

DSB Newsletter

Oct 2002

Dr. William Schneider, Jr., Chairman

Mr. Vince Vitto, Vice Chairman
Director

CDR Brian Hughes, Acting Executive

Chairman's Corner

With the 2002 DSB Summer Study now complete, I 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 and other department leaders.

Missile Defense:

Co-Chairs: Gen Larry Welch (USAF, Ret) and Dr. Bill Graham

Special Operations and Joint Forces in Support of Countering Terrorism:

Co-Chairs: Dr. Ted Gold and Mr. Don Latham

Recommendations from these two studies have thus far been well received and are timely in support of the continuing transformation within the Department of Defense. In the coming weeks and months, we will be initiating next year's summer studies and many other high-interest topics.

We have identified many compelling candidate studies for the upcoming year; and I am certain that we will be able to use the expertise and capabilities of every member in support of the ongoing tasks in the Department of Defense.

Finally, our congratulations go out to the 2002 Fubini Award Winner, Mr. David R. Heebner. Mr. Heebner 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, Mr. Norm Augustine, and Mr. Charles A. "Bert" Fowler.

Dr. William Schneider, Jr.

DSB MEETING DATES FOR 2003

- 29-30 January 2003 Winter Quarterly
- 21-22 May 2003 Spring Quarterly
- 4-15 August 2003 Summer Study
- 22-23 October 2003 Fall Quarterly

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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. The roster of current Board members is included in this newsletter.

Staff Changes

Mr. John Ello, Executive Director of the Defense Science Board since 1990, retired from civil service on 30 Sep 2002 following a notable career spanning 46 years with the Department of Defense. CDR Brian Hughes has assumed the additional duties of Acting Executive Director until a permanent replacement is named.

LTC Carla Kendrick departed the DSB in September on terminal leave status and will officially retire from active duty on 30 October. LTC Scott Dolgoff assumed duties as the DSB Army Military Assistant effective 30 August. Please extend Scott a warm welcome.

Task Force Status

- **2002 Summer Study: Missile Defense** (Co-Chairs: Gen Larry Welch (USAF, Ret) & Dr. William Graham) The study, co-sponsored by USD(AT&L) and MDA, will report on five areas: counter-countermeasures; boost phase

technology; battle management and command, control, and communications; international cooperation; and the evolution of ballistic missile threats. **The Task Force is drafting the final report.** (LtCol Basl)

- **2002 Summer Study: Special Operations and Joint Forces in Support of Countering Terrorism** (Co-Chairs: Dr. Ted Gold and Mr. Don Latham) The study, co-sponsored by USD(AT&L), JFCOM and S&TS, will address how the Department of Defense can strengthen the military operational capability of its special operations forces and other joint forces against potential terrorist threats and other asymmetric threats. **The Task Force is drafting a 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 Dolgoff)
- **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 Jan 2001 Training Superiority & Training Surprise report. The Task Force will identify and characterize the education and training demanded by JV 2020 which are markedly different from what is being done today.

Operating under a revised TOR with added emphasis on joint and interoperability training, **the Task Force is now drafting a final report.** (LtCol Basl)

