

**APPROVED MINUTES¹
OPEN SESSION
380TH MEETING
NATIONAL SCIENCE BOARD**

The National Science Foundation
Arlington, Virginia
May 3-4, 2004

Members Present:

Warren M. Washington, Chair
Diana S. Natalicio, Vice Chair
Barry C. Barish
Steven C. Beering
Ray M. Bowen
Kenneth M. Ford
Daniel E. Hastings
Elizabeth Hoffman
Anita K. Jones
George M. Langford
Joseph A. Miller, Jr.
Diana S. Natalicio
Douglas D. Randall
Robert C. Richardson
Michael G. Rossmann
Luis Sequeira
Daniel Simberloff
Jo Anne Vasquez
John A. White, Jr.
Mark S. Wrighton

Arden L. Bement, Jr., *ex officio*

Members Absent:

Delores M. Etter
Nina V. Fedoroff
Jane Lubchenco
Maxine Savitz

¹ The Minutes of the 380th meeting were approved by the Board at the August 2004 meeting.

The National Science Board (NSB, the Board) convened in the Open Session at 1:15 p.m. on Tuesday, May 4, with Dr. Washington, Chair, presiding (NSB-04-57). In accordance with the Government in the Sunshine Act, this portion of the meeting was open to the public.

Dr. Washington recognized the NSB Class of 2004 who were completing their service with the May Board meeting: Drs. Beering, Jones, Langford, Miller, Richardson, Savitz, and Sequeira. On behalf of the Board, Dr. Washington expressed his thanks for their dedication, hard work, and willingness to struggle with complex policy issues that the Board has addressed during their term. Their service on behalf of the science and engineering enterprise and the Nation has been exemplary and much appreciated.

Dr. Washington announced that Dr. Pamela Ferguson, Member of the NSB Class of 2004, died on April 24 after a long illness. Dr. Washington stated that she served the Board well with her insights and expertise, and asked for a moment of silence.

AGENDA ITEM 7: Approval of Open Session Minutes, March 2004

The Board APPROVED the Open Session minutes of the March 2004 meeting (NSB-04-52, Board Book Tab 10A).

AGENDA ITEM 8: Closed Session Items for August 2004

The Board APPROVED the Closed Session items for the August 2004 meeting (NSB-04-49, Board Book Tab 10B).

AGENDA ITEM 9: Chairman's Report

a. Board Meeting Calendar for 2005

Dr. Washington stated that the proposed calendar for Board meetings in 2005 was developed after reviewing dates of other professional meetings and polling Board Members about their availability.

The Board APPROVED the NSB Meeting Dates for Calendar Year 2005 as distributed (NSB-04-75 and NSB-04-79, Board Book Tab 10C).

Dr. Washington asked Dr. Michael Crosby, Executive Officer to the Board, to develop a list of candidate locations for the 2005 annual Board retreat that will include a visit to a National Science Foundation-sponsored facility, and to present the list at the August meeting.

b. Results of NSB Election

The Board re-elected Dr. Washington to a two-year term as Chairman of the Board, and Dr. Natalicio was re-elected as Vice Chair for a two-year term. Drs. Washington and Natalicio were elected by acclamation as members of the Executive Committee for the same term.

c. Dr. Lubchenco's Award

Dr. Washington announced that last month, Dr. Luchenco, Valley Professor of Marine Biology and Distinguished Professor of Zoology at Oregon State University, was awarded the American Institute of Biological Sciences' Distinguished Scientist Award for her contributions to biological sciences. He offered her the congratulations of the Board.

d. Annual Awards Dinner

Dr. Washington described the annual Awards Dinner held May 3 at the National Museum for Women in the Arts. He noted that it is one of the few opportunities the Board has to recognize the distinguished contributions of individuals and organizations to the advancement of science, and that the Board was honored to receive a gracious message from the President. He said it was an honor and a privilege to present the 2004 Honorary Awards to such distinguished, talented, and creative people as Dr. Mary L. Good (Vannevar Bush Award); Dr. Kristi Anseth (Alan T. Waterman Award); Dr. Oliver W. Sacks (individual Public Service Award); and the Alfred P. Sloan Foundation (group Public Service Award). On behalf of the Board, the Chairman thanked Ms. Susan Fannoney, NSB Office, and other staff responsible for the smooth operation of the Awards Dinner.

e. Discharge of Committee

Dr. Washington discharged with thanks the *ad hoc* Committee on the 2004 Vannevar Bush Award, chaired by Dr. Bowen, with members Drs. Beering, Fedoroff, Hastings, and Savitz. Ms. Fannoney served as Executive Secretary.

f. Forthcoming Vacancy on Executive Committee

Dr. Washington reported that he had asked the members of the Nominating Committee to continue to serve and develop a slate of candidates for the opening created on the Executive Committee when Dr. Richardson's Board term ends this month. He asked the Nominating Committee to report back in time to hold elections for this position in August.

