INTERNATIONAL SECURITY AND DEFENSE POLICY

Organized to respond to the rapidly changing world events that represent the end of the Cold War, the “New Directions” Working Group focused this year on an investigation of post-Cold War conflicts to specify the nature of the changed environment, using as a basis for their study four conflicts based upon geographical diversity and various resolution techniques. The spring semester specifically dealt with the U.S. response to changes in Eastern Europe and the Soviet Union.

George Rathjens and Jack Ruina, *Working Group Leaders*

SOVIET SECURITY STUDIES

The oldest of the working groups, and a special research unit of the DACS Program, the Soviet Security Studies Working Group explores the rapidly changing political conditions under which the Soviet Union formulates its security strategies. Recent research has focused on a effort aimed at examining Soviet defense economic decisionmaking in the 1990s.

Stephen M. Meyer, *Working Group Leader*

TECHNICAL STUDIES IN DEFENSE AND ARMS CONTROL POLICY

The Technical Studies Working Group attempts to use its scientific and technical expertise to examine the implications of weapons technology, by assessing the military capability of new weapons systems and evaluating the potential influence of these capabilities for security planning. Based on the recent conflict in the Gulf, the Working Group has been examining the effectiveness of non-nuclear air defense systems such as the Patriot and Hawk against chemically-armed tactical ballistic missiles. Ongoing research includes a study of long-range, nuclear-armed cruise missiles and the threat of surprise attack posed by such missiles, threat of possible proliferation of cruise missiles to Third World nations, and an analysis of the relationship between the military and commercial aerospace industries.

Theodore Postol, *Working Group Leader*

SELECTED PUBLICATIONS • 1990/1991

Keith Berner, "Morality and Bush Foreign Policy," op-ed piece, *The Christian Science Monitor*, April 17, 1991.

Barry M. Blechman, William J. Durch, and Kevin P. O'Prey, *Regaining the High Ground: NATO's Stake in the New Talks on Conventional Armed Forces in Europe* (New York: St. Martin's Press, May 1990).

Michael W. Chinworth and Dean Cheng, "The United States and Asia in the Post-Cold War World," *SAIS Review* (Winter-Spring 1991).

Avner Cohen and Marvin Miller, "The Nuclear Specter," *Washington Post*, August 3, 1990.

Avner Cohen and Marvin Miller, "Facing the Unavoidable: Israel's Nuclear Monopoly Revisited," *Journal of Strategic Studies* (September 1990).

Avner Cohen and Benjamin Frankel, "Gulf War Saved Iraq From Nuclear Attack (Israelis have been spared from having to use their ultimate weapons against a difficult foe)," op-ed piece, *Los Angeles Times*, February 22, 1991.

Avner Cohen and Marvin Miller, "Defusing the Nuclear Mideast," *New York Times*, May 30, 1991.

Avner Cohen and Marvin Miller, "How to Hatch Arms Controls," *The Jerusalem Report*, June 6, 1991.

Owen Coté, "The Trident and the Triad: Collecting the D-5 Dividend," *International Security* (Fall 1991).

Hugh Gusterson, book review of *The Genocidal Mentality: Nazi Holocaust and Nuclear Threat* (by Robert Lifton and Erik Markusen) in *Nuclear Texts and Contexts* (Fall 1990).

Hugh Gusterson, "Nuclear War, the Gulf War, and the Disappearing Body," *Journal of Urban and Cultural Studies* (June 1991).

Hugh Gusterson, "Orientalism and the Arms Race: An Analysis of the Neo-colonial Discourse on Nuclear Non-Proliferation," Occasional Paper #47, Center for Psychosocial Studies, Chicago.

Hugh Gusterson, Review of Debra Rosenthal's *At the Heart of the Bomb in Nuclear Times*, Summer 1991.

Hugh Gusterson, "The Peace Dividend and the Cold War Narrative," *Human Peace*, Summer 1991.