- **Operation Enduring Freedom Lessons Learned** (Chair: Gen James McCarthy (USAF, Ret)) This study, co-sponsored by USD(AT&L), VCJS & CENTCOM, is examining current activities of Operation Enduring Freedom to determine both near and long-term technical & operational considerations that could be used to improve this operation and future campaigns initiated in the War Against Terrorism. **An Interim Report was approved for limited distribution in Oct 2002. The task force has formed into smaller teams to investigate individual issues in further depth. A second Interim Report is planned for Dec 2002.** (LTC Dolgoff)
- **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 concentrated 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 examined its applicability and potential for transformation in the future. **The final report is at printing.** (CDR Hughes)
- **Discriminant Use of Force.** (Co-Chairs: Dr. Joshua Lederberg & Dr. Ted Gold) This study, co-sponsored by USD(AT&L) and S&TS, is conducting a comprehensive study of the ends and means of precision compellence, of the nuanced use of force, in concert with coalition partners, to achieve political, economic, etc., changes in countries affecting US interests. **The Task Force is drafting a final report.** (LtCol Basl)
- **Homeland Defense Against BioTerrorism (Renamed from Defense Against Terrorist's Use of Biological Weapons)** (Co-Chairs: Dr. Skalka & Mr. Larry Lynn) This study, co-sponsored by DARPA and DTRA, is assessing the scope of activities conducted by the DoD to ensure its ability to
- respond to an attack of the US homeland by terrorists using biological weapons. **Final Report is in security review.** (CDR Hughes)
- **Intelligence in Support of the War Against Terrorism** (Co-Chairs: Dr. Joe Markowitz and ADM Bill Studeman (USN, Ret.)) This study, co-sponsored by USD(AT&L), ASD(C3I), and DCI will identify capabilities, technologies and approaches for strengthening intelligence in support of the war against terrorism. **The Task Force is in progress.** (CDR Hughes)
- **Role and Status of DoD Red Teaming Activities** (Co-Chairs: Dr. Ted Gold and Dr. Bob Hermann) This study, co-sponsored by USD(AT&L) and the Director, Strategic and Tactical Systems (S&TS), will review the role and status of Red Teaming in the DoD and recommend ways to make it a more effective tool. **The Task Force is in progress.** (LTC Dolgoff)
- **Defense Against Unconventional Use of Nuclear Weapons Against the U.S.** (Co-Chairs: Dr. William Graham and Dr. Richard Wagner) This study, co-sponsored by USD(AT&L) and the Assistant to the Secretary of Defense (Nuclear and Chemical and Biological Defense Programs) (ATSD(NCB)), will assess the adequacy of the U.S. ability to detect, identify, respond, and prevent unconventional nuclear attacks by terrorist or sub-national entities. **The Task Force is in progress.** (LTC Dolgoff)
- **Wideband RF Systems** (Chairman: Dr. Gary Minden) This study, co-sponsored by USD(AT&L) and ASD(C3I) will review and advise on key aspects of the policy and technology issues associated with the military applications of Wideband RF systems. **The Task Force is drafting a final report.** (LtCol Basl)
- **B-52 Re Engining** (Chairman: Gen Mike Carns (USAF, Ret) This task force, sponsored by USD (AT&L), is tasked to review and advise on key aspects of the policy and technology issues associated with re-engining the USAF B-52 fleet. **Final Report is in draft.** (LtCol Basl)

- **Unmanned Aerial Vehicles (UAVs) and Uninhabited Combat Aerial Vehicles (UCAVs) (Co-Chairs: MGEN Ken Israel (USAF, Ret) and Mr. Bob Nesbit)** This task force, co-sponsored by USD (AT&L), the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence), and the Director, Strategic and Tactical Systems, is tasked to conduct a comprehensive review of the Department's plans for development and fielding of UAV and UCAV systems. The Task Force is in progress. (CDR Hughes)
- **DSB/AFSAB Joint Task Force on Acquisition of National Security Space Programs (Chairman: Mr A. Thomas Young)** This task force, co-sponsored by USD (AT&L) and the Secretary of the Air Force, directs the Defense Science Board, in conjunction with the Air Force Scientific Advisory Board, to review the acquisition of National Security Space Programs and to make recommendations to improve the acquisition of space programs from their initiation to deployment. The Task Force is in progress. (LtCol Basl)
- **Seabasing (Co-Chairs: Dr. Bill Howard and ADM Don Pilling (USN, Ret))** This task force, co-sponsored by USD (AT&L), the Secretary of the Navy, and the Director, Strategic and Tactical Systems (S&TS), is tasked to assess how seabasing of expeditionary forces can best serve the nation's defense needs through at least the first half of the 21st century. First meeting is scheduled for early November. (CDR Hughes)
- **Unexploded Ordnance - UXO (Co Chairs: Dr. Delores Etter and Mr. Bill Delaney)** This study, co-sponsored by USD(AT&L) and the Deputy Under Secretary of Defense (Installations and Environment), is chartered to address ways to reduce the extremely high cost of UXO clean up and identify technologies to help minimize the environmental impact of continued live fire training and testing. The Task Force is in progress.

(LTC Dolgoff)

- **Smallpox Vaccine Down Select (Chairman: Dr. George Poste)** This task force, co-sponsored by USD (AT&L) and the Assistant to the Secretary of Defense (Nuclear and Chemical and Biological Defense Programs), is tasked to perform an independent evaluation of the Department of Defense and Department of Health and Human Services smallpox vaccine candidates. The Task Force is in progress. (CDR Hughes)
- **Exploiting Technology to Transform Military Manpower (Co-Chairs: Mr. Michael Bayer and Dr. Jim Wade)** This task force, co-sponsored by USD (AT&L) and the Director of Defense Research and Engineering, is tasked to identify technology options that will reduce military manpower burden of asynchronous threat operations at home and abroad, and recommend a strategic approach to transforming military manpower beginning with the Force Protection mission. The Task Force is in progress. (LtCol Basl)

