Incidental Paper

Seminar on Intelligence, Command, and Control

Guest Presentations, Spring 1993:
Barry M. Horowitz, Randall M. Fort,
Gary W. O'Shaughnessy, Nina J. Stewart,
Walter Jajko, Edward D. Sheafer,
Michelle K. Van Cleave, Jerry O. Tuttle

**Program on Information
Resources Policy**

Harvard University
Center for Information Policy Research
Cambridge, Massachusetts

An incidental paper of the Program on Information
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Project Director:
Anthony G. Oettinger

PROGRAM ON INFORMATION RESOURCES POLICY
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Acknowledgments

Introduction

The papers in this volume are lightly edited tran-
scripts of presentations and discussions ordered in
the sequence in which they took place. The informal-
ity of oral exposition interrupted by questions or
comments has been preserved. Only pauses and
repetitions have been eliminated and tripping sen-
tences smoothed. Substance has, as far as possible,
been left unaltered. All guests made their presenta-
tions in an open forum, forewarned that neither
classified nor proprietary matters are appropriate in
a university classroom.

Much of the 1993 seminar series focused on new
demands being placed on the United States and the
new world order resulting from dramatic changes in
the international geopolitical picture in recent years
— breakup of the former Soviet Union and continued
turbulence in that regime, a volatile peace in South-
west Asia following the Persian Gulf War and new
conflicts that threaten global peace and stability.
Many of the speakers emphasized new threats to
U.S. national security caused by the changing global
geopolitical landscape. The promise of emerging
technologies in responding to these threats served as
a central underlying theme, while each speaker
highlighted final concerns that are forcing not only
widesweeping organizational changes in the U.S.
defense establishment, but also a significant shift in
the conceptual framework of DoD's doctrine and the
strategy of National Command Authorities that drives
U.S. national security policy. Each emphasized the
ever-increasing importance of effective command
and control and interoperability of forces in the
success or failure of future armed conflict.

Proceedings of the Harvard Seminar on Intelligence, Command, and Control

John F. Kennedy School of Government
Harvard University

Anthony G. Oettinger, Professor of Information Resources Policy, has had a continuing interest in the ways in which institutions draw on systems of people, policies, and technologies to gather and use information for survival and growth. Since 1980 his graduate seminar on intelligence, command, and control has explored this topic with a series of guest speakers from military organizations, civil government, and businesses. While the guest speakers tend to be practitioners of the decision-making process, some are theoreticians who attempt to see patterns in the chaos of day-to-day crises. Taken as a whole, the series chronicles the recent history of this field.

The following descriptions of previous volumes identify the speakers' roles at the time of their presentations.

Guest Presentations, Spring 1992. [186 pages; August 1994/Incidental Paper: I-94-4]
This year's seminar series focused on evolving threats to U.S. national security as Congress and National Command Authorities struggled to redefine America's global geopolitical interests and the organizational changes needed to meet them. Several speakers emphasized the stakes for new and advanced technologies in this national debate.

> **Roscoe M. Cougill,** Director, Command, Control, Communications and Computer Systems Directorate: "C^3 During Desert Shield and Desert Storm."

> **Richard L. Haver,** Assistant to the Secretary of Defense for Intelligence Policy: "The Process of Reorganization within the U.S. Intelligence Community."

> **James J. Hearn,** Deputy Director for Information Systems Security, NSA: "Information Systems Security."

> **Frank B. Horton,** Deputy Chief of Staff/Intelligence, HQ Strategic Air Command: "Command Plan and C^{3}I."

> **Richard J. Kerr,** Deputy Director of Central Intelligence: "The Evolution of the U.S. Intelligence System in the Post-Soviet Era."

> **Albert R. Lubarsky,** Director, C^{3}I for Counternarcotics, Department of Defense: "C^{3}I in Transition."

> **Richard C. Macke,** Director, Command, Control, Communications and Computer Systems, The Joint Staff: "C^{4}I for the Warrior."

> **John M. McConnell,** Director for Joint Staff Intelligence, J2: "The Role of the Current Intelligence Officer for the Chairman of the Joint Chiefs of Staff."

