

DSB Newsletter

May 2001

Dr. William Schneider, Chairman

Philip A Odeen, Vice Chairman
Director

John V. Ello, Executive

Chairman's Corner

With the 2001 DSB Summer Study Program now well underway, I want to express my thanks and appreciation to the leaders of our two summer study initiatives:

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

Both of these studies are particularly timely and appropriate during this critical transformation period for the Department of Defense and again my thanks to summer study program leaders as well as to the many Board members and consultants who are participating in these important efforts.

My thanks as well to Mr. Bill Howard who has agreed to chair the 2001 Fubini Selection Committee along with Johnny Foster, Dave Heebner and Bob Nesbit. Previous winners of this prestigious Secretary of Defense Award include Dr. Eugene Fubini, Dr. Johnny Foster, Dr. Joe Braddock and Mr. Norm Augustine and all of the Board members will be looking forward to the selection committee results later this summer.

Finally, a special note of thanks to Dr. Craig Fields for his superb leadership of the Defense Science Board for the past 6 years. I am particularly grateful to him for the wise counsel and advice he has already provided to me personally during this leadership changeover and I look forward to continuing to work closely with him and all the Board members in the challenging days that lie ahead.

Dr. William Schneider, Jr.

DSB MEETING DATES FOR 2001

- Summer Study Conclusion August 12-24
- Fall Quarterly October 24-25

DSB Secretariat Staff

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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. An overall roster of current Board members is included in this newsletter.

Staff Changes

LtCol Yang will be leaving in late June for an assignment in CA. His replacement, Maj Roger Basl is expected to be in place in early June. Please welcome Roger to the DSB. In addition, Mr. Jamison is expected to depart the DSB in August on his next rotation for his career development program. His replacement, LTC Brian Klima is expected to arrive in July.

Task Force Status

- **2001 Summer Study Program**
 - **Defense S&T** (Co-chairs: Mr. Larry Lynn & Dr. Anita Jones) The study co-sponsored by USD(AT&L) and DUSD(S&T) will address the issues involved in assuring that the U.S.

continues to gain access to and develop technology from which to gain military advantage. The Task Force is in progress. (LtCol Yang)

- **Precision Targeting** (Co-chairs: Mr. Vince Vitto & Mr. Robert Nesbit) The study co-sponsored by USD(AT&L) and Director, Strategic and Tactical Systems, will examine the full range of the process from target selection, location and identification through mission execution and damage assessment. The Task Force is in progress. (CDR Hughes)
- **2000 Summer Study Program** Vol I, Executive Summary and Vol II, Defensive Information Operations have been published and released. Defense Against Biological Weapons and Unconventional Nuclear Warfare Defense are now in the final stages of preparation for publication.
- **Biological Defense** (Co-chairs: Dr. Josh Lederberg and Dr. George Whitesides) This study, co-sponsored by USD(AT&L) and DDR&E, was a combined effort of the DSB and the TRAC. The study assessed the scope of activities conducted by the DoD to ensure its future preparedness to deter, defend against and respond to attack by biological weapons. The report is now in the final stages of preparation for publication. (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 in progress. (Mr. Jamison)

