



DSB Newsletter



February 1999

Phillip A Odeen, Vice Chairman Dr. Craig I. Fields, Chairman John V. Ello, Executive Director

Chairman's Corner

As we begin another year of important study initiatives, I want to first welcome the following new members of the Defense Science Board:

*Mr. Duane D. "Buz" Fitzgerald
Mr. V. Larry Lynn
Dr. Ruth A. David
Mr. Robert F. Nesbit
Gen Glen K. Otis, USA(Ret)*

I also want to take this opportunity to express my thanks and appreciation to both Larry Lynn and Don Latham for the leadership roles they are currently undertaking in support of this year's Summer Study on Defense Technology Strategies for the 21st Century. I personally view this effort as one of the most significant studies that the Board has undertaken in the past ten years. Building on the seminal effort that Johnny Foster led at the beginning of the 90's, as well as a number of other key summer studies, particularly since 1995, this year's initiative should provide a fitting capstone to a decade of enormous change which has brought new defense challenges in WMD threats, intelligence, information warfare defense, and force modernization, among others.

Once again I am confident that with the continuing strong support of the DoD senior leadership, the '99 Board will continue its established tradition of providing timely and considered advice in support of the Department of Defense and our Nation's national security.

I look forward to working closely with all of you to make that happen in the months that lie ahead.

Dr. Craig I. Fields

1999 DSB MEETING DATES

- February 3-4 Winter Quarterly Meeting (Pentagon)
- May 5-6 Spring Quarterly Meeting (Pentagon)
- August 1-13 Summer Study (Beckman Center, Irvine, CA)
- November 3-4 Fall Quarterly Meeting (Pentagon)

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NEW WEB SITE: 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 on page 8.

1999 Summer Study Program

This study will review and consider the broad spectrum of topics which were addressed in the 1990 DSB Summer Study entitled "Research and Development Strategy for the 1990s". Since that earlier study, we have experienced huge shifts 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. Of particular concern is the proliferation of nuclear, chemical, and biological weapons technology and the many means to deliver such weapons. In addition, we have experienced a dramatic revolution in global information access, sharing, and utility. Information is now a critical and powerful enabler of economic, political, and military power and this importance of information will almost certainly continue to increase; much of this information access is available to potential enemies as well.

To address these dramatic changes, the 1999 Summer Study will organize into four interdependent, topic-specific Task Forces. An overarching fifth Task Force will integrate the overall study into a cohesive set of findings and recommendations. The Task Forces will undertake the following initiatives:

- Task Force One: 21st Century Intelligence Needs and Adversaries
- Task Force Two: Force Modernization Underwriting Joint Vision 2010 and Beyond
- Task Force Three: Information Operations
- Task Force Four: Defense Technology Strategy, Management and Acquisition
- Task Force Five: Strategy Integration Task Force

Mr. Donald Latham and Mr. Larry Lynn will serve as co-chairmen of the study and Strategy Integration. The other four Task Forces will be co-chaired as follows:

- Intelligence & Threat TF: Dr. Ruth David and LTG Ken Minihan (USAF ret)
- Force Modernization TF: Gen Larry Welch and Dr. Ted Gold
- Information Dominance TF: Mr. Bob Nesbit and Dr. Taylor Lawrence
- Managing Defense Technology TF: Mr. Walter Morrow and Dr. Ken Gabriel