Stephen M. Meyer, "The Prospects for Technological Innovation in Soviet Military R&D in the 1990s," in Charles Wolf, ed., *Defense and the Soviet Economy: Military Muscle and Economic Weakness*, (forthcoming, 1991).

"MIT's Stephen Meyer Says The Soviet Military's Influence Over Foreign Policy Is On The Wane" (Interview with David J. Lynch), *Defense Week*, May 29, 1990.

- Brian Nichiporuk, "Status-Quo States and Offensive Strategies: Are They Compatible?" *Chicago Review of International Affairs* (Winter/Spring 1990).
- Kevin O'Prey and Peter Almquist, "Beating Swords Into Agricultural Complexes: Soviet Economic Conversion," *Arms Control Today* (December 1990).
- Barry R. Posen, "Hussein Is No Match for the U.S.," *Los Angeles Times*, August 10, 1990.
- Barry R. Posen, "The Defense Resource Riddle," in Beverly Crawford, Editor, *The New Europe Asserts Itself: A Changing Role in International Relations*, Institute for International Studies, University of California at Berkeley, 1990.
- Barry R. Posen, "Iraq Must Get Word: It Will Lose," op-ed piece, *Boston Sunday Globe*, November 25, 1990.
- Barry R. Posen, "Crisis Stability and Conventional Arms Control," in *Daedalus* (Winter 1991).
- Barry R. Posen, "Military Mobilization in the Persian Gulf Conflict," *SIPRI Yearbook 1991: World Armaments and Disarmament*. Oxford: Oxford University Press, 1991.
- Barry R. Posen, *Inadvertant Escalation: Conventional War and Nuclear Risks*, Ithaca: Cornell University Press, forthcoming Fall 1991.
- Theodore A. Postol, "Whoops! Patriot Missile Sputters," Opinion section, *San Diego Tribune*, July 18, 1991.
- George W. Rathjens, "Minimum Deterrence," #CTI-13-90, Center for Technical Studies on Security, Energy and Arms Control, Lawrence Livermore National Laboratory, January 15, 1991.
- George W. Rathjens, "Energy and Climate Change," in *Preserving the Global Environment*, Jessica Tuchman Mathews, ed., Norton, New York, 1991.
- George W. Rathjens and Marvin Miller, "Nuclear Proliferation in the Post-Cold War World," *Technology Review*, forthcoming Summer 1991.
- Harvey M. Sapolsky, Review of James A. Morone, "The Democratic Wish," *Journal of Health Politics, Policy and Law* (forthcoming).
- Harvey M. Sapolsky (edited with R. Crane, R. Neuman, and E. Noam), *The Telecommunications Revolution*, (London, UK: Routledge, 1991).
- Harvey M. Sapolsky (with Owen Coté), "Lift Myths," *Breakthroughs*, (Spring 1991).
- Harvey M. Sapolsky, "Tanks," *MIT Faculty Newsletter* (October 1990).
- Harvey M. Sapolsky, "Militaries: Familiar but Unusual Organizations," (with Owen Coté), prepared for Organizational Issues in U.S. Nuclear Policy Workshop, Berkeley, CA, September 1990.
- Harvey M. Sapolsky (with Owen Coté), "A Baker's Dozen: The Future of Carriers in the Navy," *Breakthroughs* (Fall 1990).
- Harvey M. Sapolsky, "The Politics of Risk," *Daedalus* (Fall 1990).
- Jonathan Shimshoni, "Technology, Military Advantage, and World War I: A Case for Military Entrepreneurship," *International Security* (Winter 1990/91).
- Judyth Twigg, "Balancing the Soviet Military and Civilian Economies," in Eric Arnett, Editor, *Science and International Security*, American Association for the Advancement of Science, Washington, DC, December 1990.
- Stephen Van Evera, "Primed for Peace: Europe After the Cold War," *International Security* (Winter 1990/91).
- Jeanette Voas, "Preventing Future Afghanistans: Reform in Soviet Policymaking on Military Intervention Abroad," CNA Occasional Paper, Center for Naval Analyses, August 1990.
- Jeanette Voas, "Soviet Attitudes Towards Ballistic Missile Defence and the ABM Treaty," *Adelphi Paper* 225, Winter 1990.

