Incidental Paper

Seminar on Command, Control, Communications, and Intelligence

Guest Presentations, Spring 1988:
Rae M. Huffstutler, Richard L. Thornburgh, James R.
Locher, III, Robert T. Herres, John F. McLaughlin,
Jerry O. Tuttle, Earl F. Lockwood, Robert C. Kingston,
Frank J. Breth, Ruth M. Davis

**Program on Information
Resources Policy**

Harvard University
Center for Information Policy Research
Cambridge, Massachusetts

An incidental paper of the Program on Information
Resources Policy

Seminar on Command, Control, Communications, and Intelligence
Spring 1988
Guest Presentations by:

Rae M. Huffstutler, Richard L. Thornburgh, James R.
Locher, III, Robert T. Herres, John F. McLaughlin, Jerry
O. Tuttle, Earl F. Lockwood, Robert C. Kingston, Frank
J. Breth, Ruth M. Davis

I-89-1. March 1989

Project Director:

John F. McLaughlin

Printing 5 4 3 2 1

PROGRAM ON INFORMATION RESOURCES POLICY
Harvard University   Center for Information Policy Research

Affiliates

Action for Children's Television
American Telephone & Telegraph Co.
Ameritech Publishing
Anderson, Benjamin, Read &
  Haney, Inc.
Apple Computer, Inc.
Arthur D. Little, Inc.
Auerbach Publishers, Inc.
Bell Atlantic
BellSouth Corporation
Booz-Allen & Hamilton, Inc.
Bull, S. A. (France)
Centel Corporation
CMC Limited (India)
Commission of the European Communities
Communications Workers of America
Computer & Communications Industry
  Assoc.
Computer Intelligence
Continental Graphics Corp.
Coopers and Lybrand
Copley Newspapers
Data Communications Corp. of Korea
Department of Communication (Australia)
Dialog Information Services, Inc.
Direction Générale
  des Télécommunications (France)
Dow Jones & Co., Inc.
Dun & Bradstreet
Gannett Co., Inc.
Gartner Group, Inc.
GTE Corporation
Hitachi Research Institute (Japan)
Honeywell, Inc.
IBM Corp.
Information Gatekeepers, Inc.
Information Industry Association
Interconsult
International Data Corp.
International Resource Development, Inc.
Invoco AB Gunnar Bergvall (Sweden)
Knowledge Industry Publications, Inc.
Korean Information Society
  Development Institute
Lee Enterprises, Inc.
John and Mary R. Markle Foundation
MCI Telecommunications, Inc.
McKinsey & Co., Inc.
Mead Data Central
MITRE Corp.
National Telephone Cooperative Assoc.

The New York Times Co.
NEC Corp. (Japan)
Nippon Telegraph & Telephone Corp.
  (Japan)
Northern Telecom Ltd. (Canada)
Nova Systems, Inc.
NYNEX
The Overseas Telecommunications
  Commission (Australia)
Pacific Telesis Group
Pitney Bowes, Inc.
Public Agenda Foundation
Research Institute of Telecommunications
  and Economics (Japan)
RESEAU (Italy)
Rizzoli Corriere della Sera (Italy)
Saint Phalle International Group
Salomon Brothers
Scaife Family Charitable Trusts
SEAT S.P.A. (Italy)
Southern New England
  Telecommunications Corp.
State of California Public Utilities
  Commission
State of Minnesota Funding
TEKNIBANK S.P.A. (Italy)
Telecommunications Research
  Action Center (TRAC)
Tele/Scope Networks, Inc.
Third Class Mail Association
Times Mirror Co.
United States Government:
  Department of Commerce
    National Telecommunications and
    Information Administration
  Department of Defense
    National Defense University
  Department of Health and Human
   Services
    National Library of Medicine
  Department of State
    Office of Communications
  Federal Communications Commission
  General Services Administration
  National Aeronautics and Space
   Administration
  National Security Agency
  U.S. General Accounting Office
  United States Postal Rate Commission
United Telecommunications, Inc.
US West

Acknowledgments

Introduction

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

While the speakers for this year's seminar addressed
a variety of topics, two themes predominated. The first
of these was the reorganization of the U.S. Department
of Defense in accordance with the Goldwater-Nichols
Defense Reorganization Act of 1986. The second theme
was the role of Special Operations Forces and Low
Intensity Conflict (SOF/LIC) in defense planning and
organization.

During the 1988 seminars we were joined on a regular
basis by James Croke of The MITRE Corporation and
Professor Frank Snyder of the U.S. Naval War College.

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, and John F. McLaughlin, Executive Director of the Program on Information Resources Policy, have 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 their 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 eight-volume 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 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: "C3I: A National Security Council Perspective."

> **Michael J. Zak**, vice president, marketing, Concord Communications, Inc.: "Coming of Age in C3I."

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 (C3) 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: "C3I 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."