Study Reports Completed and On-going Studies

- **1998 Summer Study on Joint Operations Superiority in the 21st Century** (Co-Chairs: Gen. Larry Welch, USAF (Ret.) & Mr. Donald Latham) The study addressed integrating capabilities underwriting joint operations superiority in the 21st Century. The first volume was released in Dec 98. Remaining two volumes will be out shortly. (CAPT Lyons)
- **1998 Summer Study on DoD Logistics Transformation** (Co-Chairs: Mr. Phil Odeen and Mr. Bill Howard) The purpose of this summer study was to address the transformation of Military Logistics for the 21st Century. The final report was released in Jan 99. (LTC Burnett)
- **Advanced Modeling and Simulation for Analyzing Combat Concepts in the 21st Century** (Co-Chairs: Dr. Ted Gold and Gen. Larry Welch, USAF (Ret.) This Task Force is addressing the modeling and simulation capabilities required for analyzing concepts for 21st Century military combat operations. The report will be released within the month. (LTC Burnett)
- **Biological Defense** (Co -Chairs: Dr. Josh Lederberg and Mr. George Whitesides) This 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 Terms of Reference (TOR) is being finalized. (CAPT Lyons)
- **Coalition Warfare** (Chairman: Dr. Ted Gold) The last meeting was held in Dec 98 and the final report is expected in Mar 99. (Maj Yang)
- **Control of Military Excess/Surplus Materiel** (Co-Chairs: Dr. Delores Etter and Mr. John Stewart) This Task Force examined the effectiveness and relevance of current export controls; the threat posed from release of surplus military materiel; and any changes needed in current policy and regulations for controlling surplus military materiel. The report will be released within the month. (LTC Burnett)
- **Defense Acquisition Reform, Phase IV** (Chairman: Dr. Robert Hermann) This Task Force is reviewing the status of current Acquisition Reform initiatives with a view toward developing metrics to improve future programs. An interim product of the Task Force addresses Price-Based Acquisition and a final report will be published shortly. (LTC Burnett)
- **DoD Human Resources Strategy** (Co-Chairs: Dr. John Foster & Gen. Larry Welch) This Task Force is co-sponsored by USD(A&T) and USD(Personnel & Readiness) and is reviewing 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. Expected completion in Jun 99. (LTC Burnett)
- **Globalization & Security** (Chairman: Dr. Don Hicks) This Task Force is co-sponsored by USD(A&T) and OASD(C3I). An estimated completion date is Jun 99. This study will examine a number of issues including both the risks and advantages of a globalized industrial base. (LTC Burnett)
- **Investment Strategies for DARPA** (Chairman: Mr. Vincent Vitto) This Task Force has been chartered to examine DARPA's Investment Strategy and will focus on an assessment of DARPA's mix of near, mid and far term technologies. An Interim Report is expected in Mar 99. (CAPT Lyons)
- **Military Training and Education** (Co-chairs: Dr. Joe Braddock and Dr. Ralph Chatham) The TOR is in review. This Task Force will analyze the impact of training techniques and the learning environment upon the warfare proficiency of our military forces active and reserve components, and threat of potential adversaries in the context of Joint Vision 2010 warfare. First meeting is scheduled for end of Feb. (CAPT Lyons)

- **National Imagery and Mapping Agency** (Co-Chairs: Dr. Anita Jones and Mr. Peter Marino) The Task Force is reviewing the objectives and plans of NIMA to meet the needs of the national and military intelligence customers as they enter the 21st Century. The last meeting was held in Jan 99 and a final report is expected to be published in Feb 99. (Maj Yang)
 - **Space Superiority** (Co-Chairs: Mr. Edward Aldridge & Dr. Robert Hermann) This Task Force 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. The third meeting was held at Los Angeles AFB on Jan 27-28 to review AF programs and was followed by a subgroup which traveled to Vandenberg Air Force Base on Jan 29 for a tour of the Space Operations Center and to meet with the 14AF Commander. (Maj Yang)
 - **Stealth Technology & Future S&T Investment** (Chairman: Dr. Robert Cooper) The Task Force has concluded its effort and the Final Report will receive very limited distribution due to the nature of its classification. (Maj. Yang)
 - **Tactical Battlefield Communications** (Chairman: Dr. Michael Frankel) Sponsored by USD(A&T), 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 those needs. The results of an interim report on Joint Tactical Radio System has been briefed to ASD(C3I). (Maj Yang)
 - **Test and Evaluation** (Chairman: Mr. Dave Heebner) This Task Force is undertaking a broad review of the entire range of activities relating to Test and Evaluation (T&E), including such areas as ACTD; infrastructure; and a "systems of systems." The Task Force recently traveled to Edwards Air Force Base and Arnold Air Force Base. The final two meetings will occur in Feb and Mar 99. (CAPT Lyons)
 - **Technology Capabilities of Non-DoD Providers** (Chairman: Mr. Walter Morrow) This USD(A&T) sponsored study is examining the ability of Non-DoD providers to provide warfighting technology, engineering, and test capabilities needed for future U.S. military forces. A preliminary report is expected by Apr 99 with the final report due in Jun 99. (LTC Burnett)
 - **Tritium** (Chairman: Gen Larry Welch, USAF (Ret)) Members of the Task Force on Nuclear Deterrence met to evaluate and comment on different options of restarting Tritium production in the U.S. The results of the effort were provided to both the Secretary of Energy and the Dep Sec of Def. (CAPT Lyons)
- Since publication of the last DSB Newsletter, the following reports have been completed and released:*
- *Joint Operations Superiority in the 21st Century*
 - *Logistics Transformation*
 - *Nuclear Deterrence*
 - *Open Systems*
 - *Tactical Battlefield Communications (Interim Report on Joint Tactical Radio System)*
- Other DoD Advisory Board Activities**
- Army Science Board (ASB)**
- Dr. Michael J. Bayer - Chairman
 - Dr. W. Foster Rich - Vice 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**
- Proposed Studies:**
- **Army Investment Strategy for Directed**

Energy Weapons

The ASB 1999 summer studies kicked off in November. Both studies have representation from other advisory boards, and National Guard general officer representatives from both the Army and Air Force. Cadet Command has furnished each study with two technically oriented cadets who will participate on a full time basis at the Beckman Center this coming July. Both studies have organized themselves into subpanels and will meet on a monthly basis in advance of the 12-22 July report writing session.