WORKING PAPERS

Barry R. Posen, Professor of Political Science, MIT, "Political Objectives and Military Options in the Persian Gulf," November 5, 1990 (No. WP 90-1)

Myron Weiner, Ford International Professor of Political Science, MIT and Director, MIT Center for International Studies, "Security, Stability, and International Migration," December 1990 (No. WP 90-2)

Avner Cohen, Lecturer, Department of Philosophy, Tel Aviv University and Marvin Miller, Senior Research Scientist, Department of Nuclear Engineering, MIT, "Nuclear Shadows in the Middle East: Prospects for Arms Control in the Wake of the Gulf Crisis," December 1990 (No. WP 90-3)

Theodore A. Postol, Professor of Science, Technology and National Security Policy, "The Prospects for Successful Air-Defense Against Chemically-Armed Tactical Ballistic Missile Attacks on Urban Areas," March 1991 (No. WP 91-1)

Brian Nichiporuk, Doctoral candidate in political science, MIT, "The Pivotal Power: America in the 1990s," May 1991 (No. WP 91-2)

SPECIAL SEMINARS

"Perspectives on the Persian Gulf,"

A lecture series sponsored by the MIT Department of Political Science during the Independent Activities Period, January 14–18, 1991 (No. S B-1)

RESEARCH JOURNAL

Breakthroughs Vol. I, No. 1
Fall 1990

Breakthroughs Vol. I, No. 2
Spring 1991

RESEARCH NOTES

Soviet Defense Notes — A publication of the Soviet Security Studies Working Group, published approximately six times a year.

DACS SEMINAR NOTES

Summaries of the sixteen DACS Seminars held during the 1990–1991 academic year.

SCIENCE, TECHNOLOGY AND INTERNATIONAL SECURITY SEMINAR NOTES

Summaries of the twenty Science, Technology and International Security Seminars held during the 1990–1991 academic year.

OUTSIDE PROFESSIONAL ACTIVITIES

STEPHEN M. MEYER

- Gave a presentation on May 23, 1990, before the Joint Chiefs of Staff on "Soviet-Military Relations"
- Briefed President Bush at the White House on May 24, 1990, in preparation for the May 1990 Summit with Gorbachev.
- Testified before the House Armed Services on May 24, 1990, on "The Fading Threat: Soviet Conventional Military Power in Decline."
- Participated in a week long series of meetings at Los Alamos National Laboratory in June on the future U.S. nuclear force posture.
- Travelled to the Soviet Union twice during June and July 1990 as part of a United Nations-sponsored group, to participate in conversations about transforming the Soviet economy into a market system and converting Soviet military production facilities into civilian industries.
- Spoke at the Foreign Service Institute in Washington, D.C. on December 4, 1990, on the subject of the political breakup of the Soviet Union in the next three years.
- On December 5, 1990, Meyer delivered a paper on Soviet R&D to the Scientific Technical Intelligence Committee, an intelligence community panel.
- Participated in briefings on Strategic Defense at the Department of Defense on December 6, 1990.
- Testified before the Senate Armed Services Committee on February 26, 1991, on the politicization of the Soviet military.
- Gave a talk at MIT Lincoln Laboratory on March 12, 1991, on "The USSR Today."
- On May 1, 1991, Meyer gave a talk on "The Role of the Soviet Military in Soviet Arms Control Policy" at Columbia University for the University Seminar on Arms Control sponsored by the Harriman Institute.

BARRY R. POSEN

- In June 1990 Posen participated in a working group on "The Diplomatic Utility of Naval Presence" organized by the Center for Naval Analyses.
- Attended a conference sponsored by Harvard's Olin Center for Strategic Studies in June 1990.
- Participated in an Office of Technology Assessment conference on "The Future Force Structure of the U.S. Military," August 1990.
- During August 9-10, Posen appeared on Channel 5 WRKO-radio morning talk show, was interviewed by Channel 5 for the local evening news; discussed the Iraq situation in depth on PBS.
- Served as a discussant for the Workshop on Organizational Issues in U.S. Nuclear Policy session at a meeting sponsored by the National Research Council Committee on Contributions of Behavior and Social Science to the Prevention of Nuclear War, held September 17-18, Oakland, California.

continued on next page...