- **Development and Production of Measures to Preserve Health** (Chair: Dr. George Poste) This study, co-sponsored by USD(AT&L) and DDR&E, will analyze major shortcomings in the lack of antiviral drugs, antibiotics, and vaccines against bioagents. The Task Force will also assess the logistic adequacy of the supply chain for vaccine production, novel vaccine delivery techniques and the adequacy of vaccine development and verification technologies against known and potential diseases. The TOR has been signed. (CDR Hughes)
- **E-Commerce** (Co-chairs: Dr. Ron Kerber & Dr. Mike Frankel) This study, co-sponsored by USD(AT&L) and Director of Defense Procurement, will review the DoD's current implementation status of e-commerce tools and make any appropriate recommendations that enhance this opportunity for cost reduction, capital and manpower efficiency. The Task Force is in progress. (Mr. Jamison)
- **Future DoD Airborne High-Frequency Radar Needs/Resources** (Chair: Dr. David Briggs) This study, sponsored by USD(AT&L) and Director, Strategic and Tactical Systems, reviewed the use of airborne X-band radars to serve the broad mission areas of air defense and ground surveillance. The final report is pending release and publication. (Mr. Jamison)
- **High Energy Laser Weapon Systems Applications** (Co-chairs: Mr. Don Latham and Gen Larry Welch, USAF (Ret)) This study, sponsored by USD(AT&L), Director, Strategic and Tactical Systems, and Director, BMDO, is reviewing the military applications of high energy laser weapon systems. The Task Force final meeting is scheduled for 15 May. (LtCol Yang)
- **Improving Fuel Efficiency of Weapons Platforms** (Co-Chairs: Mr. Al Alm and VADM Richard Truly, USN (Ret)). This study, co-sponsored by DUSD(S&T) and DUSD(ES), identified technologies that improve fuel efficiency of the full range of weapon platforms (land, sea & air) and assessed their operational, logistical, cost and environmental impacts for a range of practical implementation scenarios. The final report is in security review. (CDR Hughes)
- **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, will explore the intelligence ramifications posed by biological, chemical, information, nuclear, and radiological threats to the United States. The Task Force is in progress. (CDR Hughes)
- **Logistics Transformation – Phase II** (Co-chairs: Mr. Phil Odeen and Mr. Bill Howard) This study, co-sponsored by USD(AT&L) and USD(Logistics), is a follow-on to the DoD Logistics Transformation Task Force completed in Dec 98. The Task Force assessed the progress to date in implementing the recommended actions of the 98 report. The report is now in the final stages of preparation for publication. (CDR Hughes)
- **Managed Information Dissemination** (Chair: Mr. Vince Vitto) This study, co-sponsored by ASD(SOLIC) & USD(AT&L), will assess the characteristics, organizational relationships and responsibilities of a U.S. Government World Information Service. Such an Information Service could become a primary vehicle for presentation of the U.S. Government's position on issues, point of view and policies. The Task Force is in progress. (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 in progress. (LtCol Yang)

- **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. (Mr. Jamison)
- **Since publication of the last DSB Newsletter, the following reports have been completed and released:**
 - **Production Options for ATP/ATFLIR**
 - **2000 Summer Study Vol I, Exec Sum**
 - **2000 Summer Study Vol II, DIO**
 - **Adequacy of the DoD S&T Program**

Other Advisory Board Activities

Army Science Board (ASB)

Mr. Michael J. Bayer - Chairman
LTC Damian Bianca - Executive Secretary
MAJ Bob Grier - Executive Officer

FY01 Overarching Study

Objective Force Soldier/Soldier Teams (Chaired by Dr. Robert Douglas, GEN Wayne Downing, USA (Ret) and LTGEN Martin R. Steele, USMC (Ret)) This study is focused on current and future science and technology opportunities for the Objective Soldier. Recommendations will assist Joint Ground Forces' Leadership to optimize those research, development and acquisition efforts that can yield dramatic improvements in Objective Force Soldier lethality, survivability, supportability and situational awareness.

The study will examine those technologies that will enable the mounted and dismounted soldier to fight within a network-centric, system-of-systems across the full spectrum of operations. Military operations in urban and complex terrain

are being addressed as part of the study. Initial Progress Reviews have been conducted with Study Co-Sponsors to insure the recommendations and findings will properly address the Terms of Reference.

Draft study findings and recommendations will be briefed to the Army Chief of Staff and to a Joint audience on 26 July 2001 at the Beckman Center in Irvine, California.

Special Studies

- **Adapting Future Wireless Technologies** The study is examining opportunities for modernizing the Objective Force through robust commercial wireless opportunities. The study should complete its initial findings and recommendation during June 2001.
- **Asymmetric Threats to Land Based Operations (2015-2020)** The study is examining innovative ways that asymmetric threats can be used to disrupt land based operations in the future. Initial findings and recommendations should be developed during June 2001.
- **Venture Capital** The study is exploring financial alternatives and opportunities for technology creation and modernizing the Objective Force given future budgetary constraints. This study should have initial findings and recommendations developed in May 2001.
- **Knowledge Based Management and Information Reliability** This effort is examining innovative ways of addressing technology issues that have the potential to "weigh down" our future warfighters with massive amounts of data. Initial findings and recommendations have been developed. Report outbriefs will occur in May/June 2001.
- **Countermine Warfare and Joint Opportunities for the Future** This Joint Army/ Navy effort is currently being outbriefed 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. The report will be posted to the ASB website as soon as it is released.