DSB Reports published since May 2002:

- **Defense Science and Technology (May 2002)**
- **The Impact of e-Business on DoD Acquisition Processes (July 2002)**
- **Operation Enduring Freedom Lessons Learned (Interim Report Limited Distribution Oct 2002)**

Army Science Board (ASB)

Dr. Joe Braddock – Chairman

Dr. James Tegnalia – Vice Chairman

LTC(P) Jeff Willey - Executive Secretary

MAJ Bob Grier - Executive Officer

COL Kevin Dietrick handed over the position of Executive Secretary to **LTC(P) Jeff Willey** at the end of July. COL Dietrick is now the Project Manager for the Warfighter's Simulation 2000 down in Orlando, Florida. LTC Willey comes to us from the Army War College.

Dr. Jim Tegnalia was approved in July by the Secretary of the Army, with the concurrence of the Office of the Secretary of Defense, to serve as the Vice Chair.

Fall Membership Meeting

The ASB will hold its Fall Membership meeting at Carlisle Barracks, Carlisle, PA, 29-31 October. The Fall meetings allow the Board to welcome new members; review, for the entire membership, the work the Board has completed in the last 12 months; hear from the DSB, AFSAB, and NRAC on their recent works; and to bid farewell to our retiring members and consultants.

FY02 Overarching Study

Ensuring the Financial Viability of the Objective Force (Co-chaired by Mr. George Singley III, GEN John Vessey, USA (Ret), and LTG Max Noah, USA (Ret)). This study was completed and briefed to the senior Army Leadership on 25 July 2002. A report outlining the recommendations and findings may be released later this year or early next year pending approval of the Chief of Staff, Army.

FY03 Summer Study

A call for study topics was put out to the Army in July. The FY2003 Summer Study topic selection process is nearly complete with proposals before the Army Senior Leadership for approval.

Special Studies

- **Aviation Study** (Co-chaired by Mr. Edward Brady and Mr. Ira Kuhn) This study will examine possible roles and missions for both manned and unmanned aerial vehicles in the Objective Force. Sub topics include arming unmanned systems, teaming manned and unmanned systems, applications for unmanned systems in combat support and service support roles, and air-to-air combat applications. We expect this study to wrap up by the end of November.
- **Robotics Study** (Chaired by Dr. Prasanna Mulgaonkar) This study is completed. It examined autonomous systems and technologies with potential applications within the Objective Force. The study explored 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. Copies of the study report will be available November.

For more information on ASB studies and terms of reference visit:

http://www.saalt.army.mil/SARD-ASB/A-study_table.htm

Naval Research Advisory Committee (NRAC)

Mr. John M. "Jack" Bachkosky – Chair
Dr. Robert C. Spindel – Vice-Chair
CAPT Dennis L. Ryan, III USN (Ret.) -
Program Director

The NRAC is completing four studies: two that were conducted in late FY 2001 and early FY 2002, and two that just completed for the FY 2002 Summer Study.

FY 2001-2002 Study Topics

Science and Technology (S&T) Community in Crisis This joint study with the Army Science Board and the Air Force Scientific Advisory Board, has been completed. The final brief has been presented to the Assistant Secretary of the Navy (Research, Development and Acquisition) as well as the Army and Air Force SAE's. The final report is being approved. The terms of reference for the study were:

1. Consider what the role(s) of the DoD labs should be in the 21st 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 has been briefed to the Assistant Secretary of the Navy (Research, Development & Acquisition) and the report is being drafted. This study's terms of reference were:

1. Identify the current state of need of legacy Naval Air Systems for inspection, repair and overhaul due to aging; identify known mitigation opportunities.
2. Link the needs and mitigation opportunities to Science and Technology Objectives for Platforms, Subsystems and Processes in the current Naval Technology Plan.
3. Provide recommendations for technology transition across the board, Naval Technology Planning, and product / process technology insertion opportunities for the future. The panel has met and the final brief is being scheduled for presentation to the Assistant Secretary of the Navy (Research, Development and Acquisition).

Technology for Base Security Sponsored by the Commander, Fleet Forces Command. This study was briefed to the Assistant Secretary of the Navy (Research, Development & Acquisition) on 11 October. The final report is being drafted. The Terms of Reference were:

1. Review and assess the application of technology with respect to at least the non-

inclusive list of anti-terrorism/force protection (AT/FP) issues: access control, automation, intrusion detection systems, consolidation of manpower, threat detection, counter-surveillance, situational awareness, and deterrence.

