AMERICAN MATHEMATICAL SOCIETY
EXECUTIVE COMMITTEE AND BOARD OF TRUSTEES
NOVEMBER 18-19, 2005
PROVIDENCE, RHODE ISLAND

MINUTES

A joint meeting of the Executive Committee of the Council (EC) and the Board of Trustees (BT) was held Friday and Saturday, November 18-19, 2005, at the AMS Headquarters in Providence, Rhode Island.

The following members of the EC were present: James G. Arthur, Walter Craig, Robert J. Daverman, David Eisenbud, Robert M. Guralnick, and Hugo Rossi. Paul J. Sally, Jr. was unable to attend.

All members of the BT were present: James G. Arthur, John B. Conway, John M. Franks, Eric M. Friedlander, Linda Keen, Donald E. McClure, Jean E. Taylor, and Carol S. Wood.

Also present were the following AMS staff members: Gary G. Brownell (Deputy Executive Director), Kevin F. Clancey (Executive Editor, Mathematical Reviews), John H. Ewing (Executive Director and Publisher), Elizabeth A. Huber (Deputy Publisher), Ellen J. Maycock (Associate Executive Director, Meetings and Professional Services), Constance W. Pass (Chief Financial Officer), Samuel M. Rankin (Associate Executive Director, Government Relations and Programs), and Sheila J. Rowland (Executive Assistant to the Executive Director [and recording secretary]).

President James Arthur presided over the EC and ECBT portions of the meeting (items beginning with 0, 1, or 2). Board Chair Carol Wood presided over the BT portion of the meeting (items beginning with 3).

Items occur in numerical order, which is not necessarily the order in which they were discussed at the meeting.

0	**CALL TO ORDER AND ANNOUNCEMENTS**

0.1   Opening of the Meeting and Introductions.

President Arthur called the meeting to order and asked those present to introduce themselves.

0.2   2005 AMS Election Results.

Secretary Daverman announced the following election results:

President Elect
James G. Glimm, Stony Brook University

Vice President
Ruth M. Charney, Brandeis University

Trustee
John B. Conway, University of Tennessee and National Science Foundation

Members at Large of the Council
William M. Goldman, University of Maryland
Craig L. Huneke, University of Kansas
Judy Anita Kennedy, University of Delaware
Ken Ono, University of Wisconsin, Madison
Judy L. Walker, University of Nebraska

Nominating Committee
Michael G. Crandall, University of California, Santa Barbara
M. Susan Montgomery, University of Southern California
Lisa M. Traynor, Bryn Mawr College

Editorial Boards Committee
Robert L. Bryant, Duke University
Stephen Lichtenbaum, Brown University

0.3   Housekeeping Matters.

　　　　Executive Director Ewing mentioned some details about the schedule and arrangements for the events that will take place during the current meeting.

1I	**EXECUTIVE COMMITTEE INFORMATION ITEMS**

1I.1   Secretariat Business by Mail. Att. #2.

　　　　Minutes of Secretariat business by mail during the months May 2005 – November 2005 are attached (#2).

2	**EXECUTIVE COMMITTEE AND BOARD OF TRUSTEES ACTION/DISCUSSION ITEMS**

2.1   Report on Committee on Meetings and Conferences (COMC).

　　　　The ECBT was informed that the most recent COMC meeting was April 30, 2005, and a report on that meeting was given at the May 2005 ECBT meeting. Since then, planning has

progressed on another COMC-sponsored focus group at the San Antonio meeting. The moderator will be Joel Hass. In addition, the COMC subcommittee appointed to help suggest topics for a new conference and report back to COMC and the Secretariat will meet at the San Antonio meeting in January 2006. The next COMC meeting is scheduled for March 18, 2006, at AMS Headquarters in Providence.

2.2 **Report on Committee on Publications (CPub).** **Att. #4.**

The ECBT received the attached report (#4) on the September 23-24, 2005 CPub meeting.

2.3 **Report on Mathematical Reviews Editorial Committee (MREC).** **Att. #3.**

The ECBT received the attached report (#3) on the October 1, 2005 MREC meeting.

2.4 **Report on Committee on the Profession (CoProf).** **Att. #5.**

The ECBT received the attached report (#5) on the September 24-25, 2005 CoProf meeting.

2.5 **Report on Committee on Education (COE).** **Att. #23.**

The ECBT received the attached report (#23) on the October 27-29, 2005 COE meeting.

2.6 **Report on Committee on Science Policy (CSP).** **Att. #20.**

The ECBT received the attached report (#20) on recent CSP activities. The next CSP meeting is scheduled for April 25-27, 2006 in Washington, DC.

2.7 **Washington Office Report.** **Att. #6.**

The ECBT received the attached report (#6) on recent activities of the Washington Office.

2.8 **Report from the President.**

President Arthur reported that the first Einstein Public Lecture in Mathematics was given by Sir Michael Atiyah on October 21, 2005 at the AMS sectional meeting at the University of Nebraska in Lincoln. The second Einstein Lecture will be given by Benoit Mandelbrot on April 29, 2006 at the AMS sectional meeting at San Francisco State University.

2.9 **Report on Long Range Planning Committee (LRPC).**

The Long Range Planning Committee met on November 19, 2005. LRPC Chair Arthur reported that there was not a formal agenda for the meeting, so it was mostly a brainstorming

session regarding topics the LRPC might discuss at future meetings. The following three topics were the result:

1. public relations – how can mathematics be better represented to the public?
2. the cultural divide between younger and older members
3. how the AMS endowment, and the income it generates, are managed

Regarding topic 2, it was pointed out that the April 2006 Council will discuss a related topic: what the AMS might do to better engage young mathematicians into the profession.

Regarding topic 3, it was pointed out that the ECBT has mandated that this topic be on the ECBT agenda every five years, so it will automatically come before the May 2006 ECBT.

The LRPC decided to consider public awareness and public relations from a high-level strategic point of view at its next meeting in May 2006.

(See also item 2.14 of these minutes.)

2.10   2007 Individual Member Dues. Att. #7.

The ECBT reviewed an attachment (#7) presenting the principles and procedures for setting individual member dues, along with the information used by staff in formulating their recommendation that the 2007 dues rate for individual members be increased by $4 above the 2006 level. The ECBT concurred with the staff and voted to recommend a regular high dues rate of $156 for 2007 to the January 2006 Council.

2.11   Eisenbud Prize. *DAVERMAN-EWING.*

Early in 2005, David Eisenbud announced his intention to endow a prize in his father's memory. A general description of the prize has already been circulated, and the Committee on the Profession has recommended that description for approval by the January 2006 Council. The purpose of the prize is described as follows:

> The Leonard Eisenbud Prize for Mathematics and Physics will honor a work or group of works that brings the two fields closer together. Thus, for example, the prize might be given for a contribution to mathematics inspired by modern developments in physics or for the development of a physical theory exploiting modern mathematics in a novel way.

The prize will be awarded every three years for a work published in the preceding six years. Financial arrangements are underway, and when the gift is received, the Board will be asked to formally accept it.

2.12 **Supplementing the Stroock Fund**. Att. #8.

The book and journal donation program has been a quiet but important success for the Society. Over the past several years, we have funded the shipment of donated books and journals to institutions, mainly (but not exclusively) in developing countries. This has been a valuable program for the community of mathematicians. A report of recent activity in the program is attached (#8).

Until now, the program has been exclusively funded by donations from the Stroock Family Foundation. It is clear, however, that the program can be expanded, perhaps by donating some AMS publications as well. In order to do this, the Executive Director proposed to use a portion of the income from the unrestricted endowment to supplement the donations from the Stroock Foundation. The program will continue to be run in its present form, which matches donors with recipients and pays the costs of shipments.

The ECBT was in favor of the proposal, and the BT voted to allocate up to $10,000 from the unrestricted endowment to supplement donations from the Stroock Foundation in 2006.

2.13 **Funding of the Joint SRCs for 2006 and Beyond**.

The ECBT was informed about the status of the Joint Summer Research Conference program as follows.

The current National Science Foundation grant supporting the AMS-IMS-SIAM Summer Research Conferences (SRCs) expires after the summer of 2005. The November 2004 ECBT endorsed the staff's plan to join with SIAM in seeking continued funding for a modified version of this longstanding series of conferences. In late December 2004, NSF released a revised program solicitation governing proposals for conferences, and the AMS and SIAM were instructed to submit their SRC renewal proposal under that program solicitation. The program solicitation did not include the option for a large, multi-year block grant under which the societies would operate a process for selecting each year's lineup of conferences.

Four proposals were received for consideration for the summer 2006 program of conferences, and these proposals, after review and approval by the AMS-IMS-SIAM Selection Committee in February 2005, were incorporated into an NSF proposal submitted in early April requesting support for these four conferences only. AMS was notified in late June that the proposal will be funded.

The staff currently plans to solicit conference proposals for summer 2007 during the fall for evaluation by the Selection Committee in February 2006. Again, the approved proposals will form the basis for an NSF proposal to be submitted in August 2006. AMS staff will explore with staff in the Division of Mathematical Sciences the possibility of submitting a proposal requesting funding for more than one year.

2.14 <u>**Public Awareness Office**</u>. <mark>**Att. #9**</mark>.

The Public Awareness Office began operations roughly five years ago. At that time, the proposal for the office emphasized that success in public awareness required a long-term commitment. Progress takes time as relationships with the media are built and different approaches are tried. Nonetheless, after five years, it seemed a good time to compare its operation with the original vision for the office and to review some of the material the office has produced. The ECBT reviewed <mark>Att. #9</mark> (which contains excerpts from the document establishing the Public Awareness Office) and a comprehensive packet of material recently created by the Office that was provided separately.

The ECBT was informed that staff is in the process of doing an internal review of public awareness activities (e.g., what is currently being done, what is most effective, what should be done in the future), and the Long Range Planning Committee will consider public awareness and public relations from a high-level strategic point of view at its next meeting in May 2006.

2.15 <u>**2006 Operating Plan**</u>.

The 2006 Operating Plan was enclosed with the agenda for this meeting. The plan includes the following sections for each division or department:

I   Mission
II   Ongoing Activities and Functions
III   Trends and Issues
IV   Future Projects and Activities
V   Financial Implications

Comments or questions on the Plan were invited, and a few comments were made.

It is noted for the record that after Section VI (Report on Projects and Activities) is completed in spring 2007, a complete, official copy of the 2006 Operating Plan will be attached to record copies of the May 2007 ECBT minutes.

2.16 <u>**Motions of the Secretary**</u>.

