



# DSB Newsletter



Oct 2001

Dr. William Schneider, Jr., Chairman  
Philip A Odeen, Vice Chairman  
Director

John V. Ello, Executive

## Chairman's Corner

*With the 2001 DSB Summer Study now complete, I again offer my thanks and appreciation to the leaders and teams who put in many long hours to complete the outbriefs of our two summer study initiatives to Secretary Aldridge on 24 August.*

*Defense Science & Technology – Dr. Anita Jones and Mr. Larry Lynn  
Precision Targeting – Mr. Bob Nesbit and Mr. Vince Vitto*

*Recommendations from these two studies are relevant and timely for the many transformational opportunities being considered within the Department of Defense.*

*Our congratulations also go out to the 2001 Fubini Award Winner, Mr. Charles A. "Bert" Fowler. Mr Fowler follows in the fine tradition of the previous winners of this prestigious Secretary of Defense Award: Dr. Eugene Fubini, Dr. Johnny Foster, Dr. Joe Braddock and Mr. Norm Augustine.*

*In closing, we have witnessed and experienced some of our greatest fears through last month's hostile attacks on our country. We have grieved with all who lost loved ones. We now have much to do. As I look forward from September 11th, the quality and span of national leadership within the DSB membership particularly encourages me. As our leaders within the Department seek the best counsel on matters of national importance, I am confident that our voice, as always, will continue to provide clear, focused recommendations.*

Dr. William Schneider, Jr.

## DSB MEETING DATES FOR FY 2002

- Winter Quarterly February 27-28, 2002
- Spring Quarterly May 15-16, 2002
- Summer Study Conclusion August 5-16, 2002
- Fall Quarterly Meeting October 23-24, 2002

## **DSB Secretariat Staff**

**Mr. John V. Ello**, Executive Director

john.ello@osd.mil

**Ms. Brenda Leckey**, Executive Officer

brenda.leckey@osd.mil

**Ms. Patricia A. Shirley**, Executive Assistant

patricia.shirley@osd.mil

**CDR Brian Hughes**, Navy Military Assistant

brian.hughes@osd.mil

**LTC Carla Kendrick**, Army Military Assistant

carla.kendrick@osd.mil

**Maj Roger W. Basl**, Air Force Military Assistant

roger.basl@osd.mil

Voice: 703-695-4158 Fax: 703-697-1860

**DSB WEBSITE:** [www.acq.osd.mil/dsb](http://www.acq.osd.mil/dsb)

## **Membership**

The Board continues to actively solicit suggestions for highly qualified scientific and technical candidate members, with special emphasis on women and minority candidates. Prior Task Force participation offers an individual, OSD, and the Board an opportunity to determine a person's interest and suitability to Board activities and is a desirable prerequisite to membership on the Board. An overall roster of current Board members is included in this newsletter.

## **Staff Changes**

Mr. Bob Jamison departed the DSB in September and began the next rotation of his career development program. LTC Carla Kendrick assumed duties as the DSB Army Military Assistant effective 22 October. Please extend Carla a warm welcome.

## **Task Force Status**

- **2001 Summer Study: Defense S&T** (Co-chairs: Mr. Larry Lynn & Dr. Anita Jones) The study co-sponsored by USD(AT&L) and DUSD(S&T) addressed issues involved to assure the US continues to gain access to and develop technology from which to gain military advantage. The Task Force is drafting the final report. (Maj Basl)

- **2001 Summer Study: Precision Targeting** (Co-chairs: Mr. Vince Vitto & Mr. Robert Nesbit) The study co-sponsored by USD(AT&L) and Director, Strategic and Tactical Systems, examined the full range of the process from target selection, location and identification through mission execution and damage assessment. The Task Force is at work drafting the final report. (CDR Hughes)
- **Chemical Warfare Defense** (Co-chairs: Dr. George Whitesides & Dr. Regina Dugan) This study, co-sponsored by USD(AT&L) and DARPA, is assessing the possibility of controlling the risk and consequences of a CW attack to acceptable levels within the next five years. The Task Force is drafting a final report. (LTC Kendrick)
- **E-Commerce** (Co-chairs: Dr. Ron Kerber & Dr. Mike Frankel) This study, co-sponsored by USD(AT&L) and Director of Defense Procurement, is reviewing the DoD's current implementation status of e-commerce tools. Appropriate recommendations will be made to enhance this opportunity for cost reduction, capital and manpower efficiency. The Task Force is in progress. (LTC Kendrick)
- **Intel Needs for Homeland Defense (Follow-on)** (Co-Chairs: Dr. Ruth David and Mr. Peter Marino) The study, sponsored by USD(AT&L), ASD(C3I) & DCI, is exploring the intelligence ramifications posed

by biological, chemical, information, nuclear, and radiological threats to the United States. The Task Force is drafting a final report. (CDR Hughes)

