



DSB Newsletter



November 1999

Philip A Odeen, Vice Chairman

Dr. Craig I. Fields, Chairman

John V. Ello, Executive Director

Chairman's Corner

I would like to take the occasion of the Fall Quarterly Meeting (Nov 3-4, 1999) to extend the congratulations of all the Board Members to Dr. Joe Braddock on his well deserved selection to receive the 1999 Eugene G. Fubini Award for outstanding technical and scientific advice to the Department of Defense over a sustained period of time. Dr Braddock's numerous contributions over the past 40 years to the Department of Defense and to the DSB clearly personify all the attributes that the Secretary of Defense identified when he first established the award in 1996. Again, congratulations from all of us to Dr Braddock on receiving this prestigious honor.

Next, I want to applaud the efforts of Mr. Don Latham and Mr. Larry Lynn as well as each of the Subpanel Co-chairs of the 1999 Summer Study for their dedication and hardwork over the past several months. Their combined efforts resulted in a truly integrated product of significant long-term value for the Department of Defense in meeting the new challenges of the 21st century.

Finally, I also want to take this opportunity to thank the respective Chairs and Co-chairs of the following new Task Force initiatives:

*Software (Robert Nesbit)
DoD Spectrum Issues (William Howard)
Improving Fuel Efficiency of Weapon Platforms (Al Alm & Richard Truly)
Nuclear Simulation (John Crawford)
Patriot Anti-Cruise Missile-PACM (Glen Otis)*

I look forward to working closely with each of these important Task Force studies in the months to come.

Dr. Craig I. Fields

DSB MEETING DATES FOR 2000

- Winter Quarterly January 26-27
- Spring Quarterly May 24-25
- Summer Study August 6-18
- Fall Quarterly September 27-28

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1999 DSB Spring Quarterly Meeting



Back Row: Dr. Josh Lederberg, Major Tony Yang, LTC Donald Burnett, CAPT James Lyon, CDR Brian Hughes,
Third Row: VADM Jerry Tuttle, Gen John Vessey, Mr. John Stewart, Mr. Peter Marino, Mr. Robert Nesbit, Dr. Michael Frankel, Mr. Walter Morrow
Second Row: Mr. John Ello, Dr. Patrick Winston, Dr. John Foster, Dr. Ruth David, Mr. Michael Bayer, Mr. Larry Lynn, Mr. James Evatt
Front Row: Mr. George Heilmeier, Dr. Ashton Carter, Dr. Craig Fields, Mr. Phil Odeen, Mr. Dave Heebner, Mr. William Howard, Mr. Vincent Vitto

Staff Changes

Since the last newsletter in May, the previous Army Military Assistant, LTC Donald Burnett, left to be the Program Manager for the Army Fox (Chem/Bio Detection) Vehicle Program. We want to take this opportunity to thank Don for all of his hard work and dedication on the many important Task Forces he supported this past year. To take his place as the new Army Military Assistant, LTC Scott McPheeters has joined us from the Army Staff. In addition, we are extremely fortunate to have Ms. Brenda Leckey come on board. She comes to us from AT&L's Congressional Affairs & Internal Reports office. We want to welcome both Scott and Brenda and look forward to another great year with the DSB.

Farewell

After more than 14 years with the Defense Science Board, Ms. Diane Evans departed for the Defense Threat Reduction Agency (DTRA), where she helped establish and organize a new federal advisory committee known as the Threat Reduction Advisory Committee (TRAC). Diane was an immense asset to the Defense Science Board and she will be sorely missed. We wish her the best of luck in her new position at DTRA.

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.

Congratulations

Dr. George H. Heilmeier recently received the 1999 John Fritz Medal at the IEEE Honors Ceremony in London, England for the discovery of electro-optic effect in liquid crystals leading to

the creation of a new market and a new industry. This medal is awarded for notable scientific or industrial achievement.