**OUTSIDE
PROFESSIONAL
ACTIVITIES**

- Discussed U.S. options in and potential outcomes of the Iraqi conflict at a symposium on reconstruction in the Middle East held on September 26, 1990.
- Participated in a workshop on “The Long Peace: Prospects for Continuation” sponsored by the Committee on International Security Affairs of the American Academy of Arts and Sciences and held at the University of Rochester, New York, October 19–20, 1990.
- Served as defense consultant to Channel 68 (Christian Science monitor TV) and was interviewed by them as well as Channel 2 (PBS) and WEEI News Radio during the months of January, February, and March 1990 on Gulf War matters.
- Participated in a March 4–6, 1991, trip sponsored by the Council on Foreign Relations which included a visit to Norfolk area commands, including a trip to Camp Lejeune (Headquarters of the 2nd Marine Expeditionary Force), the amphibious assault ship LHD1—the Wasp, and ended with a visit to Langley Air Force Base.

THEODORE A. POSTOL

- Participated in the Second International Summer School on Science and World Affairs held at Princeton University August 6–16, 1990.
- On February 1, Postol gave talks on “A Review of the U.S. and Soviet Nuclear Arsenals” and “The Effects of Nuclear Weapons” at Stanford University Medical School.
- Gave a seminar on “ABM Systems We Know How to Build,” sponsored by the MIT Plasma Fusion Center on February 15, 1991.
- Testified on the Patriot missile and discussed lessons learned from the Gulf War before the House Armed Services Committee, April 16, 1991.

GEORGE W. RATHJENS

- Delivered a lecture at an international security workshop in Dubrovnik, Yugoslavia, in June 1990.
- During July 1990 Rathjens helped organize and lectured at the Bologna, Italy, workshop which was run by the University of Bologna and dealt with problems in international security.
- Participated during July 1990 in a L’Aquila, Italy, workshop which dealt with problems in international security.
- Attended the annual meeting of the Aspen Strategy Group in Colorado during August 1990.
- Participated in a meeting on The Future of Nuclear Weapons, sponsored by Livermore National Laboratory, held in California October 22–24, 1990.
- Testified before the Senate Foreign Relations Committee on December 6, 1990, concerning Iraqi nuclear weapons aspirations.
- Participated in January 14–16, 1991 meeting held under the auspices of the Indian Ocean Center for Peace Studies in Perth, Australia, on “Security Problems in the Indian Ocean Area. He collaborated with Marvin Miller on two papers for the meeting dealing with nuclear weapons proliferation.

JACK RUINA

- Delivered a lecture at a June workshop in Geneva, Switzerland, concerning nuclear forces in Europe.
- During July 1990 Ruina helped organize and lectured at the Bologna, Italy, workshop which was run by the University of Bologna and dealt with problems in international security.
- Participated during July 1990 in a L'Aquila, Italy, workshop which dealt with problems in international security.
- Ruina travelled to England as a member of the Pugwash Council to attend the organization's meeting on International Security and Arms Control, held at the University of London Campus in Egham on September 14, 1991.
- Participated in a meeting on The Future of Nuclear Weapons, sponsored by Livermore National Laboratory, held in California October 22–24, 1990.
- Participated in the “Workshop on Future International Space Policy” held January 9–11, 1991, at the University of California/San Diego.
- During January 1991 Ruina took part in discussions on nuclear weapons developments at the Lawrence Livermore National Laboratory in California.
- In March 1991 Ruina was invited to serve on the Advisory Panel of the OTA study, “Managing Our Defense Industrial Strength in a Changing Security Environment.”