Guest Presentations, Spring 1991. [208 pages; February 1993/Incidental Paper: I-93-1]
This year's seminar series stressed the role of intelligence in organizations. A number of speakers addressed the challenges confronting the U.S. intelligence apparatus in the Post-Cold War political environment.

> **Lt. Col. C. Kenneth Allard,** USA, Special Assistant to the Under Secretary of Defense (Acquisition): "Thinking About Command and Control."

> **Duane P. Andrews,** Assistant Secretary of Defense (C^{3}I): "Restructuring the World of C^{3}I."

John H. Cushman, Sr., Lt. Gen. USA (retired): "Desert Shield/Desert Storm and the Future of Force Projection."

Carnes Lord, Assistant to the Vice President for National Security Affairs: "Bureaucratic Problems in Formulating National Strategy."

Eugene B. Lotochinski, Vice President, Marketing, Northern Telecom World Trade: "Global Communications Capabilities for the Banking Industry."

David Y. McManis, National Security Agency/CSS representative to DOD: "Technology, Intelligence and Command."

John M. Ruddy, Vice President, The MITRE Corporation: "Military Use of Satellite Communications."

Paul R. Schwartz, Major General, USA: "Coalition Command and Control in Desert Shield/Desert Storm."

Charles L. Stiles, President, Technology and Planning Assoc. Inc.: "The U.S. Sinai Support Mission."

Joseph S. Toma, Chief, Special Action Division, Joint Staff J6-A: "C^3: A View from Inside the Joint Staff."

Guest Presentations, Spring 1990 [146 pages; December 1991/Incidental Paper: I-91-3]
This year's seminar series stressed the role of intelligence in organizations. A number of speakers addressed the challenges confronting the U.S. intelligence apparatus in the Post-Cold War political environment.

Lt. Gen. James Cassity, Jr., USAF, Director, Command, Control & Communications (J-6), Joint Chiefs of Staff: "Restructuring Military Policy to Reflect Worldwide Political Changes."

Kenneth M. Duberstein, President and CEO of The Duberstein Group, formerly Chief of Staff to President Reagan: "The White House Information Process."

Thomas K. Latimer, Staff Director, House Permanent Committee on Intelligence, U.S. House of Representatives: "The Congressional Intelligence Committees."

James W. Lucas, Dean, School of Professional Studies, Defense Intelligence College: "The Information Needs of Presidents."

Gordon Negus, Executive Director, Defense Intelligence Agency: "Intelligence in Support of U.S. Foreign Policy."

Vice Admiral W.O. Studeman, Director, National Security Agency: "The Philosophy of Intelligence."

Major Gen. C. Norman Wood, Assistant Chief of Staff/Intelligence, U.S. Air Force: "The Policy Aspect of Intelligence."

Col. Joseph Zadarecky, II, Chief, Tactical Command and Control Division, Directorate of Operations, HQ U.S. Air Force: "The Role of the Air Force in U.S. Counternarcotics Policy."

Guest Presentations, Spring 1989 [132 pages; August 1990/Incidental Paper: I-90-3]
This year's presentations included continuing assessments of the Defense Reorganization Act of 1986, a look at the impact of new technologies on C^3I planning and perspectives on intelligence, command and control activities in some civilian domains.

James M. Fox, Assistant Director in Charge, New York City, Federal Bureau of Investigation: "Crisis Management at the FBI."

Robert T. Herres, General, USAF, and Vice Chairman, Joint Chiefs of Staff: "The Role of the Joint Chiefs After the 1986 Defense Reorganization Act."

Stuart E. Johnson, Director, Strategic Concepts Development Center, INSS, National Defense University: "Command and Control Education and Research."

John F. Magee, Chairman of the Board, Arthur D. Little, Incorporated: "Some Business Analogies to C^3I."

David Y. McManis, Director, Operations Security Organization, National Security Agency: "National Security and the 'Democratization' of Information."

John T. Myers, Lieutenant General, USA, and Director, Defense Communications Agency: "Future Directions for Defense Communications."

Charles A. Zraket, President and CEO, The MITRE Corporation: "Four Vital Issues in C^3I."