Task Force Status

- **1999 Summer Study on 21st Century Defense Technology Strategies**(Co-chairs: Mr. Larry Lynn & Mr. Donald Latham) The study, sponsored by USD(AT&L) and CJCS, examined the 21st century defense technology strategies to meet the national security challenges of the next two decades in light of the huge shifts within the last decade in global relationships, power structures, economics, technology development, and the rise of new adversaries who have access to the latest technologies and are able and willing to employ new forms of warfare. This study concluded their efforts at the Beckman Center in Aug 99 and the Final Report is expected to be released in Nov 99. (Maj Yang)
- **Biological Defense** (Co -chairs: Dr. Josh Lederberg and Dr. George Whitesides) This study, co-sponsored by USD(AT&L) and DDR&E, will be a combined effort of the DSB and the TRAC. The study will assess 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 Task Force is in process with an expected completion date of Dec 99. (CDR Hughes)
- **Coalition Warfare** (Chairman: Dr. Ted Gold) The study, co-sponsored by USD(AT&L) and CJCS, examined how best to make future U.S. military capabilities, embodied by JV2010, coalition compatible. The Task Force completed their deliberations and the final report is expected to be released in Dec 99. (Maj Yang)
- **DoD Frequency Spectrum Issues** (Chairman: Mr. William Howard) The study, co-sponsored by USD(AT&L), ASD(C3I) and JCS/J-6, will examine the competing interest in, and access to, the RF frequency spectrum and its impact on military readiness and national security in the 21st century. The interim results will be made available to support the 2000 World Radio Conference.

An estimated completion time is May 00. (Maj Yang)

- **DoD Human Resources Strategy** (Co-chairs: Dr. John Foster & Gen. Larry Welch) This Task Force, co-sponsored by USD(AT&L) and USD(Personnel & Readiness), reviewed trends and opportunities to improve DoD's ability to attract and retain civilian and military personnel with the motivation and intellectual capabilities to serve and lead in civilian and military capacities. The final report is expected to be released in Nov 99. (LTC McPheeters)
- **Globalization & Security** (Chairman: Dr. Don Hicks) This Task Force is co-sponsored by USD(AT&L) and ASD(C3I). This study examined a number of issues including both the risks and advantages of a globalized industrial base. The report is expected to be released in Nov 99. (LTC McPheeters)
- **Improving Fuel Efficiency of Weapons Platforms** (Co-Chairs: Al Alm and VADM Richard Truly) This study, co-sponsored by DUSD(S&T) and DUSD(ES), will identify technologies that improve fuel efficiency of the full range of weapons platforms (land, sea and air) and assess their operational, logistical, cost and environmental impacts for a range of practical implementation scenarios. The study is in process. (CDR Hughes)
- **National Imagery and Mapping Agency (NIMA)** (Co-chairs: Dr. Anita Jones and Mr. Peter Marino) The Task Force, sponsored by USD(AT&L), reviewed the objectives and plans of NIMA to meet the needs of the national and military intelligence customers as they enter the 21st Century. The final report is expected to be released in Dec 99. (Maj Yang)
- **Nuclear Simulation** (Chairman: John Crawford) The study, sponsored by USD(AT&L), will review the operational, research, and management aspects of the Defense Threat Reduction Agency (DTRA) nuclear simulation program. The Task Force will determine whether the DTRA program is focused on near and far-term DoD needs and requirements and to provide a basis for assessing the adequacy of the program. The study is in process with an expected completed date of May 00. (CDR Hughes)
- **PACM** (Chairman: Gen Glen Otis) The study, co-sponsored by USD(AT&L) and BMDO, will examine the seeker technology upgrade for the Patriot Anti-Cruise Missile program. A progress report is due 15 Dec 99 and the final report is due 15 Feb 00. (LTC McPheeters)
- **Software** (Co-chairs: Bob Nesbit & Marcus Hanson) The study, co-sponsored by USD(AT&L) and DDR&E, will determine the conditions under which the procurement of defense software can appropriately use commercial practices and to develop a strategy for defense software procurement that substantially incorporates such practices. The Task Force is in process. (CDR Hughes)
- **Space Superiority** (Co-chairs: Mr. Edward Aldridge and Dr. Robert Hermann) This study, co-sponsored by USD(AT&L) and ASD(C3I), will provide recommendations on how best to respond to the evolving space environment in a manner which will preserve U.S. leadership, superiority and dominance in national security space capabilities. This effort was organized into five subgroups: GPS, SBIRS, Space Surveillance, Threat Assessment and Organization. Final report is expected to be released in Dec 99. (Maj Yang)
- **Stealth Technology & Future S&T Investment** (Chairman: Dr. Robert Cooper) This study, sponsored by Director, Strategic and Tactical Systems, will explore the relationship between low observable and electronic warfare technologies in providing future weapon system survivability. This effort is expected to provide an update to the study by Dec 99. (Maj. Yang)
- **Tactical Battlefield Communications** (Chairman: Dr. Michael Frankel) Sponsored by USD(AT&L), ASD(C3I), and JCS/J-6, this Task Force has been chartered to determine U.S. needs for wireless communications on future battlefields and the adequacy of communication architecture plans to fulfill