AGENDA ITEM 10: Director's Report

a. Introduction of National Science Foundation (NSF) Staff

Dr. Bement introduced four new senior staff appointments: Dr. Michael Willig, Director of the Institute for Biological Studies at Texas Tech University, to Director, Division of Environmental Biology in the Directorate for Biological Sciences; Dr. Sangtae Kim of Purdue University and Vice President for Information Technology (IT) of the Lilly Research Offices to Director, Division of Shared Cyber-infrastructure in the Directorate for Computer and Information Sciences and Engineering; Dr. Michael Reischman, formerly Director of the University Programs Office of Aerospace Technology, NASA, to Deputy Assistant Director, Directorate for Engineering; and Mr. Joseph Burt to Director of the Division of Human Resources Management.

b. Congressional Update

Dr. Bement reported that, on March 16, he testified on H.R. 3970 before the House Science Committee on legislation related to coordination of Federal Green Chemistry Research development, demonstration, education, and technology transfer activities. The House passed this bill April 21, but no Senate version has been introduced. On March 24, Dr. John Brighton, Assistant Director for Engineering, testified on H.R. 3980 before the House Science Committee. This bill would establish an interagency working group on Windstorm research through the office of Science and Technology Policy. On March 31, Dr. Judith Ramaley, Assistant Director of the Education and Human Resources Directorate, testified on H.R. 4030, a bill to establish a medal to recognize outstanding private sector contributions to math and science education. The bill also passed the House on April 21, but no similar legislation had been introduced to the Senate yet.

Dr. Bement also reported that he met with House Appropriations Subcommittee on VA, HUD and Independent Agencies Chairman James Walsh and Ranking Member Alan Mollohan before testifying on April 1 with Dr. Washington to the subcommittee. At the subcommittee meeting, members expressed concern about funding levels for programs aimed at states and institutions that have not typically received significant NSF support. Dr. Bement added that briefings have been held for congressional staff on the NSF merit review process, priority setting, the budget process, personnel and staffing policies, funding for centers, the Math and Science Partnerships Program, and information technology (IT) requirements at NSF. A hearing on high performance computing before the House Science Subcommittee was postponed, and will be rescheduled. The Senate Committee on Commerce, Science, and Transportation plans an upcoming hearing on climate change research.

c. Update on Smithsonian Institution Funding

The NSF Acting Director reported that, at the direction of the NSB Chairman, he had terminated negotiations with the Smithsonian Institution (SI) relating to a memorandum

of understanding for implementing the policy change approved by the Board in March 2004 (NSB-04-52, Agenda Item 8c). The NSB Chairman's action responded to a letter from Senator Kitt Bond, Chairman of NSF's Appropriations Subcommittee, directing that no further steps should be taken to implement the Board's recent policy change regarding eligibility of SI researchers to apply for NSF grants.

AGENDA ITEM 11: Committee Reports

a. Executive Committee (EC)

Dr. Bement, chairman of the Executive Committee, reported that in Open Session the committee approved the minutes of their March meeting (NSB/EC-04-07, Board Book Tab 5A) and endorsed the 2003 Annual Report of the Executive Committee (NSB-/EC-04-6, Board Book Tab 10D) for delivery to the full Board with the recommendation that it be accepted.

On this recommendation, the Board APPROVED the annual report of the Executive Committee (NSB/EC-04-07).

b. Audit and Oversight (A&O)

Dr. Wrighton, chairman of the Audit and Oversight Committee, reported that Dr. Christina Boesz, NSF Inspector General, presented the *Semiannual Report to the Congress, March 2004, Office of the Inspector General* covering the period from October 1, 2003 to March 31, 2004. The committee heard the NSF management response from Dr. Bruce Umminger, Office of Integrative Activities (OIA). The committee approved the transmittal letter for the report to the President and Senate and recommended approval by the Board.