- **Robotics Study** This study effort is in the planning stage. Initial findings and recommendations are expected in the November 2001 timeframe.

For more information on ASB activities visit, <http://www.sarda.army.mil/home.htm>

Naval Research Advisory Committee (NRAC)

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

The NRAC Summer Study has been rescheduled to 1-12 October due to the delay in obtaining OSD approval of Committee and Panel nominations. The plan remains to conduct two Summer Study Panels and two ad hoc panels. Study descriptions follow:

Roadmap to an Electric Naval Force (Summer Study Panel) Naval forces are on the verge of a revolution in the distribution, control and utilization of power onboard weapons platforms. All-electric ships, boats and combat vehicles offer the promise of improved performance, increased versatility and lower cost of ownership. In order to take full advantage of the opportunities offered by integrated electric power systems, a power system architecture that will facilitate flexibility in operation, rapid recovery from damage, ease of maintenance and ready integration of new technologies as they become available is essential. This study will:

- Review and assess recent trends and developments in the application of electric power to naval platforms as well as weapons and auxiliary systems.
- Recommend a power system architecture for optimum long-term exploitation of the benefits of integrated power systems for Naval forces.
- Recommend a science and technology roadmap for the development of an integrated electric Naval force and identify possible roadblocks to its successful realization.

Life Cycle Technology Insertion (Summer

Study Panel) The rapid evolution of supporting technologies relative to the acquisition cycle and service lifetime of Naval weapons platforms makes it essential to design and acquire future Naval systems in such a way that up-to-date technologies are affordably utilized throughout the service lifetime of the system. Today, new generations of technology become available as often as every two-to-three years, whereas the design-build cycle for a major Naval platform may be as long as seven-to-ten years, and service lives of 25-40 years are typical. Future Naval weapons platforms must be designed to facilitate affordable insertion of current-generation technologies throughout their service lifetimes with minimum impact on availability. This study will:

- Perform case studies of successful and unsuccessful attempts to provide for life cycle technology insertion on recent Naval platforms and extract lessons learned.
- Review and assess the appropriate refresh intervals for the various classes of technologies critical to Naval weapons platforms.
- Recommend a design strategy for ensuring and optimizing life cycle technology insertion opportunities for future Naval weapons platforms.
- Assess current US Navy acquisition practice as regards technology insertion and system re-capitalization and recommend strategies for improvement.

Science and Technology (S&T) Community in Crisis This will be a joint study with the Army Science Board and the Air Force Scientific Advisory Board, with sponsorship by the DUSD(S&T).

The military services are experiencing difficulty recruiting and retaining qualified scientists and engineers to conduct the research and development (R&D) necessary to maintain operational superiority. This difficulty is due, in part, to declining production of new scientists and engineers for the US job market. The services' lack of competitiveness for these scarce resources is due to low salaries and lack of stability in its R&D programs. These trends must be reversed if the services are to ensure the innovative

development of revolutionary capabilities for future Army, Air Force, Navy and Marine Corps forces. This study will:

- Review recent trends in generation of scientists and engineers for the U.S. job market and compare services' recruitment and retention of these individuals to that of the private sector.
- Assess factors contributing to: declining production of US scientists and engineers; lack of the services' competitiveness in recruiting scientists and engineers; and difficulty in retaining qualified scientists and engineers.
- Recommend both near-term steps and a long-term strategy for ensuring continuing availability of a qualified R&D workforce to provide knowledge and technology necessary for continued military superiority.

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.

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

Air Force Scientific Advisory Board (SAB)

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

This year three studies are underway; they are:

- **Sensor Technology for Difficult Targets.** This study addresses 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 addresses 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 addresses 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:

18-29 Jun, Summer Session, Beckman Center, Irvine, CA

10-12 Sep, 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 to be released by end of May.
- **S&T and the AF Vision.** The report is to be released by the end of May.

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

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. The STAB also has two members on the Joint Services Advisory Group, which is sponsored by the Army Science Board.

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