**OUTSIDE
PROFESSIONAL
ACTIVITIES**

HARVEY M. SAPOLSKY

- Spoke to a group of West Point cadets visiting Boston on October 12, 1990, as part of the annual Domestic Affairs Forum.
- Lectured at the U.S. Military Academy on November 28/29, 1990, where he serves as Olin Visiting Professor in the Social Sciences Department during 1990–91.
- Gave a luncheon talk on “The DACS Program and the New World” on November 8, 1990, at a meeting of the Society of Retired MIT Professors.
- Participated in a December 14–16, 1990, conference entitled “International Security in a New Global Era,” sponsored by the Hewlett and Johnson foundations and held in Racine, Wisconsin.
- Helped organize the five-day symposium MIT held on the Gulf Crisis January 14–18, 1991, speaking on the 17th about the political and military consequences of the war.
- Served as a panelist at a seminar on “Ethics, Technology and Public Policy” sponsored by the MIT Program in Science, Technology and Society, January 1991.
- Served as a panel member for a discussion of “Federal Research Support in the 1990s: A Post Mortem of the NSF Magnet Lab Decision,” sponsored by the MIT Francis Bitter National Magnet Laboratory, and held in January 1991.
- Interviewed by NHK-Japan Broadcasting Corporation on March 5, 1991, for a special three-hour television documentary on trends in long-term international security affecting Japan.
- Organized two days of meetings on the West Coast for DACS faculty co-sponsored by the MIT Industrial Liaison Program and the MIT Alumni Association, March 26/27, 1991.
- Presentations April 29–May 2, 1991, as Olin Visiting Professor, Social Science Department, U.S. Military Academy.
- Organized symposium commemorating the achievements of Vannevar Bush which included discussions of civilian involvement in defense R&D decision-making and U.S. science policy, held at MIT on May 30/31, 1991.
- Participated in a conference on war and the environment arranged by Greenpeace, London School of Economics, and University of London, June 3, 1991.

TEACHING AT DACS

The program's courses — what MIT prefers to call subjects — are open to all students eligible to attend classes at MIT, including cross enrollers from Harvard and Wellesley. Most of the subjects are offered at the graduate level and through the Political Science Department.

Political Science doctoral candidates may use Defense and Arms Control Studies as one of their fields of concentration. Within that context, defense and arms control studies has two principal objectives: first, it introduces the student to the study of American defense policy, including the policy process, arms control, force structure and military budgets. Second, it introduces the student to the study of the role of force in international politics and how countries have historically pursued their security interests. Students are expected to develop competence in the methods of systems analysis, technology assessment, and strategic reasoning that shape the size and composition of US strategic nuclear and general purpose forces. The international military competition, the prospects for arms control and their implications for US force planning receive special consideration in several subjects. Others examine some of the same issues by contrasting US experiences and approaches with those of rivals and allies.

Students who plan to offer Defense and Arms Control Studies for the general examination take two subjects from those listed below in the Forces and Force Analysis section, and one subject each from the listing in the Defense Politics and in the Comparative Defense Policy sections. Competence in technical analysis is required. A background in economics to intermediate level with particular emphasis on macroeconomics and public finance is advisable. The subjects in the Forces and Force Analysis section will provide sufficient review of the technical approaches to be examined.

The write-off requirement is three subjects with equal distribution among the three sections preferred although approval for alternative distributions may be granted in consultation with field faculty. A number of substantive fields in the Political Science Department deal with important determinants of US defense programs and expenditures. Among the most closely related are: Science, Technology and Public Policy; American Politics; International Relations and Foreign Policy; and Soviet Studies. Students of defense policy are also encouraged to take subjects in economics.

The subjects offered at DACS are listed on the following pages...

FORCES AND FORCE ANALYSIS

17.476 — Analysis of Strategic Forces (Postol)

Introduces the assessment of strategic nuclear forces. Emphasizes the development of force requirements and methods of analyzing alternative force postures in terms of missions, effectiveness, and cost. The history of US-Soviet strategic competition provides the backdrop against which the evolution of nuclear strategy and forces is considered.