Both summer studies will have their focus 2 to 3 decades into the new millennium. The "full spectrum" study will look at "trades" in terms of survivability, deployability, weight, and lethality that must be considered in developing the next generation of ground vehicles. The "strategic maneuver" study will build on the work of the 1998 summer study, "Concepts and Technologies for the Army Beyond 2010." It will take a multidimensional look at the many issues, problems and opportunities for rapidly moving Army forces to a distant theater of operations in a ready to fight condition.

The ASB welcomes the following newly appointed members:

Ms. Marygail Brauner, Operations Research Analyst, Rand Corporation
Mr. Carl B. Fischer, Senior Vice President, Space, Gencorp Aerojet
Dr. Anthony K. Hyder, Professor of Physics and Aerospace, Notre Dame University
Mr. Kalle R. Kontson, Vice President and Division Manager, IIT Research Institute
Dr. Gabriel Robins, Professor of Computer Science, University of Virginia

Naval Research Advisory Committee (NRAC)

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

NRAC 1998 Summer Study task forces are complete. The first study, Information Technology and Alternatives, has been published. The second study, Training and Technologies is

expected to be published late Feb 99.

The NRAC Panel on Global Positioning System (GPS) Vulnerability and Alternatives has completed its work. The results of the panel are in the briefing circuit. A report is expected in Apr 99.

The NRAC '99 Summer Study will occur at the Navy Space and Warfare Systems Center in San Diego, 19-30 Jul 99. Areas of work have been identified although specific topics have not been assigned. The areas of work are: 1) Technologies to reduce manning on surface ships, 2) Unmanned vehicles with a focus on mine counter measures, and 3) Ship Propulsion options: mechanical versus mechanical electric versus all electric.

Air Force Scientific Advisory Board (SAB)

- SAB Co-chairs: Mrs. Natalie Crawford, RAND Corporation and Dr. William Ballhaus, Lockheed Martin Corporation.
 - Executive Director: Col Robert Schraeder
- The annual Fall Meeting was held 14-15 Oct. Web page, <http://web.fie.com/fedix/sab.html>

1998 SAB Studies:

A Space Roadmap for the 21st Century Aerospace Force, a.k.a., Going to Space: A Roadmap (Summer Study). The results and recommendations of the Summer Study were briefed to the SecAF, CSAF and several organizations including the OSD Office of Net Assessment and the NRO. The report will be posted on the SAB web page at the end of Feb.

Information Management Support for the Warrior. This SAB study effort identified a new concept, the Battlespace Infosphere, to increase reachback, based on Publish and Subscribe principles. The CSAF and the SecAF were briefed on the study results and recommendations in Oct and Nov 98, respectively. The study team recommended an effort to further develop the concept and implementation of the Battlespace Infosphere, which will be an ad hoc study this summer. This report will be put on the SAB web page by the end of Feb.

AF Test and Evaluation Infrastructure Study. The T&E report is in the final review process and should be ready for release by the end of Feb.

The outbrief to SAF/AQ is scheduled for Feb 19.

Scientific Advisory Board Activities Schedule.

The Spring General Board Membership meeting will be hosted by the US Air Force Academy on 24-26 Mar 99. The 1999 Summer Study will be held 14-25 Jun 99 at the Arnold & Mabel Beckman Center, National Academy of Science, in Irvine, CA. The study topics this year are:

- **Summer Study – Technology Options to Leverage Aerospace Power in other than Conventional War Situations** (Study Chair, Mr. Tom McMahan, Vice Chair, Dr. Peter Worch)
- **Building the BattleSpace InfoSphere** (Study Chair, Gen [t] James McCarthy)
- **Ensuring Successful Implementation of Commercial Items in Air Force Systems** (Study Chair, Mr. Jeff Grant)

DIA Science and Technology Advisory Board

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

1998 DIA STAB Studies:

Intelligence Modeling and Simulation. The panel has concluded the research and deliberation phase of its study. The final report is currently being prepared.

Science & Technology Threats. This study is examining technological surprise and the implications for intelligence collection. The study will conclude in April 1998.

Intelligence Integration and Dissemination. The panel has briefed the Director, DIA, on its findings and is preparing the final report.