Other Advisory Board Activities

those needs. The final meeting is scheduled for Nov 99. (Maj Yang)

- **Technology Capabilities of Non-DoD Providers** (Chairman: Mr. Walter Morrow) The Task Force, sponsored by USD(AT&L), will develop a template for how the DOD should acquire new technology and systems. The Task Force is examining the ability of Non-DoD suppliers to provide warfighting technology, engineering, and test capabilities needed for future U.S. military forces. This Task Force is in process. (LTC McPheeters)
- **Training and Education** (Co-chairs: Dr. Joe Braddock and Ralph Chatham) This study, co-sponsored by USD(P&R), DDR&E and JCS/J-7, will analyze the impact of training techniques and the potential future learning environment upon the warfare proficiency of our military forces, active and reserve components, and that of potential adversaries in the context of Joint Vision 2010 warfare. The study is in process with an expected completion date of Feb 00. (CDR Hughes)

Since publication of the last DSB Newsletter, the following reports have been completed and released:

- **Joint Operations Superiority in the 21st Century, Vol II (Oct 98)**
- **DoD Logistics Transformation, Vol II (Dec 98)**
- **Advanced Modeling and Simulation for Analyzing Combat Concepts in the 21st Century (May 99)**
- **Control of Military Excess and Surplus Materiel (Dec 98)**
- **Acquisition Reform, Phase IV (Jul 99)**
- **Acquisition Reform Phase IV, Subpanel on R&D (Jul 99)**
- **Investment Strategies for DARPA (Jul 99)**
- **DoD Warfighting Transformation (Sep 99)**
- **Test and Evaluation (Sep 99)**
- **Tritium Production Technology Options (May 99)**

Army Science Board (ASB)

Mr. Michael J. Bayer - Chairman
COL Len Gliatta - Executive Secretary

1999 ASB Studies:

- **Full Spectrum Protection for 2025-Era Ground Platforms (Summer Study).**
- **Enabling Rapid and Decisive Strategic Maneuver for the Army After 2010 (Summer Study).**
- **Acceleration of Warfighter Information Network Terrestrial (WIN-T) Acquisition**
- **Procurement from Firms in the Industrial Base for Production of Small Arms**
- **Patriot Deployment Alternatives**
- **Balkans Contingency Operations**

The ASB is concluding its briefings of the FY 99 Summer Studies, “**Full Spectrum Protection for 2025-Era Ground Platforms**” and “**Enabling Rapid and Decisive Strategic Maneuver for the Army Beyond 2010.**” To date, the leadership of all three Services, the Joint Staff, relevant CINCs and the senior leadership of the OSD have received the briefings. In each of the briefings outside the Army, the participating Service representatives that participated in creating the study results accompanied on the brief.

The ASB conducted its annual general membership meeting, 4-6 October 1999 at the Field Artillery School and Center, Fort Sill, Oklahoma. The meeting focused on the Services Transformation efforts. The three-day event was filled with interesting and informative briefings from senior Defense and Service officials. Included were presentations by VADM Art Cebrowski on the Navy’s, Lt Gen Bob Raggio on the Air Force’s, and MG Bob Scales on the Army’s transformation efforts. Also included were presentations from each of our sister Science Boards. Special thanks go to the study chairs from the DSB, AFSAB, NRAC, and DIA Advisory Board who trekked out to Lawton, Oklahoma in order that our membership could benefit from these insightful and thought provoking studies.

The ASB FY2000 summer studies kick off in November. We expect topic selection in the next week or two. Both studies will have representation from other Service Science

Advisory Boards, and National Guard & USAR general officer representatives from both the Army and Air Force. The TRADOC Commander will make available knowledgeable faculty members from various schools. For the second year Cadet Command is furnishing each study with two technically oriented ROTC cadets who are selected from a national application pool to participate on a part time basis during the academic year and on a full time basis at the Beckman Center this coming July.