The following motions were approved by acclamation:

The Executive Committee and Board of Trustees of the American Mathematical Society record their thanks to Hugo Rossi for his service to the Society as a member of the Executive Committee during the past four years. The ECBT expresses its gratitude to Professor Rossi for his thoughtful participation and hope that he will continue to be available to serve the Society in other ways.

Be it resolved that the Executive Committee and Board of Trustees of the American Mathematical Society accept the retirement of

James W. Maxwell

with deep appreciation for his faithful and exceptional service over the past twenty one years.

During his tenure at the AMS, Jim has touched almost every part of the Society's operations, from human resources to meetings, and from surveys to public awareness. In recent years, Jim has led one of our major divisions as it has matured and become a centerpiece for our outreach. In the highest and broadest sense, he has fulfilled the Society's mission to further the interests of mathematical research and scholarship.

The members of the Executive Committee and Board of Trustees appreciate all that he has accomplished for the Society and for the greater mathematical community, and offer Jim their special thanks and heartfelt good wishes for a happy and well-deserved retirement.

**2C   EXECUTIVE COMMITTEE AND BOARD OF TRUSTEES
CONSENT ITEMS**

2C.1   May 2005 ECBT Meeting.

The ECBT approved the minutes of the meeting of the Executive Committee and Board of Trustees held May 20-21, 2005, in Providence, Rhode Island, which had been distributed separately. These minutes include:

- ECBT open minutes prepared by the Secretary of the Society
- ECBT "open" executive session minutes prepared by the Secretary of the Society

See also item 3C.1.

2C.2   Funding for Project NExT. EWING.

Project NExT (New Experiences in Teaching) is a program of the Mathematical Association of America that provides training for young mathematicians beginning their careers. The AMS first provided funding for six fellows in 2002. In November 2003, the ECBT agreed to continue funding of $15,000 (six fellows at $2,500 each) each year, subject to review on the consent agenda at its November meeting two years prior.

The ECBT consented to a commitment of $15,000 for Project NExT in 2007.

2I	**EXECUTIVE COMMITTEE AND BOARD OF TRUSTEES INFORMATION ITEMS**

2I.1   AMS Congressional Fellow.

The AMS, in conjunction with the American Association for the Advancement of Science (AAAS), is sponsoring a Congressional Fellow from September 2005 through August 2006. The fellowship has been awarded to David Weinreich, a AAAS-NSF Fellow and former assistant professor of mathematics at Gettysburg College. David will spend the year working on the staff of Congressman Robert Andrews (D-NJ).

2I.2   AAS-AMS-APS Public Service Award.

The American Astronomical Society, the AMS, and the American Physical Society did not present its Public Service Awards in 2005.

2I.3   AAAS-AMS Mass Media Fellowship.

The AMS will again sponsor a Mass Media Fellow over the summer in 2006. An invitation for applications has been sent to graduate students in the mathematical sciences. The deadline for applications is January 15, 2006.

The Mass Media Fellowship program is organized by the American Association for the Advancement of Science (AAAS) and is intended to strengthen the connections between science and the media, to improve public understanding of science, and to sharpen the ability of the fellows to communicate complex scientific issues to non-specialists. The program is in its 32nd year and has supported nearly 500 fellows.

2I.4   Promoting Undergraduate Research in Mathematics. Att. #12.

The AMS has submitted a grant proposal to the National Security Agency for a three-day conference, *Promoting Undergraduate Research in Mathematics*, to be held in September 2006 (see Att. #12 for the narrative of the proposal). This conference, organized by Joseph Gallian (University of Minnesota Duluth), Aparna Higgins (University of Dayton), Ivelisse Rubio (Universidad de Puerto Rico, Humacao), and Frank Connolly (University of Notre Dame), is designed to bring together people who have been active in promoting undergraduate research in mathematics. John Ewing will be the PI of the grant; Ellen Maycock and Joseph Gallian will be co-PIs. Gallian, who was the editor for the proceedings volume from the 1999 Conference on Summer Undergraduate Research Programs, will be the editor for this conference's proceedings volume. The budget of the proposal is approximately $140,000. The AMS staff will handle all of the meeting arrangements associated with the conference.

The outcome of the conference will include answers to the following questions: How can institutions support undergraduate research? How can we help mathematics departments create or offer more opportunities for undergraduate research? How can undergraduate research

programs do more to increase diversity in the profession? How can mathematics departments, along with undergraduate research programs increase the number of U.S. citizens entering doctoral programs in mathematics?

The proposed 2006 conference is a logical step in establishing more research opportunities for undergraduates based on successful models, and is a practical solution for bringing in the most talented students in *any* population into research level mathematics as we face a steadily decreasing pool of native mathematicians. We believe that sharing experience, gathering information and planning for the future together will benefit the entire mathematics community and the scientific community beyond.

2I.5   Chinese Mathematical Society's 70th Anniversary Conference. Att. #13.

In response to International Mathematical Union President John Ball's appeal to increase the mathematics community's support for mathematics and the study of mathematics in developing countries, the Chinese Mathematical Society (CMS) invited up to eight mathematicians from developing countries to attend an international conference on the occasion of its 70th anniversary. The conference, "Mathematics 2005: Opportunity and Challenge," was held in Weihai, China, on July 25-29, 2005. The CMS provided local expenses and asked the IMU to provide a list of nominees and help locate travel funds. The IMU Commission on Development and Exchanges in turn appealed to several member societies to each nominate and sponsor one mathematician. The AMS nominated Peter Witbooi, University of the Western Cape, South Africa, and agreed to pay for his travel to China. Professor Witbooi attended the conference and submitted the attached report (#13).

2I.6   Actions of the Agenda and Budget Committee (ABC).

At its October 7, 2005 meeting in Providence, Rhode Island, the ABC took the following action:

The ABC set the schedule for the November 2005 ECBT meeting.

3   BOARD OF TRUSTEES   ACTION/DISCUSSION ITEMS

3.1   Budget Review.

The BT discussed items 3.1.1 through 3.1.5 and then voted to approve the 2006 budget as presented, except for the modification noted in 3.1.4 below.

3.1.1 <u>**Discussion of Fiscal Reports.**</u>

The BT received and discussed various fiscal reports, as well as a memo discussing the 2005 projected and 2006 budgeted operating results.

See 3.1.

3.1.2 <u>**Appropriation of Spendable Income from Unrestricted Endowment**</u>. **Att. #15.**

The May 2001 Board of Trustees approved the following (from item 2E.5):

Each year, the budgeting process will include recommendations for allocating spendable income from the Unrestricted Endowment for specific projects. The allocated income will be treated as revenue for operations, offsetting (part of) the expenses. These recommendations will be brought to the Board for approval at its November meeting in the normal budgeting process. The goal will not be to use all the income from such funds each year, but rather to use some of the income every year for the support of mathematical research scholarship and outreach. Using such income should be a regular part of our operations rather than an exceptional situation.

The 2006 revenue budget includes the following uses of income on projects, which are explained in Att. #15. The BT approved the uses of income as stated below:

Previously Supported:

MR Citations Project (ongoing)	$ 80,000
Congressional Fellow (ongoing)	78,000
Young Scholars Program (ongoing)	50,000
Project NExT Support (ongoing)	15,000
AAAS Mass Media Fellowship (ongoing)	10,000
Mathjobs system (ongoing)	10,000
What's Happening (deferred from 2004)	15,000

 Newly Supported:

Book and Journal Donation Program	10,000
(see item 2.12)	

Total	$268,000

3.1.3 <u>**Capital Expenditures - 2006 Capital Purchase Plan**</u>**.**

  The BT reviewed the 2006 capital purchase plan, and approved it as part of the 2006 budget. See item 3.1.

3.1.4 <u>**Capital Expenditures - Approval of Specific Purchases**</u>**.**

  The BT reviewed a proposal to purchase new computer-to-plate equipment for the Print Shop to replace the ECRM Image Setter that uses older technology involving a multi-step process.

  The BT authorized the expenditure of up to $120,000 to purchase a basysPrint UV-Setter 541 computer-to-plate system (subject to the usual internal approval process for capital expenditures).

3.1.5 <u>**2006 Salaries.**</u>

  This item was discussed in closed executive session. See item 3E.4 of the minutes prepared by the Secretary of the Board.

3.2 <u>**Economic Stabilization Fund (ESF) Increment**</u>**.**

  The BT reviewed the current and projected status of the base portion of the ESF. It was noted that the base portion is currently at the approximate level of its target (on a % basis) at which it was originally established and is expected to increase over the next five years (in $ and on a % basis). Additional funds are not necessary at this time.

  The BT was advised that, at December 31, 2005, operations of the Society will own approximately $1,100,000 of the long-term investment portfolio. It is not expected to be necessary to liquidate any investments in order to move the money to the operating portfolio so as to maintain an adjusted current ratio of at least 1.5 to 1. (The adjusted current ratio is defined as the sum of the current assets of the Society less deferred revenue divided by the sum of the current liabilities of the Society less deferred revenue.) Further, the adjusted current ratio was 2.6 to 1 at December 31, 2004 and is expected to remain in that range at December 31, 2005. Approximately $2,000,000 can be moved from the operating investment portfolio to the long-term investment portfolio and maintain the adjusted current ratio at approximately 2 to 1.

  Based on the above, Chief Financial Officer Pass recommended that $3,100,000 be added to the supplemental portion of the ESF. This will require the addition of approximately $2,000,000 to the long-term investment portfolio. The BT approved this recommendation.

  The BT also approved the Investment Committee's recommendation that this money be invested as follows: 25% added to the Pimco Total Return bond fund, and 75% added to the domestic stock income funds. Of the 75%, add a portion to the S&P 500 index fund sufficient to

increase its balance to approximately $5,000,000 (a level at which fees are lowered), and put the remainder in the Total Stock Market fund.

3.3   Investment Committee Report. Att. #16.

The BT received the attached minutes (#16) of the Investment Committee's October 7, 2005, meeting.

3.4   Trustees' Officers.

The BT elected Jean Taylor Chair of the Board, and re-elected Donald McClure Secretary of the Board, for the term February 1, 2006 – January 31, 2007.

3.5   Trustees' Committees, etc. Att. #17.

The BT reviewed a list of BT committees, as well as Trustee appointments to policy committees and Trustee liaison assignments to divisions of the Society's administrative offices.

Board Chair Wood asked members of the Board to let her know their preferences by December 1. Subsequent to the meeting, the following assignments were made:

> **Trustee appointments to policy committees for 2006:**
> Committee on Education: John Conway
> Committee on Publications: Eric Friedlander
> Committee on Science Policy: Linda Keen
> Committee on the Profession: Jean Taylor
> Committee on Meetings and Conferences: Carol Wood
>
> **Trustee liaison assignments to divisions for 2006:**
> Executive Director: James Arthur
> Administration: John Conway, John Franks, Eric Friedlander
> Finance: John Franks, Don McClure, Jean Taylor
> Math Reviews: Don McClure, Carol Wood
> Meetings & Professional Services: Linda Keen, Carol Wood
> Publications: Eric Friedlander, Linda Keen
> Washington Office: John Conway, Jean Taylor

An updated list is attached (#17).