Intelligence Products. The panel has concluded its study and will be briefing the Director in February on its findings and recommendations. A final report is being prepared.

DIA Manning Strategy. Panel has concluded the research & deliberation phase of its study. The final report & briefing are being prepared.

Transnational Threats. This study is examining the issues raised by the 97 DSB Summer Study on Transnational Threats, with respect to DIA and its

roles and responsibilities. This study is projected to conclude by April 99.

Probable 1999 Studies

- **Human Intelligence as an Enabler to other Intelligence Collection Disciplines**
- **Standing Committee on Science & Technology for DIA**
- **Data Mining Tools & Training for the Analyst**
- **National and Defense Laboratory Support to DIA**

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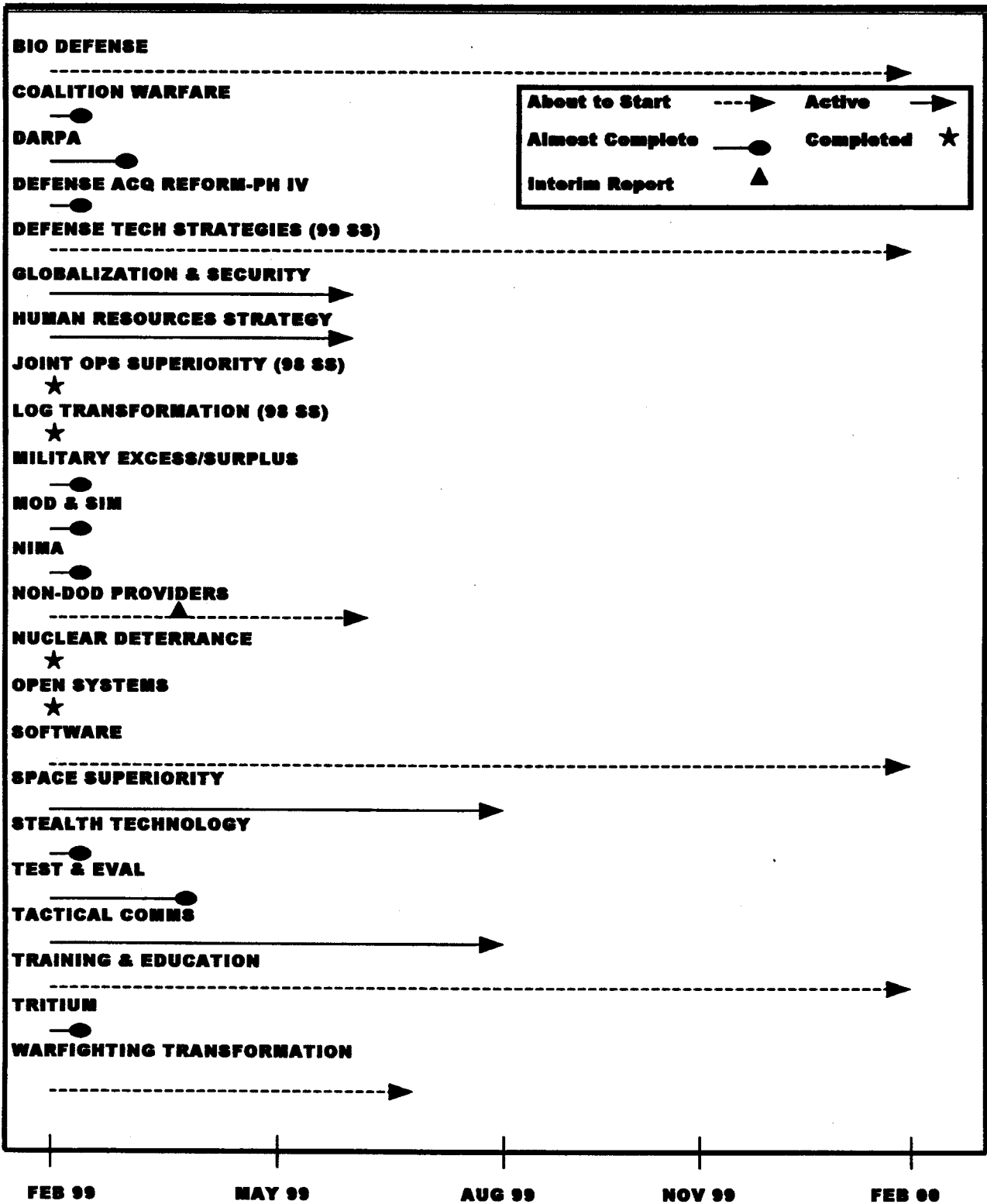
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DSB Task Force Timelines



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