AMS Committee on Science Policy
Report on meeting held April 11-12, 2003, Washington DC

Held immediately before the AMS Council meeting, whose members and invitees were also invited to attend CSP, the event drew forty-eight attendees, including ten chairs of doctorate-granting departments of mathematics, and the usual broad selection of Washington-based speakers.

Scheduled as usual at an early stage of deliberations that will determine the following year's appropriations, the meeting offered briefings by Congressional and Administration insiders on prospects for overall science funding in the FY 2004 budget, and also discussions with funding agencies on how federal funding is distributed to mathematics. New this year was a presentation on the recently-created Department of Homeland Security.

The meeting began with an opportunity for a free-flowing discussion of policy issues of current concern. Proposed for discussion: distribution of funding from NSF, to what extent funding for institutes may be taking away funds from principal investigators, and current visa difficulties. The first item was addressed later in DMS Director William Rundell's session, and again in subsequent discussions. Concerns about current visa difficulties for non-U.S. graduate students and faculty were discussed, with John Ewing noting that, despite anecdotal reports, an AMS survey conducted in fall of 2003 had shown that departments did not consider the situation worse now than it has traditionally been. CSP members had a chance later in the meeting to convey their concerns about visas to Holly Dockery, representing the newly-created Department of Homeland Security.

Highlights from sessions with Congressional and Administration visitors:

Allen Cutler, Professional Staff, Senate Appropriations Subcommittee on VA, HUD and Independent Agencies, reported uncertainty in the FY 2004 appropriations process. Because of the unusually late wrap-up of the FY 2003 budget in February, the President's request for FY 2004 was based on what was *requested* for 2003. The '04 budget resolution was in conference as Cutler spoke, causing the last-minute cancellation at the CSP meeting of his House counterpart, Michael Stephens. There was no number yet for total discretionary funds divided among the appropriations committees. National Science Foundation and NASA reside in the same piece of the budget pie as Veterans (a priority now because of the Iraq war) and HUD, and there would be additional pressure because of the uncertain state of the economy and Bush's tax cuts. The Appropriations Subcommittee hearing on the NSF FY 2004 budget was held the previous week and Cutler felt there was support in the Subcommittee and the full Committee for increasing the NSF budget. Appropriators were following the recent PCAST report and were aware of the need to bring the rest of the sciences in line with the bio-medical sciences. Although Cutler did not think NSF would get a double digit increase in line with the 2002 NSF Authorization Bill, he recommended that mathematicians try to get a statement in their Member's request letters urging the appropriators to follow the authorization in order to help them make their arguments for increased NSF funding.

David Trinkle, Office of Management and Budget, substituted at the last minute for the scheduled speaker (David Radzanowski). Trinkle is OMB's principal analyst for R&D and this year became its NSF examiner. The FY 2005 budget process has already begun for OMB, and agencies such as NSF are discussing the requests they will submit in September. When their requests are subsequently "passed back", agencies can appeal OMB's assessment. A resolution is usually arrived at by early December. The President will present his FY 2005 budget request in February 2004, whereupon Congress will begin its appropriations process, aiming at producing a budget before the fiscal year begins in October (which almost never happens). Agreeing with Cutler about the current uncertainty, Trinkle noted that the FY 2004 budget request came out before the FY 2003 appropriations were built (apart from DoD), so comparisons to the '03 actual budget could not be made. In running over some FY 2004 R&D budget numbers, Trinkle noted that an "R&D budget" is an illusion, being the sum of many parts across agencies. OMB cannot track the numbers but compiles them from agency submissions. OMB took a National Academy recommendation to track core research investments that, although imperfect, helps to understand what effect a decision might have on a particular portfolio. In line with Bush Administration concerns, OMB developed a management agenda for FY 2003 to assess how well programs were managed. NSF again

earned more "green lights" (i.e. good ratings) than other agencies for program effectiveness. OMB recognized the difficulties of assessing basic research and ended up examining how well a project was managed. Asked how OMB considers finer details of an agency's budget, such as mathematics, Trinkle said OMB did not delve too deeply, but there was currently a mathematics and science education priority.