- **Managed Information Dissemination** (Chair: Mr. Vince Vitto) This study, co-sponsored by ASD(SOLIC) & USD(AT&L), is assessing characteristics, organizational relationships and responsibilities of a US Government World Information Service. Such an Information Service could become a primary vehicle for presentation of the US Government's position on issues, points of view and policies. The Task Force is drafting a final report. (CDR Hughes)
- **Systems Technology for the Future U.S. Strategic Posture** (Chair: Dr. Bob Cooper) This study, co-sponsored by USD(AT&L) and Director, Strategic and Tactical Systems, is reviewing the systems technology of the future U.S. strategic posture for dealing effectively with a range of possible future strategic challenges to the U.S. The Task Force is drafting a final report. (Maj Basl)
- **Training for Future Conflicts** (Co-chairs: Dr. Joe Braddock & Dr. Ralph Chatham) This study, co-sponsored by USD(AT&L) and Director for Readiness and Training in OUSD(P&R), is a follow-on to the Training Superiority & Training Surprise report completed earlier this year. The Task Force will identify and characterize what education and training are demanded by JV 2020 but which are markedly different from what is being done today. The Task Force is in progress. (Maj Basl)
- **Aircraft Carriers of the Future** (Chairman: Dr. Bill Howard, Vice Chairman: ADM Don Pilling, USN (Ret)) This study, co-sponsored by USD(AT&L) and Director, Strategic & Tactical Systems will concentrate on the increased need to fulfill the presence and warfighting mission that aircraft carriers perform. The carrier battle group has been the mainstay of our combat-credible forward presence and the Task Force should examine its applicability and potential for

transformation in the future. The Task Force is in progress. (CDR Hughes)

**DSB Final Reports completed and released since publication of the last DSB Newsletter:**

**JUNE:**

- **2000 Summer Study Vol II, Part 2, Annexes, DIO**
- **High Energy Laser Weapon System Applications**
- **Biological Defense**

**JULY:**

- **Improving Fuel Efficiency of Weapons Platforms**
- **2000 Summer Study, Vol III, Unconventional Nuclear Warfare Defense**

**AUGUST:**

- **Logistics Transformation – Phase II**

**OCTOBER:**

- **2000 Summer Study, Vol IV, Defense Against Biological Weapons**

## **Other Advisory Board**

### **Army Science Board (ASB)**

**Mr. Michael J. Bayer – Chairman**  
**Dr. Joe Braddock – Vice Chairman**  
**LTC(P) Kevin M. Dietrick - Executive Secretary**  
**MAJ Bob Grier – Executive Officer**

The Secretary of the Army has appointed Dr. Joe Braddock to be the Vice Chair of the Army

Science Board, effective 22 Oct 01.

### **FY01 Overarching Study**

**The Objective Force Soldier/Soldier Team** (Chaired by Dr. Robert Douglas, GEN Wayne Downing (USA, Ret.) and Lt.Gen. Marty Steele (USMC, Ret.)). This study examined the system of systems to equip the individual Soldier/Marine of the 2008 and beyond Objective Force. The study focused on seven dimensions to obtain a tenfold improvement over current concepts effectiveness as the goal: lethality, survivability, mobility, sustainability, affordability, C4ISR and people. The Study described specific findings and recommendations for each parameter.

There were three key messages.

1. Analysis indicated that qualitative advances in each of the synergistic dimensions could achieve a tenfold gain in effectiveness.
2. The study identified those programs that collectively would produce the required qualitative improvements in the synergistic dimensions.
3. A sample technology roadmap that could result in the required qualitative improvements was developed.

The results of the study were briefed to the Army Chief of Staff, members of the Army Staff, and representatives of Army Major Commands and Agencies on 26 July 2001 at the Beckman Center, Irvine, California.