2. Review and assess current research and development of AT/FP technologies and recommend appropriate naval science and technology investment, both near and far term, to enhance base security.

The Role(s) of Unmanned Vehicles Sponsored by the Director, Assessment Division (OPNAV N-81). This study was briefed to the Assistant Secretary of the Navy (Research, Development & Acquisition) on 11 October. The final report is being drafted. The Terms of Reference were:

1. Review and assess potential concepts of operations (CONOPs) and employment (COE) of all Naval missions with respect to unmanned vehicles. Examine the following:
 - Fleet Needs (Command Capability Issues)
 - Requirements (existing and perceived)
 - Reconnaissance/surveillance
 - Sea and land
 - Engagement
 - Sea and land
 - Capabilities desired to meet CONOPS and COE
 - Required levels to meet study group recommended Fleet requirements for:
 - Autonomy
 - Communications
 - Navigation
 - Operations and support
 - Launch and recovery
 - Mission risk reduction
 - Personnel
 - Political (Rules of Engagement)
 - Discuss affordability as a function of meeting Fleet needs
2. Recommend which Operational Concepts and Employment Options are considered to have the greatest potential to improve warfighting capabilities and effectiveness, reduce manpower and cost of operations.

Transformational Opportunities for Naval Utilization of Space This study will be conducted during the fall and winter. The Terms of Reference is under development.

Study topics for the FY 2003 studies are being solicited and after two years of the studies being conducted in the fall, the FY 2003 will return to being conducted in the summer.

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

Air Force Scientific Advisory Board (SAB)

Dr. Daniel E. Hastings - Chairman
Dr. Ronald P. Fuchs - Vice Chairman
Lt Gen Steven B. Plummer - Military Director
Col Charles D. Bowker - Executive Director

Summer Session 2002

This year's annual Summer Session was held 17-28 June in Irvine, CA. During these two weeks, participants in the Predictive Battlespace Awareness to Improve Military Effectiveness Study, Immediate Attack Deep in Hostile Territory Study, and the Task Force on the Threat of Asymmetric Attack devoted themselves to finalizing their reports and outbriefs to the Secretary of the Air Force, Hon. James G. Roche, and to the Chief of Staff of the U.S. Air Force, General John P. Jumper.

Fall Board 2002

The SAB held its annual Fall General Board Meeting 8-10 October 2002 at Rosslyn, VA. Fall General Board Meetings are normally held close to Washington DC. The purpose was to welcome new members to the Board, say farewell to departing members, and to hear from various DoD officials on how technology has been beneficial to the Air Force and where new developments will be most beneficial.

Mr. Pete Aldridge, Under Secretary of Defense (Acquisition, Technology and Logistics) briefed the Board on the value of science and technology to the acquisition process and the contributions of the SAB. The Secretary of the Air Force, Dr. James Roche, and the Chief of Staff of the Air Force, General John Jumper also briefed the SAB. They commented on the results of the Board's studies and their value to the Air Force.

The SAB welcomed 13 new members to the Board. The new members bring years of experience from industry, academia and from retired flag officers.

The Board also said farewell to 15 members. During the board meeting, Gen Jumper thanked Dr. Robert Selden for his hard work as chairman of the SAB since 2000, and passed the gavel on to Dr. Daniel Hastings.

Ongoing Review Panels and Projects

New Projects

The SAB Steering Committee is currently working on terms of reference for this year's studies.

Review of Air Force S&T Efforts (Chaired by Mr. Jeff Grant) was briefed to the Secretary of the Air Force in August.

The kick-off of this year's S&T review occurred at Woods Hole, MA, in September. The reviews will occur this fall at Wright-Patterson, Kirtland, Hanscom and Edwards Air Force Bases, and cover Sensors, Propulsion, Directed Energy, Air Vehicles and Special Programs. The results of the reviews will be briefed to the Chief in February 2003.

Status of Publication of Reports

The FY01 study Sensor Technology for Difficult Targets, chaired by Dr. Antonio F. Pensa, report is undergoing the clearance process for public release.

Another FY01 study report, Migration of Databases for Command and Control, chaired by Professor James A. Hendler, is awaiting Air Staff review before release.

The first volume of Precision Battlespace Awareness has completed all reviews and has been published.

All FY01 and FY02 outbriefs and reports are available on the Scientific Advisory Board website under the Archives button.

Defense Science Board Members and Ex Officio

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