Based on the recommendation by the Audit and Oversight Committee, the Board APPROVED the transmittal letter and management response to the *Semiannual Report to the Congress, March 2004, Office of the Inspector*.

The committee heard an update from Mr. Thomas Cooley, NSF Chief Financial Officer. He discussed a policy issue raised in a recent audit: Charges for Extra Compensation Above Base Salary for University Researchers. NSF's implementation is more restrictive than the policy in OMB Circular A-21, "Cost Principles for Educational Institutions." Mr. Cooley recommended that NSF-specific coverage be deleted from the NSF Grant Policy Manual (NSF-02-151) and that NSF rely solely on OMB Circular A-21 as policy in this area. The committee voted to recommend this to the Board.

On the above recommendation, the Board acted as follows: the Board APPROVED the recommendation that NSF-specific coverage be deleted from the NSF Grant Policy Manual and that the NSF use the OMB Circular A21 as the guiding policy.

The committee also had two information updates. First, Dr. George Strawn, NSF Chief Information Officer, discussed NSF's continued success in aligning business goals with IT activities, computer security at NSF, and interagency initiatives. NSF has been an active participant in efforts related to grants, including a new effort to share common grant management. The second update was from Dr. Fae Korsmo, OIA, on highlights of the 2003 NSF Merit Review Report (NSB-04-43, Board Book Tab 10E), including issues related to proposal success rate, program officer workload, and reviews of the quality of merit review provided by NSF Committees of Visitors.

Dr. Mark Wrighton reported that the A&O Committee will be working closely with the Office of Inspector General to review cost and benefits as well as the effectiveness of NSF appointments under the Intergovernmental Personnel Act. This issue had been raised in the recommendations of the recent National Academy of Public Administration report (*National Science Foundation: Governance and Management for the Future*, April 2004).

c. Education and Human Resources (EHR)

Dr. George Langford, chairman of the Education and Human Resources Committee, thanked NSF staff and EHR committee members for their service. Special acknowledgement was given to the contributions of committee member Dr. Pamela Ferguson.

Dr. Langford stated that the committee reviewed the major items the committee addressed over the past two years, including the review process for evaluating the EHR portfolio; the working groups looking at K-12, undergraduate and graduate education; the progress of the Math and Science Partnerships program; the EHR Task Force on National Workforce Policies for Science and Engineering that produced the NSB report: *The Science and Engineering Workforce-Realizing America's Potential* (NSB-03-69); and the workshop and report on Broadening Participation.

The committee members reviewed the revisions to the draft report *Broadening Participation in Science and Engineering Research and Education* (NSB-04-41) and resolved to forward it to the Board for approval for posting for public comment. At the end of the public comment period, the EHR Committee will review the comments and make recommendations on revisions to the draft to the full Board for final approval.

The Board APPROVED the release of the draft report, *Broadening Participation in Science and Engineering Research and Education*, for public comment.

The committee heard from Dr. Ramaley who introduced plans for EHR to develop a prospectus (5-year time frame) to help identify and inform future opportunities for EHR/NSF investments in cyber-learning research and development. EHR staff described the current progress, outlined a set of workshops and/or roundtable discussions that are planned as a companion effort, and presented some leading edge examples of cyber-infrastructure-supported education that cut across the NSF portfolio.

d. EHR Subcommittee on S&E Indicators

Dr. Richardson, chairman of the EHR Subcommittee on S&E Indicators, stated that the White House transmitted *Science and Engineering Indicators 2004* to Congress on Thursday, April 22, and the report was released this week. (The report is the 16th in the biennial series examining key aspects of the status of science and engineering in the U.S.) He thanked everyone on the Board for their contributions to producing this volume.

e. Committee on Programs and Plans (CPP)

Dr. Jones, committee chairman, reported that Dr. Joseph Bordogna, NSF Deputy Director, made a presentation on the current “new start” MREFC panel process. The committee discussed the process used by NSF and NSB to select and prioritize multiple competing large-scale research facility projects. A draft white paper defining a new process for NSF and NSB to develop, review, approve and prioritize multiple competing large-scale research facility projects was discussed, revised, and forwarded to the Board with a unanimous CPP recommendation for approval. The document provides a cross-disciplinary context for evaluating multiple proposed facilities in different areas. It also addresses recommendations from a recent National Research Council report, as well as concerns expressed by Congress. The specific details for implementing this new process will be developed jointly by the Board and the NSF in the coming months, and will be reviewed and approved by the Board prior to full implementation.