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

Naval Research Advisory Committee (NRAC)

Dr. Patrick H. Winston – Chairman
Ms. Diane Mason-Muir – Program Director

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

Task forces:

- **Optimized Surface Ship Manning (Summer Study).** This effort assessed Navy efforts to optimize manning on surface ships. This included a review of previous relevant studies, current programs in U.S. and foreign navies, and relevant technology opportunities. The report is pending final approval for release.
- **Unmanned Vehicles for Mine Countermeasures (Summer Study).** This effort addressed the application and identification of alternatives for Unmanned Vehicles (UVs) in Mine Countermeasures (MCM) Operations. The panel reviewed current programs under development to determine gaps and overlaps and made recommendations for future UV requirements. The report is still in a draft stage.
- **NRAC GPS Vulnerability Report.** This study examines the vulnerabilities of the Global Position System (GPS) which provides a common time and coordinate frame for

conducting joint military operations. The classified report is pending final approval for release.

NRAC has no new Committee members. Year 2000 study topics will be selected at an Executive Committee meeting scheduled for 1 November 1999.

Air Force Scientific Advisory Board (SAB)

Mrs. Natalie Crawford - Co-chair
Dr. William Ballhaus - Co-chair
Col Robert Schraeder - Executive Director

The annual Fall Meeting will be 9-10 Nov at the Crystal City Marriott.

For more information on SAB activities visit, <http://web.fie.com/fedix/sab.html>

1999 SAB main studies:

- **Building the Joint BattleSpace InfoSphere.** This SAB effort identified the methods, techniques, and issues involved in forming a Joint BattleSpace InfoSphere, as originally described in the 1998 study. The CSAF and the SecAF have been briefed on the study results and recommendations. They directed several additional briefings to Air Staff directors, and the beginning incorporation of the concepts of the JBI into the EFX 2000. The briefing and report will be put on the SAB web page.
- **Technologies for Leveraging Aerospace Power in Situations Other than Conventional War.** The results and recommendations of the Summer Study have been briefed to the SecAF, CSAF and the written report is being finalized. The briefing will be posted on the web page shortly.
- **Ensuring Successful Implementation of Commercial Items (COTS) in Air Force Systems.** This study identified areas and issues critical to successful incorporation of COTS subsystems in new system design. The results and recommendations of the study have been briefed to the SecAF and CSAF

and the written report is nearly final. Both will be published on the web page.

- **AF Test and Evaluation Infrastructure Study.** The final report has been released and is being printed. It will also be published on the web site.

The second half of the biennial quality review of the AFRL S&T portfolio commences the week of 15 Nov. The final report will be written in January and briefed to SAF/AQ, CSAF and SecAF next spring. The Spring General Board Membership meeting will be held during the month of Mar 00. The 2000 Summer Studies will be held 10-21 Jul at the Hayes Conference Center, San Jose, CA. The study topics for this year are in the approval cycle and will be announced at the Fall Board meeting.

DIA Science and Technology Advisory Board

Dr. Michael Wartell – Chairman
Maj Don Culp – Exec Sec & Dir

Vice Admiral Tom Wilson, DIA Director, will be meeting with the Science and Technology Advisory Board (STAB) for the first time on 9-10 Nov. VADM Wilson has announced his top four intelligence priorities and plans for the STAB to dedicate itself to providing further ideas and definition to these thrust areas. The four priorities are: Database Issues; Intelligence Integration to Achieve a Common Operating Picture; Revitalize the Workforce; and Shape to Meet Asymmetric Threat.

For copies of the following 1998-99 STAB panel reports, contact the STAB office at (202) 231-4930.

- **Science and Technology Intelligence**
- **Intelligence Integration & Dissemination**
- **Intelligence Products**
- **DIA S&T Manning Review**

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Mr. Peter A. Marino, Firearms Training Systems, Inc.

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

Mr. Robert F. Nesbit, The MITRE Corporation

Gen Glenn K. Otis, USA (Ret), Private Consultant

Mr. John M. Stewart, McKinsey & Company, Inc.

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VADM Jerry O. Tuttle, USN (Ret), ManTech Systems Engineering Corp.