### **FY02 Overarching Study**

**Ensuring the Financial Viability of the Objective Force** (Chaired by Mr. George Singley III, GEN John Vessey, USA (Ret), and LTG Max Noah USA (Ret)). This study will address all aspects of the contributions to currently projected O&S costs of the existing and yet to be fielded components of the force and will provide technology and management alternatives to Army leaders that will improve the affordability of the future force.

The study will identify critical operations and support (O&S) activities and related cost drivers, examine methods to leverage commercial

practices, and suggest approaches to improve training methods and reduce personnel utilization and costs.

The Study is scheduled to report during a July 2002 briefing to the Army Chief of Staff and a Joint audience on 26 July 2002 at the Beckman Center in Irvine, California.

### **Special Studies**

- **Quick Analysis for Current Campaign** (Chaired by Dr. Robert Douglas, Mr. Gil Herrera, and Mr. Frank Kendall) This is a short effort to look for quick payoff technologies and concepts that will aid the Army in the current military campaign. We anticipate that it will be followed by a long-term effort examining initiatives of value for the domestic campaign.
- **Adapting Future Wireless Technologies** (Chaired by Ms Ginger Lew and Mr. Kalle Kontson) The study is examining opportunities for modernizing the 2008 and beyond Objective Force by employing robust commercial wireless technologies.
- **Future Force Technology Exploration** – (Chaired by Dr. Joe Braddock and Dr. Phil Dickinson) This study seeks evolutionary and revolutionary combinations of concepts and enabling technologies for the 2008 and beyond Objective Force. It will identify in-depth experimentation involving both field units and simulations to better understand the potential multiplicative effects of C4ISR systems within the Force and to help determine communications architectures required in order to aid the acquisition decision-making process.
- **Asymmetric Threats to Land-Based Operations (2015-2020)** (Chaired by Dr. Joe Braddock, Jim Tegnalia and Jack Woodmansee) - The study is examining innovative ways that asymmetric threats can be used to disrupt future land-based operations. Findings and recommendations will be briefed to the Army leadership during 1Q 2002.

- **Venture Capital** (Chaired by Mr. Carl Fischer) This study is exploring financial alternatives and opportunities for technology creation and modernizing the Objective Force given future budgetary constraints. Included in this work is a look at alternative models for capital generation and utilization for long term technology needs.
- **Knowledge Based Management and Information Reliability** (Chaired by Mr. John Reese) This study addresses the importance of managing information efficiently and the challenges associated with information overload. The study focus is at the battalion level given the evolving architectures to deliver vast amounts of real-time and near-real-time information from sensors ranging from National systems to organic assets.
- **Countermine Warfare and Joint Opportunities for the Future** (Chaired by Mr. Frank Kendall) This Joint Army/ Navy Science Board effort is currently being briefed to the Army, Navy and USMC leadership. This study had a specific focus on programs and technologies for mine detection and neutralization in the surf-zone and inland, and is in the second of a two-year effort.
- **Robotics** (Chaired by Dr. Prasanna Mulgaonkar and Dr. Herb Dobbs) This study, in its initial organization stage, is examining autonomous systems and technologies with potential applications within the Objective Force. It will explore the challenges of commanding and controlling (man-machine interfaces) robotic devices, robotic technologies and capabilities projected for the 2015-2020 timeframe and identifying apparent voids in the same. Initial findings and recommendations are expected during the first quarter, FY02.
- **Predictive Battlespace Awareness to Improve Military Effectiveness** (Air Force lead) The Army Science Board will

participate in this Joint, Air Force Science Advisory Board led, study. This is one of a series of studies conducted by the Services and OSD on issues of Joint interest.

For more information on ASB studies and terms of reference visit [http://www.saalt.army.mil/SARD-ASB/A-study\\_table.htm](http://www.saalt.army.mil/SARD-ASB/A-study_table.htm)

## Naval Research Advisory Committee (NRAC)

**Ms. Katherine C. Hegmann - Chair**  
**Ms. Diane Mason-Muir - Program Director**

The NRAC Summer Study was held 1-12 October 2001. The Assistant Secretary of the Navy (Research, Development and Acquisition) was briefed at the conclusion of the meeting.

**Roadmap to an Electric Naval Force** This panel assessed recent trends and developments in the application of electric power to naval platforms, weapons and auxiliary systems; recommended a power system architecture for optimum long-term exploitation of the benefits of integrated power systems for Naval forces; and recommended a science and technology roadmap for the development of an integrated electric Naval force.