3C	BOARD OF TRUSTEES
	CONSENT ITEMS

3C.1 May 2005 BT Closed Executive Session Meeting.

The BT approved the minutes of the closed executive session meeting of the Board of Trustees held May 21, 2005, in Providence, Rhode Island, which had been distributed separately.

3C.2 Recognition for Length of Service.

The BT approved the following proclamations for the employees noted.

Twenty years of service:

M. Joan Beauchemin
Elaine W. Becker
Deborah L. Bolton
Gary G. Brownell
Cheryl S. Dwyer
Carol A. Farrell
Colleen A. Rose
William E. TePaske-King

The Board of Trustees takes great pride in recognizing _____ for twenty years of faithful service. It is through the dedication and service of its employees that the Society is able to effectively serve its members and the greater mathematical community. The Trustees offer _____ their special thanks and their best wishes.

Twenty-five years of service:

Thomas J. Blythe
Patrick D. F. Ion
Donald Proulx
Smilka Zdravkovska

The Board of Trustees takes great pride in recognizing _____ who has devoted twenty-five years of service to the Society. The Board expresses its profound gratitude for this long record of faithful service. It is through the dedication and service of its employees that the Society is able to effectively serve its members and the greater mathematical community. The Trustees offer their special thanks and their best wishes to _____ for being such a loyal employee and wish her/him well in the future.

Thirty years of service:

Arlene O'Sean
Sue Olson

The Board of Trustees takes great pride in recognizing _____for the outstanding distinction of serving the Society for thirty years. The Board expresses its profound gratitude for this long record of faithful service to the Society. It is through the dedication and service of its employees that the Society is able to effectively serve its members and the greater mathematical community. The Trustees offer their special thanks and their best wishes to this loyal employee.

Forty years of service:

Sandra K. Barth

The Board of Trustees takes great pride in recognizing Sandra K. Barth for the outstanding distinction of serving the Society for forty years. The Board expresses its profound gratitude for this long record of faithful service. It is through the dedication and service of its employees that the Society is able to effectively serve its members and the greater mathematical community. The Trustees offer their special thanks and their best wishes to Sandra for being such a loyal employee and wish her well in the future.

3C.3 **Request for Support of Speakers at 2007 AAAS Annual Meeting.**

The BT authorized $10,000 to support mathematics speakers at the 2007 AAAS annual meeting.

3I	**BOARD OF TRUSTEES INFORMATION ITEMS**

3I.1 **Focused Planning for Infrastructure.** **Att. #19.**

The BT received the attached report on focused planning for infrastructure (#19).

3I.2 **Small Changes in Fringe Benefits.**

The following two small changes in fringe benefits have been offered to employees in 2005. The changes have no real effect on the operation of the Plan or the cost of providing the benefits, but enhance the Society's benefit offerings.
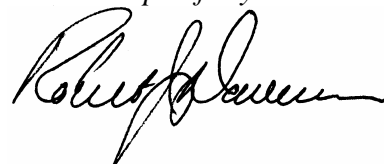
Change to benefit already offered:
An Internal Revenue Service rule change provided the Society with the opportunity to modify the Flexible Spending Account Plan to allow participants up to an additional 2½ months after the end of the plan year to incur health care expenses. Expenses incurred during the additional 2½ months may be paid or reimbursed from contributions that are unused at the end of the immediately preceding plan year. Under the old rule, those unused contributions would have been forfeited under the "use-it-or-lose-it" rule.
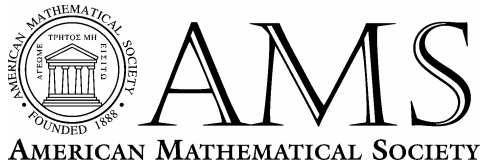
New benefit offered:
The Pre-tax Transit Benefit, authorized by IRS Code, allows employees to set aside pre-tax earnings to pay for public transportation and parking. This benefit is being administered through an internet-based program that allows employees in each of the Society's three offices to purchase public transportation passes for the transportation system they utilize. This benefit has the potential to save participants up to 40% on their commuting costs.

Respectfully submitted,

Robert J. Daverman, Secretary
Knoxville, Tennessee
January 17, 2006

SECRETARIAT
Business by Mail
May 2, 2005

MINUTES
from the Ballot dated April 1, 2005

There were five votes cast by Robert Daverman, Susan Friedlander, Michel Lapidus, Matthew Miller and Lesley Sibner.

1.   Approved electing to membership the individuals named on the list dated March 20, 2005.

2.   Approved holding a Western Sectional Meeting at the University of Arizona, Tuscon, on April 21-22, 2007.

3.   Approved the minutes of the Secretariat Business by Mail from the ballot dated March 1, 2005.

Robert J. Daverman

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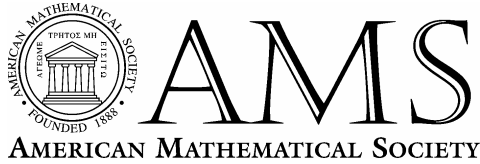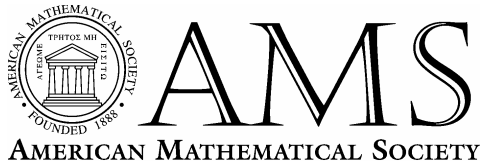**Robert J. Daverman, Secretary**
Email: daverman@math.utk.edu

SECRETARIAT
Business by Mail
June 1, 2005

MINUTES
from the Ballot dated May 2, 2005

There were five votes cast by Robert Daverman, Susan Friedlander, Michel Lapidus, Matthew Miller and Lesley Sibner.

1.   Approved electing to membership the individuals named on the list dated May 2, 2005.

2.   Approved holding an AMS Council Meeting on 03 January 2007 preceding the Joint Mathematics Meeting in New Orleans, Louisiana.

3.   Approved holding a Council meeting on 08 April 2006 in Chicago, Illinois.

4.   Approved the minutes of the Secretariat Business by Mail from the ballot dated May 2, 2005.

Robert J. Daverman

AMERICAN MATHEMATICAL SOCIETY

SECRETARIAT
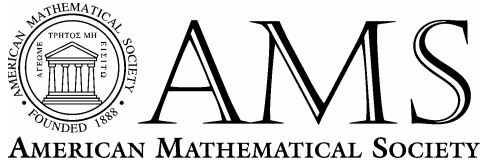**Business by Mail**
July 1, 2005

MINUTES
from the Ballot dated June 1, 2005

There were five votes cast by Robert Daverman, Susan Friedlander, Michel Lapidus, Matthew Miller and Lesley Sibner.

1.   Approved electing to membership the individuals named on the list dated May 20, 2005.

2.   Approved holding a joint meeting with the Shanghai Mathematical Society on December 17-21, 2008, at Fudan University in Shanghai, China.

3.   Approved institutional membership for 2005 for St. Mary's College in Notre Dame, Indiana.

4.   Approved the minutes of the Secretariat Business by Mail from the ballot dated May 2, 2005.

Robert J. Daverman
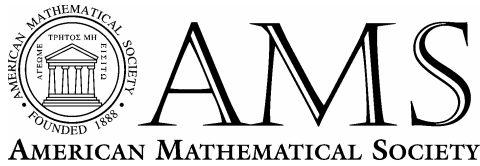
AMS
AMERICAN MATHEMATICAL SOCIETY

SECRETARIAT
Business by Mail
August 1, 2005

MINUTES
from the Ballot dated July 1, 2005

There were **four** votes cast by Robert Daverman, Susan Friedlander, Michel Lapidus, and Lesley Sibner.

1. Approved electing to membership the individuals named on the list dated June 20, 2005.

2. Approved (with one vote abstain) holding the Joint Mathematics Meetings in Boston, MA, on January 4-7, 2012.

3. Approved holding a Western Sectional meeting at the University of British Columbia on October 4-5, 2008.

5. Approved the draft minutes of the Secretariat meeting held on April 29, 2005.

6. Approved the minutes of the Secretariat Business by Mail from the ballot dated June 1, 2005.

Robert J. Daverman

SECRETARIAT
Business by Mail
September 1, 2005

MINUTES
from the Ballot dated August 1, 2005

There were four votes cast by Robert Daverman, Michel Lapidus, Michael Miller and Lesley Sibner.

1. Approved electing to membership the individuals named on the list dated July 20, 2005.

2. Approved holding the 2013 Joint Mathematics Meetings in San Diego, CA, on January 9-12, 2013.

3. Approved co-sponsorship of the 22nd Annual Workshop on Mathematical Problems in Industry to be held June 12-16, 20056 at Olin College in Needham, MA.

4. Approved an Eastern sectional meeting at Stevens Institute in Hoboken, NJ, on April 14-15, 2007.

5. Approved the University of Talca in Talca, Chile, as a new 2005 International Institutional Member.

6. Approved the minutes of the Secretariat Business by Mail from the ballot dated July 1, 2005.

Robert J. Daverman

AMS
AMERICAN MATHEMATICAL SOCIETY

SECRETARIAT
Business by Mail
October 1, 2005

MINUTES
from the Ballot dated September 1, 2005

There were five votes cast by Robert Daverman, Susan Friedlander, Michel Lapidus, Matthew Miller, and Lesley Sibner.

1.   Approved electing to membership the individuals named on the list dated August 20, 2005.

2.   Approved institutional membership for the Shahid Beheshti Univ, Tehran, IRAN.

3.   Approved the minutes of the Secretariat Business by Mail from the ballot dated August 1, 2005.

Robert J. Daverman

AMERICAN MATHEMATICAL SOCIETY

SECRETARIAT
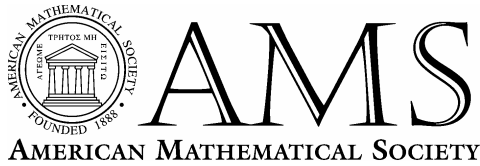**Business by Mail**
November 1, 2005

MINUTES
from the Ballot dated October 3, 2005

There were five votes cast by Robert Daverman, Susan Friedlander, Michel Lapidus, Matthew Miller, and Lesley Sibner.

1. Approved electing to membership the individuals named on the list dated September 20, 2005.

2. Approved holding the fall 2007 meeting of the Western Section at the University of New Mexico in Albuquerque, on Saturday and Sunday, October 13-14, 2007.