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Mr. Vincent Vitto, Charles Stark Draper Laboratory

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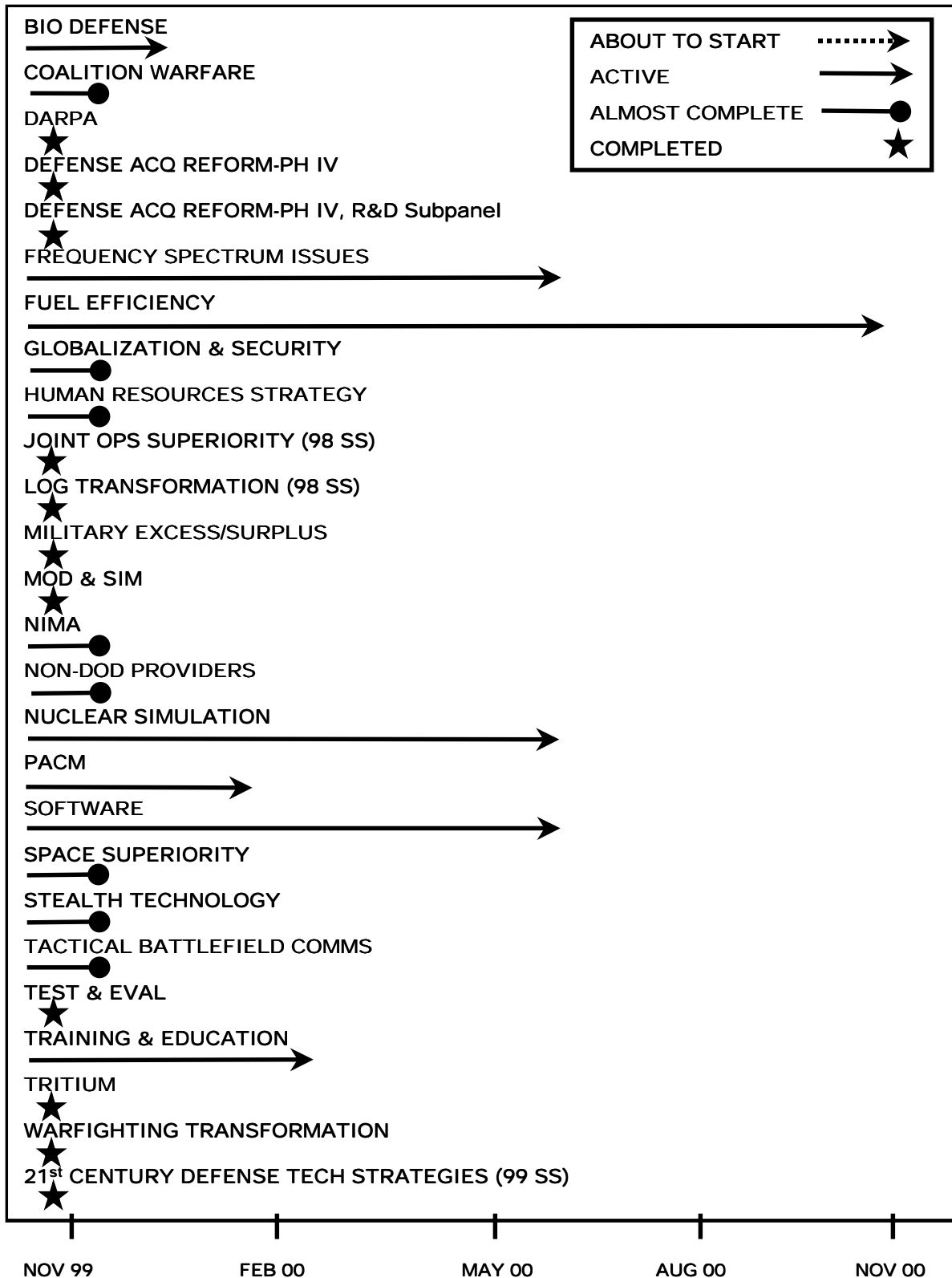
Dr. Michael Wartell, DIA Science & Technology Advisory Board

Dr. Patrick H. Winston, Naval Research Advisory Committee

Secretary of Defense

Deputy Secretary of Defense

DSB Task Force Timelines



Secretary of the Army
Secretary of the Navy
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Chief of Naval Operations
Commandant of the Marine Corps
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Director, Defense Research & Engineering
Assistant Secretary of Defense/Public Affairs
Under Secretary of the Army
Under Secretary of the Navy
Under Secretary of the Air Force
Army Vice Chief of Staff
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Vice Chief of Naval Operations
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