Guest Presentations, Spring 1988 [176 pages; March 1989/Incidental Paper: I-89-1]
Speakers in this series addressed a variety of topics, but two themes predominated. The first of these was the reorganization of the U.S. Department of Defense in accordance with the Goldwater-Nichols Reorganization Act of 1986. The second major theme was the role of Special Operations Forces and Low Intensity Conflict (SOF/LIC) in defense planning and organization.

Frank J. Breth, Brigadier General, USMC, Director of C^4I^2 Department/Director of Intelligence: "Getting in Front of C^4I^2 Problems."

Ruth M. Davis, President, Pymatuning Group, formerly an Assistant Secretary of Energy and Deputy Under Secretary of Defense: "Putting C^3I Development in a Strategic and Operational Context."

Robert T. Herres, General, USAF, and Vice Chairman, Joint Chiefs of Staff: "Strengthening the Chairman of the Joint Chiefs of Staff."

Rae M. Huffstutler, Deputy Director for Administration, formerly Director, National Photographic Interpretation Center, Central Intelligence Agency: "Intelligence Sources and Their Applications."

Robert C. Kingston, General, USA, (ret.), formerly Commander-in-Chief, United States Central Command: "The Special Operations Command: Structure and Responsibilities."

James R. Locher, III, Professional Staff Member, Senate Committtee on Armed Forces: "Special Operations and Low Intensity Conflict: A Congressional Perspective."

Earl F. Lockwood, President and Chief Executive Officer, Betac Corporation: "The Evolution of Special Operations Forces."

John F. McLaughlin, Executive Director, Program on Information Resources Policy, Harvard University: "The Rise in Low Intensity Conflict: A Theory."

Richard L. Thornburgh, Director, Institute of Politics, Kennedy School of Government, Harvard University, formerly Governor of Pennsylvania: "Three Mile Island: A Case Study in C^3I for Crisis Management."

Jerry O. Tuttle, Vice Admiral, USN, and Director, Command, control and Communications Organization of the Joint Chiefs of Staff (J-6): "Tailoring C^3I Systems to Military Users."

Guest Presentations, Spring 1987 [192 pages; May 1988/Incidental Paper: I-88-1]
Speakers explored the information requirements of national, military, and business organizations at a time of technological and organizational change in the military and civilian worlds. The reorganization of the U.S. Department of Defense in accordance with the Goldwater-Nichols Defense Reorganization Act of 1986 was the occasion for analysis and re-evaluation.

Archie D. Barrett, professional staff, House Armed Services Committee, formerly military staff assistant to the Executive Secretary of the Defense Organization Study: "Defense Reorganization: A View from the House."

Robert L. DeGross, provost, Defense Intelligence College: Teaching Intelligence."

Fred R. Demech, Jr., captain, U.S. Navy, formerly executive director, the President's Foreign Intelligence Advisory Board: "Making Intelligence Better."

Greg Foster, senior fellow, Institute for National Strategic Studies, National Defense University: "The National Defense University's Command and Control Program."

James R. Locher, III, professional staff, Subcommittee on Projection Forces and Regional Defense, Senate Committee on Armed Services: "Defense Reorganization: A View from the Senate."

George C. Lodge, professor, Harvard Graduate School of Business Administration, formerly director of information, U.S. Department of Labor and Assistant Secretary of Labor for International Affairs: "Ideology and National Competitiveness."

Eugene B. Lotochinski, vice president, market development, Northern Telecom Inc.: "The Information Management Marketplace."

Rodney B. McDaniel, executive secretary, National Security Council: "C^3I: A National Security Council Perspective."

Michael J. Zak, vice president, marketing, Concord Communications, Inc.: "Coming of Age in C^3I."

Guest Presentations, Spring 1986 [168 pages; February 1987/Incidental Paper: I-87-1]
The speakers this year addressed a variety of topics, with two predominant themes. The first was the manner in which organizations—military, diplomatic, business—obtain and use intelligence. The second theme was how organizations protect information from the growing threat of electronic interception.

Robert Conley, formerly Deputy Assistant Secretary for Advanced Technology and Analysis and Acting Assistant Secretary for Electronic Systems and Information Technology, Department of the Treasury: "Data Security in the Information Age."

Harold Daniels, Deputy Director for Information Security at the National Security Agency, formerly Assistant Deputy Director for Communications Security: "The Role of the National Security Agency in Command, Control and Communications."