To acquire the volumes in this series, please use the order form at the end of this volume or, for additional information, call or write to the Program on Information Resources Policy, Order Department, 200 Aiken Lab, Harvard University, Cambridge, MA 02138. (617) 495-4114.
Cable: PIRP Cambridge; **Telex:** 888 737 PIRP UD; **Fax:** 617-495-3338

Table of Contents

Glossary

AA	anti-aircraft		DIA	Defense Intelligence Agency
AID	Agency for International Development		DOD	Department of Defense
AOR	area of responsibility		DSCS	Defense Satellite Communication System
APC	armored personnel carrier		ECCM	electronic counter counter-measures
ARVN	Army of the Republic of Vietnam		ECM	electronic countermeasures
ASAT	anti-satellite weapon		EHF	extremely high frequency
ATB	advanced technology bomber		EPA	Environmental Protection Agency
AWACS	Airborne Warning and Control System		EUCOM	European Command
BUD	Basic Underwater Demolitions		EW	electronic warfare
CIA	Central Intelligence Agency		FLTSAT	fleet satellite
CINC	commander in chief (of a unified or specified command)		GATT	General Agreement on Tariffs and Trade
CINCCENT	Commander in Chief, U.S. Central Command		HF	high frequency
			HFAJ	high frequency antijam
CINCLANT	Commander in Chief, Atlantic Command		HUMINT	human intelligence
			I&W	indications and warning
CINCLANTFLT	Commander in Chief, U.S. Atlantic Fleet		ICBM	intercontinental ballistic missile
			ICS	intelligence community staff
CINCPAC	Commander in Chief, U.S. Pacific Command		INF	Intermediate Nuclear Forces
CINCSOC	Commander in Chief, U.S. Special Operations Command		JCS	Joint Chiefs of Staff
			JCSE	Joint Communications Support Element
CINCSOUTH	Commander in Chief, U.S. Southern Command		JTF	joint task force
			LEASAT	leased satellite
CNN	Cable News Network		LIC	low intensity conflict
COMINT	communications intelligence		MAGTF	Marine Air-Ground Task Force
COMSEC	communications security		MCEB	Military Communications and Electronics Board
CONUS	continental United States			
CORDS	Civil Operations and Revolutionary Development Support		NATO	North Atlantic Treaty Organization
			NAV	navigation
DAMA	demand assignment multiple access		NCO	noncommissioned officer
			NORAD	North American Aerospace Defense Command
DARPA	Defense Advanced Research Projects Agency			
			NRC	Nuclear Regulatory Commission
DCI	Director of Central Intelligence			
DEA	Drug Enforcement Agency		NSA	National Security Agency

NSC	National Security Council
NTM	national technical means
OSD	Office of the Secretary of Defense
OSS	Office of Strategic Services
OTPE	operational propulsion examination
PACFLEET	U.S. Pacific Fleet
PACOM	U.S. Pacific Command
POLMIL	political/military educated and oriented
POM	Program Objective Memorandum
REDCOM	U.S. Readiness Command
REFTRA	refresher training
RF	radio frequency
SACEUR	Supreme Allied Commander, Europe
SACSA	Special Assistant for Counter-insurgency and Special Activities
SALT	Strategic Arms Limitation Treaty
SAM	surface-to-air missile
SAS	Special Air Service (United Kingdom)
SATCOM	satellite communications
SDI	Strategic Defense Initiative
SDIO	Strategic Defense Initiative Office
SDV	SEAL delivery vehicle
SEAL	Sea-Air-Land team member (U.S. Navy)
SF	special forces
SHF	super high frequency
SIGINT	signals intelligence
SLBM	submarine-launched ballistic missile
SOCOM	Special Operations Command
SOF	Special Operations Forces
SOG	Special Operations Group
SOPAG	Special Operations Policy Advisory Group
SORTS	status of resources and training systems
Spetsnaz	Soviet special operations forces
SPRAA	Strategic Plans and Resource Analysis Agency
START	Strategic Arms Reduction Talks
STU	secure telephone unit
TAC	Tactical Air Command
TENCAP	tactical exploitation of national capabilities
TRADOC	U.S. Training and Doctrine Command
UHF	ultra high frequency
USSOCOM	U.S. Special Operations Command
VHF	very high frequency

To order additional volumes

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

John F. Kennedy School of Government
Harvard University

The Program on Information Resources Policy is pleased to announce the 1988 volume of the *Proceedings of the Harvard Seminar on Intelligence, Command, and Control*, making available a eight-volume series that chronicles the state of the art and recent history of C3I. The attached pages outline each year's presentations.

The series can be ordered in its entirety or by volume. Bulk order prices and photocopy license terms are available upon request.

Prices: $50.00 for single volumes, $350.00 for the eight-volume series.
$30.00 per volume for government agencies, universities, and not-for-profit libraries; $210 for the series.

Postage: Add $1.00 for postage and handling for the first volume and $.50 for each additional volume.

Orders must be prepaid. Make checks payable to Harvard University.

Please send the following volumes to:

Name   _____

Company   _____

Address   _____

            _____

Phone   _____

Payment and postage enclosed.   TOTAL   _____

		Quantity	Price	Amount
Please send the eight-volume series:		_____	_____	_____
Please send individual volumes:				
1988 Guest Presentations	I-89-1	_____	_____	_____
1987 Guest Presentations	I-88-1	_____	_____	_____
1986 Guest Presentations	I-87-1	_____	_____	_____
1985 Guest Presentations	I-86-1	_____	_____	_____
1984 Guest Presentations	I-85-2	_____	_____	_____
1983 (Seminar was not held)				
1982 Guest Presentations	I-82-3	_____	_____	_____
1981 Guest Presentations	I-81-9	_____	_____	_____
1980 Guest Presentations	I-80-6	_____	_____	_____

Send to: Program on Information Resources Policy, Order Department,
200 Aiken Lab, Harvard University Cambridge, MA 02138 (617) 495-4114
Cable: PIRP Cambridge; **Telex:** 888 737 PIRP UD; **Fax:** 617-495-3338.