17.482 — US General Purpose Forces (Posen)

Based on the concept of Grand Strategy as a system of interconnected political and military means and ends. Topics covered include US grand strategy, the organization of the US military, the defense budget, ground forces, tactical air forces, naval forces, power projection forces, and the control of escalation. Particular episodes of military history that offer insights into current conventional forces issues examined. Graduate students are expected to pursue the subject at greater depth through reading and individual research. Meets with 17.482.

**TEACHING
AT DACS**

17.486 — Nuclear Weapons and Arms Control: Technology and Policy (Rathjens and Ruina)

Reviews weapons systems developments and efforts at arms control. Focuses on the interaction of technological factors with strategic concepts, intelligence assessments, and political judgment. Topics: nuclear weapons technology and effects, nuclear weapons proliferation, strategic defensive and offensive weapons, and analysis of current strategic arms programs. To the extent possible, experts who have played key roles in the topics covered are invited to give guest lectures.

17.487 — Quantitative Approaches to Defense Problems (Rathjens)

Systems analysis of policy choices in the defense/arms control area. Consideration of cost and benefit criteria. Analytical approaches and critique of applications.

AMERICAN DEFENSE POLITICS

17.460 — Defense Politics (Sapolsky)

Examines the politics affecting US defense policies. Includes consideration of intra- and inter-service rivalries, civil-military relations, contractor influences, congressional oversight, and peace movements in historical and contemporary perspectives.

17.466 — Seminar in Arms Control and Defense Policy (Rathjens and Ruina)

Assessment of post-World War II arms control efforts and major issues in defense policy. Emphasis on current issues. Topics, varying from year to year, treated in some detail. Consideration of technical questions, political questions, economic and military impact. Examples: START and space-based ballistic missile defense.

COMPARATIVE DEFENSE POLICY

17.462 — Innovation in Weapons, Organization, and Strategy (Posen and Sapolsky)

Explores the origins, rate and impact of innovations in military organization, doctrine, and weapons. Emphasis on organization theory approaches. Comparison with non-military and non-U.S. experience included.

17.474 — Comparative Defense Management (Sapolsky)

Examines the management issues in the organization, equipping, and direction of military forces. Of particular interest is the weapon acquisition process — its politics, administration, and effects. Comparisons made with European, Israeli, and Soviet experience.

17.484 — Comparative Grand Strategy and Military Doctrine (Posen)

A comparative study of the grand strategies and military doctrines of the great powers in Europe (Britain, France, Germany, and Russia) from the late 19th to the mid-20th century. Examines strategic developments in the years preceding and during World Wars I and II. What factors have exerted the greatest influence on national strategies? How may the quality of a grand strategy be judged? What consequences seem to follow from grand strategies of different types? Open to undergraduates with permission of instructor.

17.490 — Soviet Defense Planning (Meyer)

Examines the political, economic, and military determinants of Soviet military policy. Soviet military doctrine, strategy, organization, and weapons procurement are studied from the perspective of Soviet defense planners.

ADVANCED AND CROSS-FIELD OFFERINGS

17.468 — Foundations of Security Studies (Posen)

Aims to develop a working knowledge of the theories and conceptual frameworks that form the intellectual basis of security studies as an academic discipline. Particular emphasis on balance of power theory, organization theory, civil-military relations, and the relationship between war and politics. The reading list includes Jervis, Schelling, Waltz, Blainey, von Clausewitz, Brodie, Allison, Steinbruner, and Huntington. Students write a seminar paper in which theoretical insights are systematically applied to a current security issue.

17.470 — Military Forces and Foreign Policy (Meyer)

A comparative examination of US and Soviet defense policies, foreign policies, and the use of their military forces in the postwar period. Analyzes 20 historical cases involving deterrence of central war, coercive diplomacy, crisis management, and limited intervention. Discusses implications for military force posture planning and military strategy. Graduate students are expected to pursue the subject at greater depth through reading and individual research.