John Grimes, Director of National Security Telecommunications and Director of Defense Programs (C^3) of the National Security Council: "Information Technologies and Multinational Corporations."

Bobby R. Inman, president and chief executive officer, Microelectronics and Computer Technology Corporation, formerly Director of the Office of Naval Intelligence, Director of the National Security Agency, and Deputy Director of Central Intelligence: "Technological Innovation and the Cost of Change."

Richard J. Levine, editorial director, data base publishing, Dow Jones & Company: "Data Base Publishing for Business Intelligence."

Mark Lowenthal, acting director, Office of Strategic Forces Analysis, Bureau of Intelligence and Research, Department of State: "The Quest for 'Good' Intelligence."

Clarence E. McKnight, Director for Command, Control, and Communications Systems, Organization of the Joint Chiefs of Staff, formerly Commanding General, U.S. Army Communications Commmand: "C^{3}I Systems at the Joint Level."

Lionel Olmer, formerly Under Secretary for International Trade, U.S. Department of Commerce, heading the International Trade Administration; currently member of Paul, Weiss, Rifkind, Wharton & Garrison, an international law firm: "Intelligence Techniques for the American Business Community."

Guest Presentations, Spring 1985 [180 pages; April 1986/Incidental Paper: I-86-1]
These presentations examined the link between defense organization and the efficacy of command, control, communications and intelligence, within the context of current debate over reorganization of the Joint Chiefs of Staff.

Archie D. Barrett, professional staff, House Armed Services Committee, formerly military staff assistant to the Executive Secretary of the Defense Organization Study: "Politics and the Military—The Climate for Reform."

Richard D. DeLauer, president, Orion Group Limited, formerly Under Secretary of Defense for Research and Engineering: "A Consultant's View."

Lincoln Faurer, formerly Director of the National Security Agency and Chief, Central Security Service, Fort Meade, Maryland: "The Role of Intelligence Within C3I."

Robert T. Herres, Commander in Chief, unified U.S. Space Command, Aerospace Defense Command, and North American Aerospace Defense Command, and Commander of the Air Force Space Command: "A CINC's View of Defense Organization."

Robert Hilton, consultant specializing in national and international security affairs and political risk analysis; formerly Vice Director for Operations, Joint Chiefs of Staff: "Roles of the Joint Chiefs of Staff in Crisis Management."

Samuel P. Huntington, director, Center for International Affairs, Harvard University, formerly Coordinator of Security Planning for the National Security Council: "Centralization of Authority in Defense Organizations."

Donald Latham, Assistant Secretary of Defense, C3I: "A View from Inside OSD."

Richard G. Stilwell, chairman, Department of Defense Security Review Commission; formerly Deputy Under Secretary of Defense for Policy: "Structure and Mechanisms for Command and Control."

Guest Presentations, Spring 1984 [125 pages; February 1985/Incidental Paper: I-85-2]
These presentations explored the roles of communication, information, and warning systems in peacekeeping, crisis management, and economic security.

Richard S. Beal, until his death in 1984, Special Assistant to the President for National Security Affairs and Senior Director for Crisis Management Systems and Planning: "Decision Making, Crisis Management, Information and Technology."

Stuart E. Branch, Deputy Assistant Secretary for Communications in the Department of State and member, National Communications System and U.S. Communications Security Board of the National Security Council: "C3I and Crisis Management."

Leo Cherne, executive director, Research Institute of America: "Television News and the National Interest."

Hubert L. Kertz, formerly president and managing director, American Bell International, Inc., with **Anthony G. Oettinger**: "With AT&T in Iran."

David McManis, National Intelligence Officer for Warning and Director, National Warning Staff: "Warning as a Peacekeeping Mechanism."

Robert A. Rosenberg, Vice Commander in Chief for the North American Aerospace Defense Command and Assistant Vice Commander for the U.S. Air Force Space Command: "Strategic Defense: A Challenge for C3I."

James W. Stansberry, formerly Commander of the Air Force Electronic Systems Division: "Cost-Effective Rearmament."

W. Scott Thompson, director of programs for the American Security Council Foundation and president, Strategic Research Associates: "U.S. - U.S.S.R. Information Competition."

(The seminar was not held during 1983.)