3. Approved holding a Joint International meeting involving the American Mathematical Society and the Brazilian Mathematical Society on June 4-7, 2008, at IMPA in Rio de Janeiro, Brazil.

4. Approved the minutes of the Secretariat Business by Mail from the ballot dated September 1, 2005.

Robert J. Daverman

Report on the Mathematical Reviews Editorial Committee
October 2005

The Mathematical Reviews Editorial Committee (MREC) met for its annual meeting at the Mathematical Reviews offices on October 1, 2005. The full committee: Heinz Engl, Lisa Fauci, Jonathan Hall, Tadao Oda, Ronald Stern, Alan Taylor (Chair); along with members-elect Peter Maass, Trevor Wooley; ex officio member, John Ewing; and the MR staff were in attendance. As is customary, the meeting opened with informational items including reviews of the 2006 Operating Plan and 2004 Annual Report.

The meeting continued with demonstrations of the new MR Citation Database and the associated author and journal tools. The MR Citation Database is constructed using matched MR Database (MRDB) items in reference lists from approximately 200 journals with complete coverage going back at least to 2000. In a later agenda item, MREC approved a collection of 131 additional journals for inclusion in the MR Citation Database. MREC was quick to advocate additional public awareness of the scope and limitations of the citation database and its tools. The author tool allows a user to view up to ten of the most cited papers of an individual author. This tool demonstrates the interdependence and interconnectivity of mathematical science. The journal tool computes, for an individual journal and a given citing year, a previous five-year citation average called the Mathematical Citation Quotient. Additional journal citation history and statistics are also provided.

The emerging role of MR as a portal to the Digital Mathematics Library (DML) was explained. The DML is an imprecise term used to describe the holdings of the digitized mathematics literature scattered at various sites throughout the world. MR has introduced a new type of listing called a "Contributed Item", which refers to a linked donated bibliographic listing from a digitization site. The MRDB now includes over 42,000 contributed items which were created by electronic methods using metadata from sites such as the following: JSTOR, Project Euclid, the Springer Historical Archive and NUMDAM (Numérisation des documents anciens mathématique). As a result, the MRDB includes linked article listings for the full run of important journals such as the American Journal of Mathematics, Mathematische Annalen, Math. Zeitschrift, and the American Mathematical Monthly, to name a few.

A standing item on the agenda (related to the scope of the database) is a presentation of the MRDB statistics: the numbers of items and reviews added to the database by year for the last ten years, and within each year by 2-digit primary classification; the percentage of items listed without a review ("index only" items), again by year and classification; breakdowns of reviews by type ("author summary" versus external review); and the breakdown of reviews by type and broad cluster classifications. It is expected that in 2005 over 125,000 items will be added to the Database. This figure includes: 64,000 reviews, which is up from the 61,000 number; 81,000 traditional MRDB listings, which is down from the 87,000 number; approximately 44,000 contributed items and database expansion listings. The volume of the mathematical literature which will be processed in 2005 at MR appears to be roughly the same as in 2004. Thus prior concerns about the skyrocketing growth in the mathematics literature are somewhat alleviated.

The committee approved two policies. The first policy entitled "MR Editorial Policy on Contributed Items" provides a natural editorial process for adding linked listings to the retro digitized mathematics journal literature. Listings will be automatically created for digitized articles from mathematics journals that are indexed cover-to-cover by MR. The MR Editors will decide on questions related to creating contributed item listings for journals not usually indexed cover-to-cover. The second policy entitled "MR Policy on Indexing Electronic Journals" begins with an endorsement of the CPUB "E-journal policy", which is a best practice statement for e-journals based on integrity of scholarship. This MR policy concludes with the statement: "If a journal currently indexed by Mathematical Reviews does not adopt these best practice standards, coverage of that journal will cease and the editors of the journal informed. Coverage will only be resumed when the journal agrees to these basic standards of scholarship." The approved policy is now posted on MathSciNet and elsewhere.

In other business, MREC reviewed its 1998 decision that "MathSciNet" is the MR publication of record. Given the evolution of MathSciNet and the MRDB, this review is most appropriate. MREC reemphasized the importance of maintaining the absolute integrity of published review text and reaffirmed that any review text change should be versioned. MREC felt that enhancing review text by the addition of embedded links did not require versioning. A more careful policy statement delineating the interpretation of the recommendation "MathSciNet is the MR publication of record" will be drawn up for future MREC consideration.

Based on a 2004 MREC recommendation the Featured Review Program has been discontinued. The last featured reviews were published in the June 2005 issue of *Mathematical Reviews*. An alternate "Spotlight Review Program" was proposed as a possible sequel to this discontinued program. MREC made the decision not to endorse the new program. The committee indicated the primary goal of displaying well-written reviews could be more easily achieved without creating an infrastructure burden on MR.

Among the information items on the agenda was a report on the new features of the most recent version of MathSciNet. In addition to the MR Citation Database and contributed items other new features include: a tool for providing direct links to MathSciNet author listings, a Japanese language interface, and RSS feeds.

There were brief reports on the pricing structure for MR-related products and comparison of the MR and Zbl Databases. It is expected that MR and Zbl will soon begin cooperative work on MSC 2010 and a joint registry for the Digital Mathematics Library. It was indicated that MR is not currently allowing Google to crawl the MRDB and MR is in a "wait and see" mode relative to an association with Google.

The committee followed up on its charge to review the MR Editorial Statement (available at http:www.ams.org/authors/mr-edit.html) and offered one cosmetic improvement to the statement. The date for the 2006 MREC meeting was set as Monday, October 16.

Kevin Clancey, Executive Editor
10/17/2005

Report on the Committee on Publications

A meeting of the AMS Committee on Publications (CPub) was held on September 23-24, 2005, at the O'Hare Hilton, Chicago, Illinois.

At last year's CPub meeting, the Editorial Boards Committee raised concerns about the scope of the AMS electronic-only journals. Partly to respond to those concerns, and partly because the e-only journals are almost a decade old, the Committee decided to review the three journals slightly ahead of schedule.

A subcommittee submitted a report with recommendations for CPub to consider. There is consensus that the quality of papers in *Conformal Geometry* and *Representation Theory* is high, but the journals have a narrow focus and the number of papers published is quite small. The subcommittee asked whether these journals should continue to be supported by the AMS or whether they have outlived their usefulness. The subcommittee also recommended that the AMS consider changing *Electronic Research Announcements* into an "overlay journal" for the ArXIV preprint database.

Following discussion CPub moved to recommend to the Council that the overlay option be pursued for *Electronic Research Announcements* and that the Society discontinue the journal in its present form. The Committee also moved to relate the discussion about *Representation Theory* to the editorial board of the journal and the Editorial Boards Committee and also recommended that the Chair of CPub send a synopsis of its recommendations to the editorial board of the journal of *Conformal Geometry and Dynamics*.

The Executive Editor of Math Reviews gave a brief report mentioning the continuing improvements to the Mathematical Reviews Database and information about the latest version of MathSciNet and its new features. Also, the new MR Citation Database, along with accompanying author and journal tools now available to MathSciNet users; and a new tool for authors to provide a link on their homepage to the MR list of their publications.

A report was given by the Deputy Publisher on the implementation of central submission of manuscripts for the four AMS primary journals. The Deputy Publisher also gave a report on the new AMS on-demand printing capability used for publications designated as low unit sales. These publications will be printed when an order is received and no inventory will be maintained.

The Committee reviewed the report on the new procedure for access to online *Notices* instituted by the AMS Council in March 2005. Following discussion, including the statistics on the dramatic drop in the number of accesses, the Committee moved to recommend to the Council that username/password access to the *Notices of the AMS* be dropped.

The charge to the History of Math Committee has become outdated and there have been suggestions to replace sections of the principal activities of the charge. CPub moved to recommend to the Council the following "alternative charge" to the AMS History of Mathematics Committee:

Principal Activities (History of Math Committee)
The main aspect of the Committee's work is to solicit and recommend for publication suitable books on historical topics for joint publication with the London Mathematical Society.

The series will, in the main, publish manuscripts on the post-1750 period but will consider manuscripts of exceptional merit outside of that timeframe on a case by case basis.

A committee will often seek the advice of one or more outside experts in order to facilitate its decision process, but this is not always necessary. The AMS Acquisitions Staff is available to help the committee in any possible way, including communication with outside experts suggested by the committee.

Although most proposals will come to a committee from an AMS Acquisitions Editor, the Editorial Committee itself may solicit proposals."

The charge to CPub needs revisions to reflect the current responsibilities of the Committee – to stay informed about scholarly publishing and the AMS program, to make recommendations to the Council (with a focus on policy), and to review the publication program on a regular basis for the Council. The Committee moved to recommend to the Council the following revised charge for the Committee on Publications:

Principal Activities (Committee on Publications)
The primary responsibility of the Committee on Publications (CPub) is to keep itself informed on matters of scholarly publishing and the AMS publishing program, including books, research journals, and member publications (*Bulletin*, *Notices,* and *Abstracts*). The main focus should be on matters of policy. When appropriate, the committee should recommend to Council changes in policy or other actions that might support and improve the AMS publication program and scholarly publishing more generally. Since policy recommendations formulated by CPub may require commitments of staff and other resources, CPub shall also recommend priorities for actions to the Council and the Board of Trustees.

CPub also has the responsibility for high-level oversight of the Society's publications and will review all aspects of the publication program on a continuing basis, reporting its findings to the Council along with possible recommendations. The committee will conduct detailed periodic reviews of certain activities in a four year cycle, as follows:

[Year 1:] Primary journals (JAMS, PAMS, TAMS, Math of Comp)
[Year 2:] All other journals
[Year 3:] AMS book program
[Year 4:] Member Journals (*Bulletin, Notices, Abstracts*)

The primary responsibility for *Mathematical Reviews* (MR) remains with the MR Editorial Committee. In the course of its work, however, CPub may occasionally find it expedient to consider matters that involve MR in a secondary way. In particular, the Committee should keep itself informed about the interplay of *Mathematical Reviews* and the rest of the Society's publications.

CPub should keep its attention fixed on policy questions, and the committee as a whole should not allow itself to be diverted from this goal by getting involved with day to day operational details of the Society's publication program.

CPub reviewed the background information and history of the policy for usage statistics for AMS journals. Following discussion the Committee voted to continue the present policy (not to provide usage statistics for electronic journals) and to inform the AMS Library Committee of its vote.

The Committee discussed the new guidelines for editorial appointments formulated by the Editorial Boards Committee. Discussion centered on whether or not it was a good idea to have a standard length of terms for editors, what the standards should be, and whether or not there are reasons to have terms of differing lengths. CPub moved to include a discussion about the length of editorial appointments on the next CPub agenda. The Committee will address the issue at its next meeting and invite the Journal Editors to join in the discussion.