The Board acted as follows on the CPP recommendation: the Board APPROVED the white paper describing the process for Priority Setting for Large Facility Projects (NSB-04-97) subject to final minor edits. Board members commented on the high quality of the white paper and commended Dr. Jones for leading the process that produced it.

Dr. Jones then asked Dr. Simberloff to report on re-examination of the priority order for existing Major Research Equipment and Facilities Construction (MREFC) “new start” projects, taking into consideration the criteria recommended by a report of the National Academies. Dr. Simberloff reported that the five projects in queue were reprioritized as follows: (1) Scientific Ocean Drilling Vessel, (2) National Ecological Observatory Network (NEON), (3) Rare Symmetry Evaluating Processes, (4) Ocean Observatories Initiatives, and (5) Alaska Region Research Vessel. In the committee’s closed session, the committee deliberated and approved the reprioritization that was recommended to the Board.

Following this recommendation, the Board acted as follows: the Board APPROVED the reprioritization of MREFC projects in Closed Session.

Dr. Jones stated that Dr. Michael Turner, Assistant Director, Mathematical and Physical Sciences Directorate, reported to the committee on the Underground Laboratory project. He noted that the NSF has prepared three solicitations to engage in activity to develop competitive proposals for underground laboratories.

The committee also received updates from the Subcommittee on Polar Issues (see below). The Task Group on Long-lived Data Collections continued to develop a report that will be the written results from the two workshops. Dr. Crosby reported that the *ad hoc* Task Group on High Risk Research will continue to work on a white paper and will tentatively plan a workshop for the fall.

f. CPP Subcommittee on Polar Issues (PI)

Reporting for the Subcommittee on Polar Issues, Dr. Simberloff stated that the committee heard an update from the Office of Polar Programs (OPP). It discussed the recent medical evacuation of three people from McMurdo Station and a tragic helicopter crash on the North Slope of Alaska, in which one member of the Arctic research team from the University of Alaska Fairbanks was killed.

The subcommittee heard a presentation on the status and science goals of the IceCube, the neutrino detector project, a joint project of OPP and the Directorate for Mathematical and Physical Sciences at South Pole Station. There were also presentations about the science infrastructure at both Poles.

g. Committee on Strategy and Budget (CSB)

Dr. Barish reported for the Committee on Strategy and Budget in the absence of Dr. Savitz. Mr. John Wilkinson, Office of the Director, was introduced as the new CSB Executive Secretary.

The committee recognized the contributions of Dr. Pamela Ferguson to CSB, especially her interest in diversity issues and in establishing appropriate processes for Board activities.

The committee heard from Dr. Peter Freeman, Assistant Director, Computer Information Science and Engineering, who described the strategy and planning for the transition of the Information Technology Research Priority Area into core NSF programs after this year. The transition is proceeding seamlessly with four general themes identified: continuation of IT projects, integration into new core activities, continued interdisciplinary collaborations, and exploration of new opportunities.

The committee discussed the NSF responses to questions posed at the CSB meeting in March on the impacts of budget and funding decisions on proposals, awards, and participation. Further, the committee expressed concern about the decrease in the success rate and the impact on potential proposers as well as the difficulty in collecting accurate data about undergraduates supported in the program.

Dr. Barish reported that Dr. Bement discussed the long-range planning process in general and provided the context for the FY 2006 budget request. Dr. Bement noted that the Administration has consistently identified clear budget priorities: securing the homeland, winning the war on terror, and reducing the deficit. There is a close correlation between

NSF funding and non-defense discretionary spending, although NSF has done slightly better than the larger Federal portfolio. Dr. Barish reported that the committee provided some early guidance on preparation of the 2006 budget and that CSB plans to have a telephone conference in late June or early July as budgets are being prepared.

In the committee's closed session, Dr. Bement provided information on the FY 2006 budget outlook and projected budget scenarios to the committee. He discussed NSF strategies and investment priorities under these scenarios. The committee agreed that, using Section 22 of the NSF Authorization Act of 2002 as a basis, CSB and the Board will produce a short "impact document" to reflect the difference between the actual budget and the authorized level for use in discussions with the Administration and congressional staff for the October meeting.

Dr. Washington noted that on May 10, seven Members of the Board would complete their terms. He thanked the Class of 2004 for their dedicated service. Dr. Washington then adjourned the Open Session at 2:20 p.m.



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