Guest Presentations, Spring 1982 [181 pages; December 1982/Incidental Paper: I-82-3]
This series of C3I sessions emphasized national security issues, exploring policy and planning as well as procurement and implementation perspectives. Guests discussed not only the impact within the defense community of rapidly expanding technology but also the public consequences— national and international—of intelligence gathering and use.

Richard D. DeLauer, Under Secretary of Defense for Research and Engineering: "The View from the Hot Seat."

Hillman Dickinson, Director for Command, Control and Communications Systems, Joint Chiefs of Staff: "Planning for Defense-Wide Command and Control."

Gerald P. Dinneen, corporate vice president, Science and Technology, Honeywell, Inc., formerly Assistant Secretary of Defense for Communications, Command, and Control, and Intelligence: "C3 Priorities."

Richard H. Ellis, formerly commander in chief, Strategic Air Command: "Strategic Connectivity."

R. Thomas Marsh, commander, Air Force Systems Command: "Air Force C3I Systems."

Thomas H. McMullen, deputy commander, Tactical Air Command: "A Tactical Commander's View of C3I."

William G. Miller, associate dean and professor of international politics, Fletcher School of Law and Diplomacy, Tufts University: "Foreign Affairs, Diplomacy and Intelligence."

Richard G. Stilwell, Deputy Under Secretary of Defense for Policy: "Policy and National Command."

Guest Presentations, Spring 1981 [214 pages; December 1981/Incidental Paper: I-81-9]
The perspective in this volume encompasses the Congress, combatant commands, defense contractors, and technological innovators. As part of an ongoing open forum on C3I, the sessions brought together the intersecting vantage points of industrial suppliers and innovators, government funders and decision makers, and principals in military intelligence.

William O. Baker, formerly chairman, Bell Laboratories, Inc.: "The Convergence of C3I Techniques and Technology."

John H. Cushman, lieutenant general, U.S. Army, (ret.), management consultant, : "C3I and the Commander: Responsibility and Accountability."

Richard D. DeLauer, executive vice president, TRW, Inc.: "A Major Contractor's View of C3I."

B.R. Inman, Deputy Director of Central Intelligence: "Issues in Intelligence."

James M. Osborne, formerly senior vice president, E-Systems, Inc.: "Meeting Military Needs for Intelligence Systems."

David C. Richardson, vice admiral, U.S. Navy (ret.); consultant, Defense Intelligence Review Panel, the Defense Science Board, and other panels: "The Uses of Intelligence."

Charles Rose, U.S. representative; chairman, Policy Group on Information and Computers: "Congress and C3I."

Charles W. Snodgrass, vice president, Financial Planning and Management, Electronic Data Systems Corp., formerly assistant secretary of the Air Force for financial management: "Funding C3I."

Guest Presentations, Spring 1980 [183 pages; December 1980/Incidental Paper: I-80-6]
These first presentations in the series described C3I principally from the perspective of national policymaking in the executive branch.

William E. Colby, counsel, Reid & Priest, formerly Director of Central Intelligence: "The Developing Perspective of Intelligence."

B.R. Inman, director, National Security Agency and chief, Central Security Service: "Managing Intelligence for Effective Use."

William Odom, military assistant to the President's assistant for National Security Affairs: "C3I and Telecommunications at the Policy Level."

Lionel Olmer, Director of International Programs, Morotola, Inc; formerly acting executive secretary, President's Foreign Intelligence Advisory Board: "Watchdogging Intelligence."

Lee Paschall, consultant, formerly director, Defense Communications Agency and manager, National Communications System: "C3I and the National Military Command System."

Robert A. Rosenberg, policy assistant to the President for National Security Affairs, National Security Council Staff: "The Influence of Policy Making on C3I."

Raymond Tate, formerly Deputy Assistant Secretary of the Navy and Deputy Director of the National Security Agency: "Worldwide C3I and Telecommunications."

A.K. Wolgast, manager, Planning and Analysis Dept., EXXON International: "Oil Crisis Management."