The Committee was asked to consider whether the Society should consider experimenting again with blind refereeing. The history of blind refereeing and the existing multidisciplinary practices were discussed. The Committee did not pass the following motion: That AMS experiment with double blind refereeing in the next four years.

The Society has discovered journals that post articles and make changes, without any indication that the article was changed. Others journals simply withdraw posted articles by removing them from the web or by replacing them with another article. It is felt that these and other similar practices can have a catastrophic effect on the mathematical literature. The discussion led the Committee to recommend that the AMS Council endorse the following policy:

> **Best Practices for e-Journals**
> Mathematical research depends on a body of research literature that has reliable content and assured persistence. Mathematicians use the literature to anchor new research in the old, and mathematics crucially depends on the integrity of this structure. For many years, journals have provided the framework for creating this body of literature. Those journals adhered to standards of scholarship that were designed to protect their integrity. Recently, however, a few electronic journals have adopted practices that threaten these past traditions. This could have profound consequences for future mathematicians who may not be able to rely on the research literature in the way we do today.
>
> Articles posted on a journal's website should be considered "published" unless the journal indicates clearly in the posting itself that the article is not in final form. Once an article is "published" it should be revised only in one of two ways -- by adding a link in the article to a dated revision or by replacing the article with a dated revision and adding an evident link to the original article. This practice should apply to every aspect of the published article, including the text, title, references, and ancillary information. Published articles and all revisions should persist indefinitely in the scholarly record.

The Chief Editors of the *Notices* and *Bulletin of AMS* were invited to discuss their plans for the next few years with CPub. The editors discussed ideas and plans for the journals, together with issues affecting their respective journals.

The next meeting of the Committee is scheduled for September 15-16, 2006 at the O'Hare Hilton, Chicago, Illinois. The Committee moved to add to the next CPub agenda "policy on editors publishing in their own journals" as a topic for discussion, and it will review the primary AMS journals at that meeting.

John Ewing, Executive Director

Committee on the Profession
Highlights of Meeting
September 24-25, 2005
O'Hare Hilton Hotel, Chicago

AMS Fellows Program:

The topic of whether the AMS should have a Fellows Program was on the agenda once again this year for the Committee on the Profession. Following the Council meeting of January 2005, President Jim Arthur appointed a subcommittee to draft a concrete proposal for the Fellows Program. The January 2005 Council asked that CoProf discuss the proposal before Council takes action. Once again this year, there was no general agreement among the CoProf members about the AMS Fellows Program. In particular, a number of committee members felt that the number 50, mentioned in item III C of the plan, was too low to adequately address the imbalances that would occur using the lists suggested in the proposal. There was a suggestion that in developing the initial list, the AMS should go to various mathematics organizations that serve underrepresented groups, such as AWM, NAM, SACNAS, CAARMS. The Committee decided to identify two individuals, one in favor and one opposed to the proposal, who would write essays arguing each case. These essays would be available to Council members to read before the discussion on the Fellows Program at the Council meeting in January 2006.

Centennial Fellowships:

CoProf endorsed the continuation of the Centennial Fellowships with their current eligibility criteria (3-12 years past Ph.D.). The Committee reaffirmed that the Fellowship is valuable and should be continued. It recognized that, with limited funding, it might be possible to have only one fellowship awarded in the future.

Council statement on employment of young mathematicians:

A subcommittee of CoProf revised and updated the statement on the employment of young mathematicians. The statement was unanimously endorsed by the Committee and appears in Appendix I. This statement will be taken to Council for approval

Carnegie Initiative on the Doctorate:

The Carnegie Foundation for the Advancement of Teaching chose mathematics as one of six disciplines to be included in the Carnegie Initiative on the Doctorate (CID). Selected departments in these disciplines each sent 2-3 people (faculty and graduate students) as a team to gatherings in the summers of 2003, 2004 and 2005. For the mathematics teams, the main point of these gatherings was to explore the purpose of graduate education in mathematics and identify specific ways that departments could work on the findings. A proposal, which stated that the AMS sponsor a program designed to help departments in the mathematical sciences sustain the work begun by the CID, was brought to CoProf from 3 participants of the CID experience: Peter March of the Ohio State University,

John Meaken of the University of Nebraska at Lincoln and David Morrision of Duke University. CoProf endorsed the proposal (see Appendix II), which will go forward to the Council and be the centerpiece of the Directors of Graduate Study convocation in San Antonio.

CoProf panel in San Antonio:
CoProf has directed the AMS to highlight programs that support mentoring of underrepresented minorities (see item below). The Committee will use the time set aside for a CoProf panel to honor the two programs selected this year. A representatives of each program will give short presentation.

Review of Society's activities relating to increasing participation of underrepresented groups:
CoProf endorsed two of the subcommittee's recommendations, which will be implemented by the AMS staff:
  i.   Create a resource web page for minority programs.
  ii. Sponsor events at AMS meetings to encourage better mentoring of women and minorities;
and requested that the AMS staff explore the following recommendation:
  iii. Create and administer a travel grants program for underrepresented minorities.

Information statement on the culture of research and scholarship in mathematics:
The Committee on the Profession plans to make a series of statements that highlights ways in which the traditions of mathematics differ from those in other disciplines, especially other sciences and engineering. This year, CoProf endorsed a statement that explained why, unlike many other disciplines, most pre-tenured mathematicians direct very few Ph.D. theses. The statement appears in Appendix III. The sentence in paragraph two that is italicized must be changed; the vote on the revised statement will be completed by email. In its discussion concerning next year's topic, CoProf decided that the issues deserving first consideration are those that address the concerns of mathematicians facing tenure and promotion decisions. Next year, CoProf will make a statement about publication rates of mathematicians and time from submission to publication for selected journals.

Eisenbud Prize:
The Committee endorsed the prize, with no concerns. A description of the prize appears in Appendix IV.

Highlight programs that support mentoring of underrepresented minorities:
Two programs were chosen this year by the subcommittee. These are the SIMU (Summer Institute in Mathematics for Undergraduates) REU program conducted at the University of Puerto Rico at Humancao from 1998 to 2002, and the graduate program of the University of Iowa's Department of Mathematics. These

programs will be featured in an upcoming issue of the Notices and will be presented on a web site linked to the AMS home page. The subcommittee indicated that, because a large number of programs had impressed them, there will be no difficulty in identifying additional programs to highlight.

Next year's review:

The Committee selected the Society's activities to increase communication and cooperation with other disciplines as the topic of the coming annual review. This topic was reviewed last in 1997.

Next meeting:

The Committee on the Profession will hold its next meeting on September 16-17, 2006 at the Chicago O'Hare Hilton.

Ellen Maycock
Associate Executive Director
October 2005

Appendix I
Supportive Practices and Ethics in the Employment of Recent Graduates in the
Mathematical Sciences

The long-term health of our profession is dependent upon attracting talented people and helping them to establish productive careers. Thus mathematics departments must foster effective recruitment, training, job placement, mentoring, and job remuneration for those entering the profession. In particular,

1. **It is incumbent upon mathematics departments to make their students aware of the realities of the job market and to encourage them to prepare for a broad range of jobs in the mathematical sciences.**
Discussion: A good source of information on employment of new Ph.D.s is the Annual Survey of the Mathematical Sciences published yearly in three installments in the *Notices of the American Mathematical Society*, usually in February, August and September. Departments can also provide information on employment by hosting talks and panels involving mathematicians in industry and government.

2. **Employers have a responsibility to support the development of recent graduates through mentoring and training in all aspects of professional life.**
Discussion: The early post-graduate years are crucial in career development. Departments should provide research mentoring and opportunities for recent graduates to improve teaching; examples of the latter might include workshops and extensive feedback on teaching from peers and more established faculty members.

3. **Whenever possible, temporary positions should be offered for at least two years**.
Discussion: Temporary positions can play an important role in the continued professional development of recent graduates. However, a one-year appointment with a demanding teaching load will typically have adverse effects on professional growth and morale. (There are some exceptions such as the temporary hiring of one's own graduates while they are still seeking employment elsewhere.) It is important that decisions on reappointment be made as early as possible in the year.

4. **Recent graduates should be hired at reasonable salaries and should be integrated into the scholarly life of the department. In particular, the practice of hiring recent graduates by the course at sub-standard salaries is reprehensible and exploitative.**
Discussion: Although many institutions are under severe financial pressure, this should not be used as an excuse for exploitation. In particular, the practice of hiring recent graduates by the course, without giving them the opportunity to integrate into the scholarly life of the department, is seriously detrimental to the individuals and the profession. Such practice undermines educational quality, and knowledge of such practice discourages talented people from entering the profession.

Appendix II
Carnegie Initative on the Doctorate

Renewal of Doctoral Education in Mathematics: A proposed AMS program

Peter March, John Meakin, and David R. Morrison

The Carnegie Initiative on the Doctorate (CID) is drawing to a close. But its twin goals, namely to think deeply about the purpose of doctoral education and to act purposefully to improve doctoral programs, remain vital concerns of the national mathematics community. The CID asks, "What is the purpose of doctoral education?" and proposes the answer, "to prepare stewards of the discipline". Guided by the notion of stewardship, the mechanisms developed by the CID in its annual convenings led a representative group of departments to a deeper exploration of the programmatic and human resources issues in doctoral education than would otherwise have been the case for each department in isolation. We feel strongly that this experience was beneficial to our graduate programs and that the CID experience should be widely shared.

We propose that the AMS sponsor a program designed to help departments in the mathematical sciences sustain the work begun by the CID. The program would adapt those aspects of the CID that were essential to its effectiveness: (a) a competetive application process; (b) annual workshops consisting of facilitated discussion and exploration of specific aspects of the graduate program, its explicit and implicit goals, the extent to which those goals are attainable by the program as it currently exists, appropriate improvements to the program, and mechanisms to assess the impact of the program; (c) deliberate and meaningful engagement of graduate. students in the process; (d) an atmosphere of honesty, transparency and friendly criticism; and (e) periodic follow-up during the year. The precise format of the process will have to be clearly formulated, as will the structure of the workshops, but we can expect help from the relevant Carnegie Foundation senior scholars as well as faculty and students of the current CID departments.

A department wishing to participate will submit a proposal outlining the current state of doctoral education in their department and directions for possible change. The department will commit to sending a small team of faculty and graduate students to workshops for the program during three consecutive summers. A new iteration of the AMS program will begin every second year, and during the third summer a departmental team will help lead newer departments in the program as well as assessing the change in their own department. Departments that have been through the CID program or previous iterations of the AMS program will be asked to help lead a subsequent iteration of the AMS program.