The panel found that the Department of the Navy is on the path to electric ships. The DD21 program (among others) sets a baseline for Naval electric ships. Electric warships will add flexible real time power allocation that will unlock propulsion power and make it available for electric weapons and advanced sensors. Electric weapons and advanced sensors will provide the technically superior Electric Naval Force. The flexibility of Naval electric power architecture supports the evolution to an Electric Naval Force. The Navy is not yet fully committed to Electric Warships. The panel firmly believes that a common technology base is essential, and that no technology development strategy exists for the

Electric Naval Force.

The panel recommended establishing a centralized responsibility for implementing the Department of the Navy's commitment to Electric Warships, and that the Department develop a balanced investment strategy for the Electric Naval Force.

**Life Cycle Technology Insertion** This panel assessed successful and unsuccessful attempts to provide for life cycle technology insertion; assessed appropriate refresh intervals for various technologies critical to Naval weapons and platforms; recommended a philosophy and strategy for ensuring and optimizing life cycle technology insertion; and assessed Navy acquisition practices regarding technology insertion and recommended improvement strategies.

The panel stated that life cycle technology insertion is dependent on technology transition. They identified both "best practices" and "barriers" to transition. The panel found that improvement requires technical, process, and acquisition practice and management changes.

The panel recommended establishing a *Technology Transition Executive Office* with full responsibility for technology "harvesting" and exploitation. They further recommended adoption of "best design practices" for new and legacy systems; expansion of modeling and simulation tools; prioritization of Future Naval Capabilities initiatives; utilization of collaborative teaming early for concept development and technology identification; and development of "gain sharing" incentive strategies for technology insertion.

**Science and Technology (S&T) Community in Crisis** This joint study with the Army Science Board and the Air Force Scientific Advisory Board, is sponsored by the DDR&E. The first meeting was 18-19 October 2001. This study will:

1. Consider what the role(s) of the DoD labs should be in the 21<sup>st</sup> Century. Focus will be on the components devoted primarily to performing Science and Technology (S&T) work in-house. Identify the differences that do or should exist between S&T-oriented

research labs and technical centers performing mostly acquisition support, in-service engineering, and higher-category R&D work.

2. Identify the desired characteristics of a world-class S&T laboratory in terms of professional staff, infrastructure, budgeting process, support services, etc.
3. Review the most relevant and important past studies of the labs to assess the current relevance of their primary recommendations.
  - a. Assess the benefits of those that were implemented and the continued applicability of those not adopted.
  - b. Prioritize those that promise the greatest potential for attracting and retaining a world-class scientific and engineering staff.
  - c. Identify possible reasons for past interaction, and recommend approaches to improve the opportunities for favorable action.
4. Assess the implementation status and impact of recent legislative initiatives directed to improving the DoD labs.
5. Assuming that future roles for these organizations can be identified, recommend both near-term steps and a long-term strategy for ensuring the excellence of the Service S&T laboratory system for the next 25 years. As a minimum, address the following areas:
  - a. Scientist and Engineer recruitment, reward and retention;
  - b. Lab facilities, equipment and infrastructure;
  - c. Support services quality and control;
  - d. Identify any Service-unique approaches.

**Aging Aircraft** Sponsored by the Commander, Naval Air Systems Command, this study will identify the current state of need of legacy Naval Air Systems for inspection, repair and overhaul due to aging; identify known mitigation opportunities; link the needs and mitigation opportunities to Science and Technology Objectives for Platforms, Subsystems and



Processes in the current Naval Technology Plan; and provide recommendations for technology transition across the board, Naval Technology Planning, and product/process technology insertion opportunities for the future. The panel will meet on 22-26 October 2001 to begin drafting their briefing and report.

For more information on NRAC activities visit <http://nrac.onr.navy.mil/webspace>

## Air Force Scientific Advisory Board (SAB)

**Dr. Robert Selden – Chair**  
**Dr. Ron Fuchs – Vice Chair**  
**Col Greg Bishop - Executive Director**

Writing continues on last year's reports:

- **Sensor Technology for Difficult Targets.** This study addressed the concern that sensor technology and associated data processing and communication have evolved rapidly over the last decade and that the vision of realistically achievable military capabilities needs to be updated along with the technology investment strategy and future capability planning.
- **Availability and Survivability of Militarily Relevant Commercial Space Systems.** This study addressed the concern that military operations are increasingly dependent on space-based assets and that DoD has become increasingly dependent on commercial systems as a major augmentation of military space systems.
- **Migration of Data Bases for Command & Control.** This study addressed the concern that the successful implementation of Command and Control upgrades will require

that the many data bases can be successfully migrated to emerging and future systems.