James Turner, Chief Counsel, Minority Staff, House Committee on Science (an authorizing committee), echoed the feeling of uncertainty on the Hill about the FY 2004 appropriations, and gave his predictions on how the process might play out. Although one party controls the White House, the House and the Senate, the margins are so close that votes are tough, hence there was no budget resolution for FY 2003 and Turner noted that day's rare Saturday session was trying to work out whether Congress can get a budget resolution for FY 2004. Turner predicted that the tax cuts will be a time bomb, creating increased pressure on discretionary spending for the next ten years. A "new kid on the block" vying for federal funds is the new Department of Homeland Security, which has a research component of over $1 billion. Turner felt that the attitude in Congress towards science and technology has never been better, but it was very important to make mathematical voices heard repeatedly -- both in Washington, and, more effectively, in the home districts where there is a better chance to meet Members themselves in local settings (often in universities that are the largest employers in the district). He reminded CSP that Members of Congress do not deal well with numbers and facts, but are more receptive to anecdotes about the value of mathematical research funded by taxpayers. Turner considers that the science community is in a much stronger position than it was ten years ago, because it has evolved into a much more professional and visible group, with a good understanding of how Members of Congress work. He felt the AMS Congressional Lunch Briefings are an incredibly valuable resource that pay big dividends. With regard to FY 2004 appropriations, Turner felt that NSF would do better than in FY 2003, but nowhere near the science community's target for doubling the budget. However, he recommended that we continue to use the "doubling message" as an effective tool.

Highlights from sessions with funding agency representatives:

William Rundell, Director of the Division of Mathematical Sciences, National Science Foundation, noted that NSF, and DMS in particular, were currently "flying high", in no small part because of the hard work of supporters of the agency, who provided opportunities for interactions with appropriators such as these CSP meetings. Rundell felt the community has been successful in pointing out the mathematical interface with other disciplines, but noted the danger of allowing the mathematics research underpinning many discoveries to become just a footnote in history.

Rundell asked, "What is the correct size for the mathematical sciences community?" Given that the bulk of support comes from one agency (63.8 percent of federal support for academic research in mathematics comes from NSF), what should the budget be for the DMS? Arguing from the premise that mathematics needs more money because the discipline needs more people, Rundell offered two methods of arriving at a target budget, both arriving at around $450 million. The argument to increase the number of supported principal investigators to 3,000, with an average grant size of $125,000, was one that found favor with CSP. Rundell suggested that the mathematical community make a statement that within a very short time—say, five years—the profession can, and will, double the number of undergraduates going on to graduate study in mathematics (he advised against the use of "majors"). There was discussion of graduate student stipends, and the highly concentrated nature of the discipline (his examples: 26 percent of new PhD's got their undergraduate degrees from the top 25 mathematics departments, and 50 percent of DMS funding goes to 23 departments). About the VIGRE program, Rundell said the community may have doubts about it, but we should "buy stock in it" because other Directorates are trying to copy the program. He noted that as a follow-on from VIGRE, a May 9-10 conference would showcase DMS programs.

This session led to an expanded discussion later in the meeting. It was felt that, with the change of DMS Director, the time was right to once more express the concerns of the mathematical community for increased support for principal investigators, and John Ewing agreed to talk with Rundell to express the committee's support for his argument to increase their number and grant size, and to offer to work with him to achieve his target of increasing the pipeline in mathematics.