It is not clear to us what the magnitude of funds required would be for such a program, but if the AMS chooses to seek external funding to sustain this program, we would be happy to assist in this process.

Because the workshops will be small, on the order of 5-8 departments and 20-30 individuals, not every qualified department that applies can be accepted during the first round. Departments will be invited to resubmit their applications in subsequent rounds.

Appendix III
The Culture of Research and Scholarship in Mathematics:
Directing Ph.D. Theses

In some disciplines, directing dissertations is an integral part of a research program for every scholar, both young and old. In mathematics, however, this is not the case; it is unusual for young (untenured) mathematicians to direct Ph.D. students.

As in other disciplines, pre-tenured mathematicians must focus on establishing their research programs, including the publication of their research. Unlike the lab sciences, mathematics graduate students are not a necessary component of a research program. *In fact, directing a Ph.D. thesis can work against a pre-tenured mathematician: thesis advisors often give thesis problems to their advisees that they themselves might otherwise pursue.*[1] There is no tradition of joint publication dissertation work, even when the advisor makes a substantial contribution, and this means fewer publications for the advisor -- something that may be a liability when facing a tenure review.

In a recent review of new mathematics Ph.D.'s from mid-2003 to mid-2004, fewer than 10% of the advisors had received their own Ph.D. within the past 6 years. More than 90% of the advisors were tenured. This overwhelming proportion of tenured faculty among thesis advisors is not the case in some other disciplines, where young researchers are expected to attract large numbers of graduate students to demonstrate the vitality of their research program.

Thus, there are subject-specific cultural reasons for mathematics faculty who are facing tenure decisions not to have advised any thesis students. While these facts are well-known to mathematicians, they are often misunderstood by other scholars who carry out research in a different culture.

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[1] This sentence must be changed; CoProf will vote on a revised sentence by email.

Appendix IV
Eisenbud Prize

Purpose of the prize: The Leonard Eisenbud Prize for Mathematics and Physics will honor a work or group of works that brings the two fields closer together. Thus, for example, the prize might be given for a contribution to mathematics inspired by modern developments in physics or for the development of a physical theory exploiting modern mathematics in a novel way. It is to be awarded for work(s) published or completed in the previous six years.

Prize amount: $5,000

Frequency: Once every three years.

Eligibility: Authors of any work or works published or completed in the previous six years. Usually this is interpreted to mean the six calendar years ending immediately before the prize selection committee begins its deliberations.

Nomination process: Nominations may be submitted by one or more individuals. The committee may solicit nominations from experts, and it also may consider candidates of its own recommendation.

Deadlines: Nominations from individuals not on the selection committee are due by 30 June of the year immediately preceding the annual meeting at which the award is to be presented. The selection committee should make its selection known to the Secretary by October 1.

Selection process: The selection committee shall consist of three members. A new committee is formed to determine the winner of each award.

Washington Office
Report to ECBT
October 24, 2005

On October 1 fiscal year (FY) 2006 began, and in what has become business as usual, no FY 2006 federal budget is in place. At this writing, only three agencies that have R&D components have an FY 2006 budget in place, the Environmental Protection Agency, the Department of Homeland Security, and the Department of Interior. The House and Senate have approved appropriations for the Department of Energy, the National Science Foundation (NSF), the Department of Defense, the Department of Commerce, and NASA. Conferences between the various House and Senate appropriations subcommittees which have jurisdiction over the above listed agencies are now beginning. Appropriations for the National Institutes of Health and the Department of Education have been approved by the House, but not by the Senate.

The government is now running on a continuing resolution until November 18, 2005, which could be extended to later in the year or even next year. Under the continuing resolution, agencies that do not have an FY 2006 budget are operating at the FY 2005, House appropriated, or Senate appropriated funding levels, whichever is lower. For the NSF this means the FY 2005 level.

Part of the reason that the FY 2006 budget is delayed is due to the cost of responding to Hurricanes Katrina and Rita. Katrina and Rita have also caused a scramble to find offsets in the FY 2006 budget to help pay for their costs. These offsets could affect agencies with R&D components. Once the FY 2006 budget is completed, there is an expectation of a 2 to 5 percent across the board rescission to help offset spending for Katrina and Rita.

Increased federal spending for research is becoming a gloomy proposition.   With all the demands on the federal budget - Iraq, Afghanistan, Katrina, Rita, and tax cuts - and with this Administration's low regard for scientific research, we are not likely to see any significant increases. The frustration is being felt by many constituencies that value science, including technology based industries and trade associations. On many fronts, representatives of these technology based industries and associations are creating events to showcase the importance of U. S. leadership in scientific research and innovation. Intel, Texas Instruments, Northrop Grumman, Microsoft, the National Association of Manufacturers, and the American Electronics Association are among the companies and associations participating in these events. The White House has shown little interest in any of these activities even though some are directed at the Administration. Members of Congress have become increasingly active, but frankly, have shown very little leadership, continually implying that we must convince the Administration to act. I always thought Congress and the Administration were independent branches of government!

The National Academies has also issued a recent report, *Rising Above the Gathering Storm.* This report is concerned with the erosion of U.S. scientific and economic leadership. Norman Augustine, retired chairman and CEO of the Lockheed Martin Corporation, chaired the committee that wrote the report. The report made several recommendations, including scholarships for science, mathematics, and engineering majors who agree to obtain a teaching certificate while matriculating and also agree to teach in K-12 for five years. Another recommendation was to double the federal investment in long-term basic research over ten years. When pressed for their highest priority, the committee cited improving K-12 education. Hearings have been held in both the House and Senate regarding this report. The report was prepared at the request of Senators Lamar Alexander and Jeff Bingaman.

NSF is not likely to receive any real increases for the next several years. The FY 2006 budget will be lower than the FY 2004 NSF budget. Recall that the FY 2005 NSF budget is also lower than the FY 2004 NSF budget. A budget rescission is likely to result in an FY 2006 NSF budget that is lower than the FY 2005 NSF budget, with the possibility that it could be lower than the FY 2003 NSF budget! This situation is far from the idea of doubling of the NSF budget over five years (FY 2003 – FY 2007) proposed in Public Law 107-368, the 2002 NSF Authorization Act. Given the current environment, the Division of Mathematical Sciences will continue to loose ground, as will many other NSF divisions.

Since the last report, the Washington Office has undertaken several activities requiring considerable effort: the Coalition for National Science Funding (CNSF) Capitol Hill Exhibition, CNSF Hill Visits Day, and the annual meeting of the Committee on Education. The CNSF Exhibition highlighted 33 NSF funded projects, from all NSF directorates. Project principal investigators interacted with congressional staff and Members of Congress explaining their research and answering questions. This event continues to grow in interest with over 380 attendees this year, including 15 members of Congress, the most ever on both counts. Exhibitors are anxious to participate and several researchers were turned down because of space limitations.

Anita Benjamin served as a co-director of the CNSF Exhibition and was in charge of all logistics. This is quite an undertaking as she has to work with Hill staff in regard to securing the rooms in the Rayburn House Office Building, work with the Hill caterers, the Hill police for those having to bring in displays through the loading dock, outside vendors for display boards and audio visual equipment, exhibitors regarding placement of exhibits, development of promotional materials, the Exhibition program and signage, and budgeting and event registration.

AMS sponsored an exhibit by Robert Lipton, Louisiana State University, whose project was titled "Mathematics for Advanced Composites Technology." Before the Exhibition, Sam Rankin and Rob Lipton visited the offices of Lipton's senators and representative to advocate for the NSF and to illustrate how important NSF support is to the state of Louisiana.

This September was the first ever CNSF Hill Day. Over sixty scientists came to Washington for over 90 visits to the offices of Members of Congress on behalf of the NSF. Participants were divided into interdisciplinary teams for constituent visits. This event was initiated by the director of the AMS Washington Office and the Washington Office helped organize the event. The AMS sponsored two mathematicians to participate in the Hill Day, Roger Lewis, University of Alabama at Birmingham and Sheldon Katz, University of Illinois at Urbana – Champaign. Roger was a recent NSF rotator, and both Roger and Sheldon come from states whose congressional delegations include members of appropriation subcommittees which oversee the NSF budget.

The annual Committee on Education policy meeting will take place October 27-29, 2005 in Washington, DC. Over seventy people are expected to participate in this meeting including forty-four department chairs or representatives. For the first time, the meeting will begin with a reception and dinner on Thursday evening October 27, followed by a presentation from Richard Schaar of Texas Instruments, "On Reaching Common Ground," a discussion of the K-12 math wars. Friday will be devoted to presentations from representatives of the NSF, DoEd, MSEB, the Business Roundtable, the Business-Higher Education Forum, Achieve, and the Australian International Centre of Excellence for Education in Mathematics. On Saturday there will be a panel on encouraging mathematics majors to go to graduate school, discussion of Jim Milgram's book, *The Mathematics Pre-Service Teachers Need to Know,* and a discussion of Math for America's proposal for a mathematics teaching corps. A report of the meeting will be a separate agenda item.

In August, Anita Benjamin provided logistical support for an NSF supported workshop hosted by the AMS, ASA, MAA and SIAM focused on the mathematics major and the transition to graduate school. This two-day workshop entitled "Engaging Young Mathematicians: an NSF Workshop on Majors and the Transition to Graduate Work" was aimed primarily at doctoral granting departments in the mathematical sciences. It sought to stimulate departments to think more carefully about their major, the way in which graduate students enter their program, and the possible use of NSF workforce funds to initiate change. The workshop had 65 attendees, including over 40 department chairs and representatives.

During the summer and fall, the director of the Washington Office issued several alerts to his contact list asking that letters be sent to Members of Congress on behalf of the NSF FY 2006 budget. Currently, the House appropriated budget of $5.64 billion is the largest of the NSF budgets in play. The Senate budget is $5.53 billion and the Administration budget is $5.61 billion. We have asked that letters be sent to senators encouraging them to support the House level. It is very likely that the House number will not prevail.

During this fall, the director of the Washington Office helped organize a special AMS-MAA-MER session at the Joint Meetings in San Antonio. This session will be based on

the NSF supported workshop on mentoring and nurturing students, held in Tucson, Arizona in December 2004. Several leaders of the workshop will make presentations.

As chair of CNSF, the director of the Washington Office, initiated and helped compose a letter sent to the director of the Office of Management and Budget. The letter endorses a FY 2007 budget of $6 billion dollars for the NSF. The letter was sent with the CNSF membership list, now consisting of over 100 organizations.