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Glossary

AAA	anti-aircraft artillery	DTC-1	desktop computer 1
ABM	antiballistic missile	EHF	extremely high frequency
AFIC	Air Force Intelligence Command	ELINT	electronic intelligence
		EMP	electromagnetic pulse
ANSI	American National Standards Institute	EPA	Environmental Protection Agency
ARN	air request net	ESC	Electronic Systems Center
ASD	Assistant Secretary of Defense	FBIS	Foreign Broadcast Information Service
ATO	air tasking order		
AWACS	Airborne Warning and Control System	FC	field command
		FIST	fire or first support team; fleet imagery support terminal
CI	counterintelligence		
CINC	Commander in Chief	FOTC	Force Tactical Commander
CINCLANTFLT	Commander in Chief, Atlantic Fleet	FTC	Force Tactical Commander
		FYDP	Future Years Defense Program
CIO	Central Imagery Office	GDIP	General Defense Intelligence Program
CM	countermeasures		
COMSEC	communications security	GEO	geosynchronous orbit
CONUS	continental United States	GL	generation language
CRADA	cooperative R&D agreement	GPS	global positioning system
CTAPS	Contingency Theater Automated Planning System	HUMINT	Human Intelligence
		IMINT	Imagery Intelligence
DAMA	demand assignment multiple access	INMARSAT	International Maritime Satellite Organization
DARPA	Defense Advanced Research Projects Agency	INSCOM	Intelligence and Security Command
DBMS	database management system	IR	infrared
DCI	Director of Central Intelligence	ISDN	Integrated Services Digital Network
DDN	Defense Data Network		
DI	Directorate of Intelligence	JDISS	Joint Defense Intelligence Support System
DIA	Defense Intelligence Agency		
DISA	Defense Information Systems Agency	JIC	Joint Intelligence Center
		JICLANT	Joint Intelligence Center, Atlantic Command
DODIIS	DOD Intelligence Information System	JICPAC	Joint Intelligence Center, Pacific Command
DSCS	Defense Satellite Communications Systems	JOTS	Joint Operational Tactical System
DS&T	Directorate of Science and Technology		

JSTARS	Joint Surveillance Target Attack Radar System	OTCIXS	Officer Tactical Command Information Exchange System
JTIDS	Joint Tactical Information Distribution System	PFIAB	President's Foreign Intelligence Advisory Board
MAD	mutual assured destruction	POM	Program Objective Memoranda
MCEB	Military Communications and Electronics Board	RISC	reduced instruction set computer
MIPS	million instructions per second	RORSAT	Soviet radar ocean reconnaissance/surveillance satellite
MOS	metal oxide semiconductors		
MRL	multiple rocket launcher	ROW	rest of the world
MTCCS	Marine Tactical Command and Control System	RPV	remotely piloted vehicle
NCTMS	Navy Computer Telecommunication Master Station	SCIF	secure compartmented information facility
NCTMSLANT	Navy Computer Telecommunication Master Station – Atlantic Fleet	SDI	Strategic Defense Initiative
		SECDEF	Secretary of Defense
		SEW	Space and Electronic Warfare
NCTMSs	Navy Computer Telecommunication Master Stations	SHF	super high frequency
NDU	National Defense University	SIGINT	Signal Intelligence
NFIP	National Foreign Intelligence Program	SINCGARS	Single-Channel Ground and Air Radio System
NIC	National Intelligence Council	SLGRs	small, lightweight GPS receivers
NIS	Naval Intelligence Service	SPO	system program office
NITs	national intelligence teams	SSC	superconducting supercollider
NORTELCOM	northern telecom	STU-III	secure telephone unit
NOSC	Naval Ocean Systems Center	TAC-3	Tactical Advanced Computer 3
NRO	National Reconnaissance Office	TADIXS	Tactical Digital Information Exchange System
NSA	National Security Agency		
NSR	National Security Review	TFCC	Tactical Flag Command Center
NTCCA	Navy Tactical Command Center Afloat	TIARA	Tactical Intelligence and Related Activities
OMB	Office of Management and Budget	TQM	total quality management
OPINTEL	operational intelligence	TRI-TAC	Tri-Service Tactical Communications
OSD	Office of the Secretary of Defense	UHF	ultra high frequency
OSI	Office of Special Investigations	UIC	unit identification code
		VTC	video telecommunications
OSS	Office of Strategic Services	WWMCCS	Worldwide Military Command and Control System