Holly Dockery, Director, Standards/State and Local/Foreign Interactions, Science and Technology Directorate, Department of Homeland Security (for Maureen McCarthy) reported that this Department came into existence March 1, with a proposed budget of $800 million, to synthesize many pre-existing activities and integrate the nation's abilities to reduce vulnerability to terrorism. Dockery anticipated the Science and Technology Directorate would consist of about 140 people, mostly from defense agencies. The head, Charles McCreary, a former defense industry executive, was to be confirmed that week. The S&T Directorate would be very applications-oriented, charged to "conduct, stimulate and enable research development, testing, evaluation and timely transition of homeland security capabilities to federal, state and local operational end users." [Note: After the meeting, McCreary announced a $10 million fellowship program and an academic center dedicated to homeland security research.] Asked about interaction of DHS with the National Security Agency, Dockery surprised CSP members by admitting she was not familiar with NSA activities. Concerns within the mathematical community about problems obtaining visas for non-US graduate students and faculty were discussed with Dockery, who told the meeting that an Office of Citizenship within the Department would work with visa issues. There was recognition of a need at the Secretarial level to deal with substantive visa issues, and of the importance of the free flow of ideas that the Department does not want to impede. It was suggested to Dockery that there was a need for DHS to monitor the effects of its visa policies on the sciences.

Douglas Cochran, Defense Advanced Research Projects Agency, gave an overview of DARPA's relationship to other defense agencies (AFOSR, ARO, ONR). DARPA did reasonably well in the FY 2003 budget, although may have to pay some back because of the Iraq war. An initiative-driven agency, DARPA does not fund long-term research (most initiatives last 2-5 years), funds teams instead of single investigators, and has traditionally had a good working relationship with NSF. Cochran would like to initiate a core mathematics initiative in this very applications-oriented agency, with a focused sequence in pure mathematics. Cochran noted that Lewis Auslander, in his term at DARPA, had achieved recognition of the need to include mathematicians, and that currently they are in great demand by other sciences for their teams. Cochran urged the mathematical community to encourage high-quality people to serve in DoD agencies in order to promote the interests of mathematics.

Sessions concerning graduate education:

Brandy Silverman, Department of Education, was invited to this meeting to discuss the Graduate Assistance in Areas of National Need (GAANN) program. Attendees took the opportunity to discuss details of this program, which obviously impacts many departments.

James Lightbourne, Education and Human Resources Directorate, NSF, also reported on graduate education, and generated a debate on graduate stipend levels mandated by Congress ($27,500 in 2003, scheduled to increase to $30,000 in 2004) and the stress they place on institutions. Lightbourne noted that the overall "people" budget at NSF had decreased, with EHR funding remaining fairly flat in 2003 (an increase of 3.2 percent, compared with 10.8 percent for NSF overall). The big increase within EHR in 2003 was for Congressionally-mandated programs such as STEM (Science, Technology, Engineering and Mathematics), for which NSF had requested $3 million but had been allocated $22 million by Congress.

Carnegie Initiative on the Doctorate. A panel discussion on Saturday rounded out this meeting's focus on graduate education. David Morrison, Duke University, Robert Fossum, University of Illinois, Urbana-Champaign, and Jane Hawkins, University of North Carolina, Chapel Hill, discussed their departments' experiences as "partner departments" in this project designed to study doctoral education in the U.S., and perhaps promote change. Mathematics was chosen as one of six disciplines for Carnegie's pilot project. Their experiences, and policy issues arising from this potentially influential program, were discussed, including possible agendas for change, difficulties of defining "attrition", and calculating time-to-degree. The discussion was to be continued in the Council meeting immediately following the CSP meeting.

Other sessions:

AMS Washington Office
Sam Rankin, Director of the AMS Washington Office, outlined some recent events he had organized to bring mathematicians into contact with Congressional circles, and to work with other scientific societies to make the concerns of the scientific and mathematical communities much more visible on Capitol Hill. He noted that AMS chair David Eisenbud had recently testified before the House Appropriations Subcommittee on VA, HUD and Independent Agencies, on behalf of the NSF FY 2004 budget.

CSP Activities at the Joint Mathematics Meeting, January 2004, Phoenix
CSP agreed to invite the new Assistant Director of NSF's Mathematical and Physical Sciences Directorate (when named) to speak in their Government Speaker slot, usually co-sponsored with MAA. A backup speaker was also agreed upon. For the CSP panel slot, the topic of the pipeline in mathematics was approved, with a chair to be appointed later.

Next meeting
CSP agreed to meet next in Washington DC on April 2-3, 2004.

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