On November 3, the annual AMS Congressional Lunch Briefing will be held. Clint Dawson, University of Texas and Joannes Westerink, University of Notre Dame will discuss how mathematical modeling and computer simulation are essential tools for both forecasting and hindcasting storm surges due to hurricanes and tsunamis. In light of hurricanes Katrina and Rita, this briefing will be quite timely and should draw a large crowd. Representatives Vern Ehlers and Rush Holt are co-sponsoring the briefing.

Samuel M. Rankin, III
Associate Executive Director
October 2005

Determining the 2007 Individual Member Dues Recommendation to the Council

The New Guidelines.
In May 2004 the Board of Trustees approved, and the Executive Committee recommended to the January 2005 Council, a new procedure for setting dues each year, replacing the (almost) automatic formula that was used for many years by a procedure based on a set of principles for setting dues. The new procedure was approved by the Council and was first used in setting dues for 2006. The new procedure requires beginning the process of setting dues slightly earlier than before. To change the dues rate for year X+2, the discussions must begin in year X.

- In November of year X, staff makes a recommendation about dues, following the principles described below. The ECBT recommends a dues rate for year X+2 to the Council.

- In January of year X+1, the Council reviews the ECBT recommendation and sets the dues rate for year X+2.

- In May of year X+1, the Board of Trustees approves the dues set by Council.

The process for setting dues is meant to be guided by the following principles.

Principle 1: The total revenue from individual dues should exceed the total net direct costs of the following membership related areas: privilege journals, members-only services, membership development, membership administration and governance, as reported to the Board of Trustees.

Principle 2: When an increase in dues rates is deemed to be appropriate, the following factors should guide the Council and the Board of Trustees in establishing the new dues rates:

- The current rate of inflation.
- The recent rate of growth in faculty salaries.
- The rate of growth in the net direct costs of the membership related areas listed in Principle 1.

Principle 3: A single increase in dues rates substantially beyond the level of the factors listed in Principle 2 should be avoided in favor of several successive moderate annual increases.

Recommendation for 2007 Dues.

The dues rate for 2006 was maintained at the 2005 rate of $152/$114 (high/low). The table below provides the information required under Principle 1. It includes actual results for 2001-2004, projected and budgeted results for 2005, budgeted results for 2006 and an estimate of 2007 results assuming no increase in dues, a $4 increase in dues and an $8 increase in dues.

Prior to the change in the process of setting dues, the net difference between dues revenue and net direct costs of membership had decreased approximately 63% in five years, from $569,000 in 2001 to $209,000 in the 2005 projection. This net difference is budgeted to decrease another 56% in 2006, to $91,000. This is a more significant drop in the net than expected, as dues revenue for both 2005 and 2006 are lower and the direct costs of membership are higher for both years compared to this presentation last year.

If dues are held constant again in 2007, the net difference is still positive at $33,000, but this amount is well within the differences experienced between the budgeted and actual results in recent years. These differences have consistently resulted in a smaller net excess, and given the components of the revenue and the costs, it is not unusual for the difference between budget and actual results to be in the $40,000-$60,000 range. Accordingly, there is some significant probability that if dues are held constant in 2007 the difference between dues revenue and net direct costs of membership will be negative, which will not meet the requirements of Principle 1.

If dues are increased $4 in 2007, the net difference between dues revenue and net direct costs of membership is estimated to be $69,000. While still a drop of approximately 24% from 2006 budgeted results, it is unlikely that actual results for 2007 will be negative and thus not meet the requirements of Principle 1. If dues are increased $8 for 2007, the net excess will be maintained at about the same level as is budgeted for 2006.

**Dues Revenue and Net Direct Cost of Membership
Activities (1,000's)**

Year	Dues Revenue	Net Direct Costs of Memberships	Net
2001	$1,413	$844	$569
2002	1,387	960	427
2003	1,367	1,042	325
2004	1,318	1,106	212
2005 Budget	1,388	1,146	242
2005 Projection	1,345	1,136	209
2006 Budget	1,373	1,282	91
2007 Estimates			
no dues increase	1,373	1,340	33
$4 increase	1,409	1,340	69
$8 increase	1,445	1,340	105

Explanatory Notes:

Membership Activities under Principle 1 are:
 a) *Notices* & *Bulletin*,
 b) Membership development and administration, and
 c) Governance
The amounts are taken directly from the B-Pages, pages 5 and 6, as presented to the ECBT. The estimate for 2007 assumes a stable membership and a 4.5% increase in the net direct costs.

Principles 2 and 3 describe the factors to be taken into consideration for the determination of the amount of a dues increase. Staff considered the economic data related to growth in faculty salaries and general inflation, shown in the chart at the end of this attachment. The data on salaries relate to the general ability of members and potential members to pay dues with total personal income. It seems prudent for a membership organization to increase dues at the same or slower rate than its members' salaries increase. If the dues are held constant in 2007, the cumulative increase in dues since 1997 lags the salary increase (in the AMS survey) by about four and a half years. If dues are increased by $4 the lag is between three and four years. As of the end of 2004 (the last year of actual data), the cumulative dues increase lags the salary increase by about two and a half years. Similar results are seen if one uses the AAUP salary data, although the lag time and differences in the cumulative increases are about a year less than the results using the AMS survey..

The data on inflation relate to the ability of members and potential members to pay dues from discretionary income. Again, it seems prudent for a membership organization to maintain the cumulative increase in dues in line with general inflation in the absence of any significant financial needs. If one assumes an annual inflation rate of 4.5% for 2005 and 4% for 2006 and 2007, and an increase of $4 in dues, the cumulative increases for the CPI lags dues (using 1997 as the base year)

by about one year. It should be noted that dues for year X are generally paid by members in the last quarter of year X-1, so the inflationary effect on discretionary income felt by the individual member is likely somewhere in between the cumulative increase of year X and X-1.

Finally, staff looked at the overall financial health of the Society to determine if there were any foreseeable financial needs to raise dues in 2007. While revenue has remained somewhat flat over recent years with no substantial increase expected in the foreseeable future, the Society has been able to maintain positive net operating income. However, we expect inflationary pressures to increase costs to the Society significantly over the next few years.

Principle 3 states that small increases in dues over time are preferable to a large increase in any one year. Although an increase of $8 in dues would allow for a more comfortable net difference between dues revenues and direct costs of memberships, staff do not feel this large increase is necessary at this time.

In conclusion, staff recommend that the 2007 dues rate for individual members be increased by $4 above the 2006 level.

Ellen Maycock, Associate Executive Director
Connie Pass, Chief Financial Officer
October 2005

Factors for Consideration in Setting Individual Dues Rates for 2007

	Faculty Salaries Data				Inflation Data			Regular High Dues Rates				Dues Rev.
	AAUP Reports		AMS Annual Survey									
Academic Year Beginning	Annual Increase	Cumulative Increase	Annual Inc. Grps 1-3 combined	Cumulative Increase	Calendar Year	Annual Increase CPI-U	Cumulative Increase CPI-U	Actual Dues	Cumulative Increase	Covert Dues	High/Low Cutoff	Total Dues Revenue (1000's)
1988	5.8%				1988	4.4%		88			30,000	
1989	6.1%				1989	4.6%		88		88.000	38,000	
1990	5.4%				1990	6.1%		92		93.104	43,000	
1991	3.5%				1991	3.1%		100		98.783	45,000	
1992	2.5%				1992	2.9%		104		104.117	45,000	
1993	3.0%				1993	2.7%		108		107.761	45,000	
1994	3.4%				1994	2.7%		112		110.455	45,000	
1995	2.9%				1995	2.5%		116		113.769	45,000	
1996	3.0%				1996	3.3%		120		117.637	45,000	
1997	3.3%	3.3%	2.7%	2.7%	1997	1.7%	1.7%	124	3.3%	121.048	45,000	1,414
1998	3.6%	7.0%	3.8%	6.6%	1998	1.6%	3.3%	128	6.7%	124.679	45,000	1,437
1999	3.7%	11.0%	3.8%	10.7%	1999	2.7%	6.1%	132	10.0%	128.918	55,000	1,380
2000	3.5%	14.9%	5.0%	16.2%	2000	3.4%	9.7%	132	10.0%	128.918	65,000	1,384
2001	3.8%	19.2%	4.2%	21.1%	2001	1.6%	11.4%	136	13.3%	133.559	75,000	1,413
2002	3.0%	22.8%	3.3%	25.1%	2002	2.4%	14.1%	140	16.7%	138.501	75,000	1,388
2003	2.1%	25.4%	2.0%	27.6%	2003	1.9%	16.2%	144	20.0%	143.349	75,000	1,369
2004	2.8%	28.9%	2.2%	30.4%	2004	3.3%	20.0%	148	23.3%	148.796	80,000	1318
2005					2005	4.5%	25.3%	152	26.7%	153.260	80,000	1,345
2006					2006	4.0%	30.4%	152	26.7%	156.478	80,000	1,373
2007					2007 (A)	4.0%	35.6%	**152**	26.7%	160.860	80,000	1,373
					2007 (B)		35.6%	**156**	30.0%	160.860	80,000	1,409
					2007 (C)		35.6%	**160**	33.3%	160.860	80,000	1,445

Explanatory Notes:
1. AAUP data: Percentage increase in average nominal salaries for institutions reporting comparable data for adjacent one-year periods.
2. CPI-U data: Based on the Dec. to Dec. annual change in the index, with estimates for 2005, 2006 and 2007.
3. Covert Dues: For the period 1990-1999, covert dues for Year N+1 were calculated by increasing the covert dues for year N by an amount equal to the AAUP percentage for Year N-1. A "holiday" was taken in applying the usual AAUP increase for 200, and the formula was applied since 2000 using the AAUP figure for Year N-2. The formula approach is no longer used to determine the dues rate in any given year, but is presented here for informational purposes.
4. 2005 dues revenue reflects current projections and 2006 dues revenue is as budgeted. The three scenarios presented for 2007 dues assume a stable paying membership and no change in the high-low cutoff.
5. September 2004-September 2005 CPI-U is 4.68%

Journal and Book Donations

The AMS Book and Journal Donation Program was started nearly ten years ago as a small, but visible outreach activity for the Society. The program matches donors of certain types of mathematical materials with recipient institutions or libraries in currency-poor or developing countries, where there is a need for mathematical research literature. Potential donors notify the AMS of their available donations, which are then listed on this web site. Potential recipients from eligible countries can browse the list of available items and apply to the AMS for the materials. (In extraordinary cases, applications made from within the U.S. and Canada might be approved.) When a match is made, the donor is notified with instructions on shipping directly to the recipient. The donor packs the materials, schedules the pick-up and the international shipping by a suitable shipper, and pays the shipping bill, which is reimbursed by the AMS.