17.480 — Technology, Politics, and the Arms Race (Postol and Kaysen)

Analyzes decisions to develop or acquire new weapons systems that had, or could have had, a major influence on the arms race. Examines the interplay of political and technical factors in the decision-making process. Representative weapons systems include the hydrogen bomb, the nuclear-powered submarine, tactical nuclear weapons, the Polaris submarine-launched ballistic missile, the B-1 bomber, MIRVs, the Moscow anti-ballistic defense, the US Safeguard/Sentinel missile defense, and others. Graduate students are expected to pursue the subject at greater depth through reading and individual research.

17.492 — Research Seminar in Soviet Security Studies (Meyer)

An advanced seminar that examines historical and contemporary issues in Soviet defense planning. Students select individual research topics and work with original source materials.

DACS SEMINARS. The DACS seminar series provides a forum for discussing current security topics and the varying disciplinary perspectives on security studies. The sessions are open to the wider MIT and Boston area communities. Each is followed by a reception and a dinner which allow graduate students and faculty members to meet informally with the speakers.

1990

September 25 — Stephen M. Meyer

Professor of Defense and Arms Control, MIT,
“Military Reform in the Soviet Union”

October 16 — Dean C. Allard

Director, Naval Historical Center, “The Dynamics of American Naval Rearmament, 1930-1941”

October 23 — Frank A. Tapparo

Director, Europe and Pacific Forces Division, Office of the Assistant Secretary of Defense (Program Analysis and Evaluation), “Total Force Policy”

November 6 — M. Gen. Gene A. Deegan, USMC

Vice Director, Joint Staff, JCS, “Defense Planning in Transition”

November 13 — Paul Y. Hammond

Distinguished Service Professor, School of Public and International Affairs, University of Pittsburgh, “Large Scale Foreign Policy Change”

November 20 — Bernard E. Trainor

Director, National Security Programs, Kennedy School of Government, Harvard University, “Reflections on the Iran/Iraq War”

November 27 — John Mearsheimer

Chairman, Department of Political Science, University of Chicago, “Why We Will Miss the Cold War”

SCIENCE, TECHNOLOGY, AND NATIONAL

SECURITY SEMINARS. This seminar series provides an opportunity for scientifically knowledgeable individuals in the Boston area to join with program faculty and students in examining technical topics of current policy relevance.

1991

February 5 — Geoffrey T. H. Kemp

Senior Associate, Carnegie Endowment for International Peace, “Middle East Arms Control and Stability After the Gulf War”

February 12 — Nazli Choucri

Professor of Political Science, MIT, “The Geo-Politics of the Middle East: The Gulf Crisis and Beyond”

February 19 — W. J. Holland, Jr.

Rear Admiral, USN (Retired), “Command and Control of Naval Strategic Systems”

February 26 — Stephen Peter Rosen

Associate Director, Olin Institute for Strategic Studies, Harvard University, “The Problem of Regional Nuclear War”

March 5 — Morris A. Adelman

Professor of Economics Emeritus, MIT
“Middle East Oil”

March 12 — Richard P. Hallion

Charles A. Lindbergh Professor, National Air and Space Museum, Smithsonian Institution, “Air Power in Historical and Contemporary Perspective”

March 19 — Jack Ruina

Professor of Electrical Engineering, MIT, “Will Nuclear Weapons Testing Ever Be Stopped?”

April 1 — Michael D. Intriligator

Director, Center for International and Strategic Affairs, UCLA, “Prospects for Arms Control: Bilateral, Unilateral, Multilateral”

May 7 — Robert Jervis

Professor, Institute of War and Peace Studies, Columbia University, “How Better Will the New World Be?”