Future meeting dates:

**17-28 Jun**, Summer Study 2002, Beckman Center, Irvine, CA

**Sep 2002**, S&T Kickoff, Woods Hole, MA

**Oct Timeframe**, Fall General Board Meeting will be held in the local area. Exact dates TBD

### Study Updates:

- **AFC2-The Path Ahead.** Volume II is still out for coordination.
- **S&T and the AF Vision.** The report can be found on the SAB Web Site.

For more information on SAB activities or past reports, please visit our Web Site at: <http://www.sab.hq.af.mil>

## DIA Science and Technology Advisory Board

**Dr. Michael Wartell – Chairman**  
**Ms. Victoria Prescott – Exec Sec & Dir**

The Science and Technology Advisory Board (STAB) continues its representation on the Senior Steering Groups for the four defense intelligence priority thrusts, which are: Attack the Database Problem, Intelligence Integration/Interoperability with the Common Operating Picture, Shaping to Meet the Asymmetric Threat, and Revitalizing and Reshaping the Workforce. STAB members are taking part in separate panel studies to augment these efforts. These panels are assessing Human Intelligence (HUMINT) as an enabler within the asymmetric threat context, information technology and knowledge engineering tools for indications and warning (I&W), and enhancing workforce competency through expanded outreach or innovative partnerships with Federal laboratories.

## ***Defense Science Board Members and Ex Officio***

### **CHAIRMAN**

Dr. William Schneider, Jr. International Planning Services, Inc.

### **VICE CHAIRMAN**

Mr. Philip A. Odeen, TRW Inc.

### **MEMBERS**

Mr. Denis A. Bovin, Bear, Stearns & Co., Inc.

Gen Michael P.C. Carns, USAF (Ret), Private Consultant

Dr. Ashton B. Carter, Harvard University

Dr. Robert S. Cooper, Atlantic Aerospace Electronics Corporation

Dr. Ruth A. David, ANSER Inc.

Mr. Bran Ferren, Applied Minds Inc.

Dr. Craig I. Fields, Corporate Director

Dr. John S. Foster, Jr., Private Consultant

Dr. Michael S. Frankel, SRI International

Dr. Theodore S. Gold, Institute for Defense Analyses

Dr. William R. Graham, National Security Research, Inc.

Mr. David R. Heebner, Private Consultant

Dr. George H. Heilmeier, Telcordia Technologies

Dr. Robert J. Hermann, Global Technology Partners

Dr. William G. Howard, Jr., Private Consultant

Dr. Anita K. Jones, University of Virginia

Dr. Ronald L. Kerber, Private Consultant

Mr. Donald C. Latham, General Dynamics

Dr. Joshua Lederberg, The Rockefeller University

Mr. V. Larry Lynn, Private Consultant

Dr. Joseph Markowitz, Private Consultant

Mr. Peter A. Marino, Private Consultant

Ms. Judith A. Miller, Williams & Connolly LLP

Mr. Walter E. Morrow, Jr., Lincoln Laboratory

Mr. Robert F. Nesbit, The MITRE Corporation

Admiral Donald L. Pilling, USN (Ret.) Battelle Memorial Institute

Mr. Thomas E. Peoples, Gencorp., Inc.

Dr. George Poste, Health Technology Networks

Dr. Anna Marie Skalka, Fox Chase Cancer Center

Mr. William O. Studeman, TRW

Mr. Francis J. Sullivan, Frank Sullivan Associates

Mr. Vincent Vitto, Charles Stark Draper Laboratory

Dr. James P. Wade, Jr., Defense Group, Inc.

Gen Larry D. Welch, USAF (Ret), Institute for Defense Analyses

Dr. George M. Whitesides, Harvard University

### **MEMBERS EX OFFICIO**

Mr Richard Perle, Defense Policy Board

Dr. Robert Selden, Air Force Scientific Advisory Board

Dr. Michael J. Bayer, Army Science Board

RADM Wayne E. Meyer, USN(Ret), BMD Advisory Committee

Dr. Michael Wartell, DIA Science & Technology Advisory Board

Ms. Kathy Hegmann, Naval Research Advisory Committee