1990

October 3 — Jeffrey Smith

National Security Correspondent, “Nuclear Weapons Safety and Testing: The Technology and Politics”

October 10 — William Kaufmann

Senior Analyst, Brookings Institute and Professor, Kennedy School of Government, “New Defense Budgets for a Changing World”

**SEMINAR
SERIES**

October 17 — Ernst Frankel

Professor of Ocean Engineering, MIT, "The Future of the Surface Navy"

October 24 — Paul Kelley

Associate Group Leader, Solid State Physics, MIT Lincoln Laboratory, "Detecting Laser Anti-Satellite Tests: Results of a Federation of American Scientists Study"

October 31 — Richard Turco

Professor of Atmospheric Sciences, UCLA, "The Latest World on Nuclear Winter: Science and Policy"

November 7 — Ira Dyer

Professor of Ocean Engineering, MIT, "Potential Changes in the Nature of Anti-Submarine Warfare"

November 17 — Hans Bethe

Professor of Physics Emeritus, Cornell University, "The H-Bomb and Attempts at Arms Control"

November 28 — John Parmentola

Principal Scientist, MITRE Corporation, "Using Gravity to Monitor Arms Control Treaties"

December 5 — Thomas Nash

Head of Computing, Fermi National Accelerator Laboratory, "Human-Computer Systems in the Military Context"

1991

February 13 — Gene Covert

Professor of Aeronautics and Astronautics, MIT Department of, "Technical Findings Underlying the Challenger Disaster"

February 20 — Jan Roskam

Distinguished Service Professor, University of Kansas, "Aerodynamic Design Considerations for the B-2"

February 27 — Mark Sakitt

Assistant Director for Planning and Policy, Brookhaven National Laboratory, "Nuclear vs. Diesel Submarines: The New Debate"

March 6 — Barry Horowitz

Chief Executive Officer, MITRE Corporation, "Modernizing Electronics in the Department of Defense"

March 13 — Matthew Meselson

Professor of Biochemistry and Molecular Biology, Harvard University, "Chemical and Biological Warfare"

March 20 — Leonard Wilk

Technical Staff Member, Draper Laboratory, "Fundamentals of Inertial Navigation and Guidance"

April 3 — Joshua Epstein

Senior Fellow, The Brookings Institution and Woodrow Wilson School, "Modelling Conventional Warfare"

April 10 — John Cashen

Vice President, Advanced Projects and Chief Scientist, Northrop Corporation, "Flying Wings, Low Observable Technology, and the B-2 Bomber"

April 17 — Sherman Frankel

Professor of Physics, University of Pennsylvania, "Post-Launch Control of Strategic Nuclear Weapons"

April 24 — Sidney Drell

Professor and Associate Director, Stanford Linear Accelerator Center, "The Safety of Nuclear Weapons in the U.S. Arsenal"

May 1 — Henry Kendall

Professor of Physics, MIT, "What Can be Done to Prevent Accidental Missile Launches?"

DEFENSE SCIENCE SEMINARS. The Defense Science Seminar Series was begun in 1986 to explore issues relating defense technology to defense policy and arms control. Participants in the seminars include faculty, leaders in high technology firms, scientists and engineers, and advanced graduate students. The sessions have provided an opportunity to share ideas and perspectives on issues just at the horizon of policy concern.

November 2, 1990 — Sir Peter Levene

Chief of Defence Procurement, Ministry of Defence, United Kingdom "British Weapons Acquisition, Project Management Policies, and Future European and Transatlantic Armaments Cooperation"

April 1, 1991 — The Honorable John J. Welch, Jr.

Assistant Secretary of the Air Force, (Acquisition), "The Effect of Past and Current Weapons Procurement on the Gulf War and the Possible Impact of the Gulf War on Air Force Planning"

SPECIAL SYMPOSIUM

May 30-31, 1991

The Vannevar Bush Centennial Symposium

"Remembering the Past and Shaping the Future of American Science Policy", Part of the President Charles M. Vest Inauguration Series

DEFENSE AND ARMS CONTROL STUDIES PROGRAM • 1990/1991

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THE MIT CENTER FOR INTERNATIONAL STUDIES

Established in 1952, the Center for International Studies is the principal research center within MIT dealing with international relations and comparative area studies. While located within the School of Humanities and Social Science, the Center draws faculty and staff from throughout MIT and its activities are intended to serve the Institute as a whole.

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