Matching is carried out by staff (Programs and Services Department), but under the guidance of an advisory committee, which sets policy and oversees the program. In the past, funding has come exclusively from donations from the Stroock family foundation. (The original impetus for the program came from Dan Stroock.)

During the period 9/2004 - 9/2005, there were completed donations to only three libraries:

> 1) Lahore University, Lahore,Pakistan
> 2) Mathematical Institute, Madras, India
> 3) Charles University, Prague, Czech Republic

An additional 13 libraries were matched, however, and these donations are in progress:

> 1) Univ Nacional de Colombia, Bogota, Colombia
> 2) Univ. of Craiova, Craiova, Romania
> 3)-4) Public Library, Jagodina, Serbia (from two donors)
> 5)-6) Obafemi Awolowo Univ, Ile-Ife Nigeria (from two donors)
> 7) Acad. of Economic, Bucharest, Romania
> 8) Cadi Ayyad Univ, Beni Mellai, Morocco
> 9) Nation Univ of Colombia, Medellin, Colombia
> 10) Univ. Nacional Alberta, Caracas, Venezuela
> 11) Univ. Pedagogica, Tegucigalpa, Honduras
> 12) Hue University, Hue, Vietnam
> 13) Bangalore Centre Library, Bangalore, India

Since the beginning of the project in 1996 we have sent 38 donations to 20 countries:

> Argentina, Armenia, Bulgaria, Czech Republic, China, Columbia, Cuba, Egypt, Georgia, Hungary, India, Iran, Morocco, Pakistan, Romania, Russia, South Africa, Turkey, Uzbekistan, Vietnam.

This has been a relatively small, but effective program. During the coming year, the Society plans to expand its effort in two directions. First, we will more aggressively advertise the opportunity to make donations, encouraging mathematicians (and perhaps even publishers) to offer donations. Second, we will experiment by making donations of AMS books and journals, made up as small collections from our inventory. The Commission on Development and Exchanges of the International Mathematical Union has offered to help in this effort by providing appropriate contacts.

While there are ample funds to continue the program on a small scale, we may need to expend additional funds during its expansion. For that reason, the executive director would like to allocate $10,000 from the income from the unrestricted endowment for this purpose in 2006.

John Ewing

Public Awareness

(The following document contains excerpts from an attachment to the May 2000 ECBT agenda. This document provided background about public awareness and proposed establishing a new office, which has now operated for nearly five years.)

Introduction

Public awareness is a problem mentioned frequently by mathematicians. The public image of mathematics is either poor or nonexistent, and almost every mathematician has the experience of responding to strangers who casually comment that they always hated math. Even other scientists are often unaware of the mathematics they are using. We have an image problem.

Members are not convinced the Society is addressing the problem. In a 1998 survey, more than 300 members ranked various AMS programs from 1(low) to 10(high). Only 6% ranked the quality of publications in the bottom half; for building the public image of mathematics, 40% rated the Society's effort there.

We ought to be careful to put the public awareness problem in perspective, however. This is not a new problem. It's been with American mathematics since E. H. Moore gave his retiring presidential address at the turn of the century, or J. W. Young wrote his impassioned pleas in the 1920s, or Bailey Price made speeches in the 1950s. And of course, it was around long before *American* mathematics discovered it. Public awareness has always been a problem for mathematics.

Does that mean we should give up? That it's too hard? Not at all. But it *does* mean we ought to understand the nature of the problem we are dealing with. It is not that people have failed to think about public awareness for many years, and now, suddenly, they have discovered its importance. Making headway on public awareness is not merely a matter of declaring that we have a problem and forming a committee to study it. Solving the problem will be hard work — many tiny steps to achieve many tiny results — and the key to success isn't necessarily finding dramatic new ways to do new things but rather finding ways to sustain our efforts.

Mathematicians who tackle this problem are often overly enthusiastic and optimistic. Those are both terrific qualities for getting things started, but they are not sufficient for long-term success. Long-term success requires making public awareness an integral part of day-to-day operations.

What is public awareness?

We ought to decide what it is we are trying to accomplish before we set out to accomplish it. What is public awareness? What are the goals? Are we trying to make everyone *like* mathematics? If so, we are unlikely to succeed. Trying to make them understand it? If so, surely it will be a limited understanding, at least for most people. Trying to increase the number of mathematicians? Surely not, at least not directly.

One rough attempt at a statement of the goal is the following: Public awareness tries to make people aware of mathematics and its value. That means *all* kinds of mathematics, and one key to success in public awareness is to be inclusive — the more things one calls mathematics, the more likely people are to be aware of mathematics. And "value" means both for its applications and for its intrinsic beauty. All kinds of mathematics? Intrinsic value? That's a complicated message. One can greatly simplify it ("mathematics gets you a job") but this may not be the kind of public awareness the AMS is after. (It is, however, almost exactly the kind of public awareness campaign that NCTM is presently engaged in, at great cost.)

What kinds of "people" are we trying to convince; that is, what is the audience? This is complicated as well. There are three broad categories one might tackle: (i) the general public, (ii) the scientific community, and (iii) the mathematical community. Mathematicians? It may sound ridiculous at first, but a moment of reflection shows that public awareness for mathematicians --- trying to convince them that mathematics (broadly) is valuable, interesting, and worth knowing --- is a prerequisite to convincing others. A mathematician who knows only how to prove theorems about algebraic sheaves, and who has no interest in great advances in numerical analysis or topology or number theory, doesn't place much value in mathematics. And if we can't convince our own community of the value of mathematics, then surely we won't succeed with scientists or the general public.

In fact, it's necessary to work on audience (iii) first, and then to tackle (ii) and (i). For that reason, things such as What's Happening, or first-rate exposition in the Notices, or great expository papers in the Bulletin are all extremely important efforts at public awareness. Good expository invited addresses at national meetings are public awareness. So are the efforts made to improve the quality of colloquium talks. None of these activities may be viewed as public awareness, but success in them is essential to success with scientists and the general public.

It is important to view public awareness as an effort with many goals directed at many audiences. The key is to understand for any one effort the particular goal and the particular audience.

...

What's Different About Mathematics?

It is tempting to say, nothing — mathematics can be explained to people in the same way any scientific discipline can be explained. That's tempting, but all evidence contradicts that statement. Mathematics seems to have a far worse public image than other scientific disciplines.

Some people suggest that mathematics has a tougher time because much of it appears useless. On the other hand, at various times when mathematics *did* have a better image (for example, in late 19th century Britain), it was the recreational side of mathematics that dominated, not the applications side. Some people suggest that mathematics has a poor image because of its practitioners rather than its subject matter. There seems to be little reason to believe that mathematicians are any more opaque than scientists in other fields; every field has talented popularizers as well as people who obscure even simple ideas.

excerpts from Att. #1, May 2000 ECBT Minutes

Mathematics does have several disadvantages not shared by other disciplines, however. Perhaps the foremost is a commonly observed fact: People generally remember mathematics by the last course they took in school, which was almost always unsuccessful. This is not true in physics, chemistry, or biology, where most non-scientists remember the subject either from high school or from an elective in college. Also, mathematical ideas are most often (but not always) both abstract and intangible. Many disciplines are full of ideas that are intangible but not abstract. (It's hard to see DNA, but it's something people view as real and very concrete.) Many other disciplines have ideas that are abstract, but nonetheless quite tangible. (Astronomy, which is so envied by mathematicians, deals in black holes and esoteric cosmology, but the photographs of quasars and galaxies from billions of years ago make this very tangible.) Finally, mathematics is ubiquitous, pervading nearly all of science. Ironically, this makes public awareness more difficult: Commonplace things appear common. This is why so many of the achievements of mathematics (CAT-scans, encryption, sequencing) are viewed as physics or computer science or biology, with scant mention of the mathematics.

It is important to understand that mathematics *is* different from the other sciences, and that it requires more effort to carry out effective public awareness.

Associated Activities

There are two closely associated activities to public awareness. The first, government relations, is the kind of work that is presently being carried out by our Washington office. In every sense, government relations is public awareness, but with a highly restricted audience — congress, congressional staff, agency personnel, and more generally those who make policy decisions in Washington. Also, we have discovered in Washington that working with other scientific organizations is the key to success, and much of the work of the Washington office is directed at the leadership and staff of other scientific societies. It is crucial to give mathematics a visibility in this community, and that is public awareness too. For these reasons, many scientific societies mix together public awareness and government relations.

The second kind of activity is more controversial. The Society seldom promotes itself. Almost all other scientific societies produce slick annual reports, trumpet their achievements in publishing, and pat themselves on the back for successful programs. But for complicated reasons, the AMS has a tradition of understating its own accomplishments. Hence, after more than four years of groundbreaking electronic publication, many mathematicians are still unaware of the electronic journals. After more than five years of successful work in Washington, mathematicians continue to complain on surveys that we are uninvolved in federal policy. After many years of survey work, services to young mathematicians, and innovations in the employment register, people continue to complain that the Society has done nothing for young mathematicians.

Public relations is not the same as public awareness — one promotes the Society and the other promotes mathematics. One is self-motivated, the other altruistic. Nonetheless, the two are closely related because they require many of the same skills, and each can nurture the other. A Society that fails to promote itself (tastefully) will find it hard to promote mathematics (with equal taste).

Creating a Media Relations Office

After the departure of the Development Officer in the fall, the activities of Development were reorganized and a new position of Media Relations Officer was created. The position was advertised early this year.

During the hiring process, however, two things became clear. First, the desirable qualifications for applicants were hard to describe. On the one hand, there was a need for someone with writing skills and some mathematical training — someone who could communicate with mathematicians, understand their culture, and write sensibly for the general public. On the other hand, many of the tasks required a person who could be a good project manager, with an outgoing personality that made it easy to talk to reporters, other societies, or government officials. This kind of work requires a subtle combination of aggressiveness and ambition to *promote* both mathematics and the Society. The potential applicants for the Media Relations Officer had one of these two traits, but none had both (not surprising).

The second point was even more dramatic. In creating the new position, a list of responsibilities was drawn up, sketching the obvious parts of the job. That list is included below, and even a cursory glance shows that it's far too ambitious for a single person. The Media Relations Officer would therefore have to select a subset of things to do — not unreasonable nor uncommon in the Society. But a *major* responsibility of the new position was supposed to be seeking new opportunities, expanding our public awareness program by talking to other societies and groups of mathematicians already engaged in projects. Asking someone to carry out an over-full list of tasks, and simultaneously asking that person to seek ways to expand our program, is almost surely a way to succeed at neither.

During this process, it became clear that the Society was proceeding in its usual fashion to solve the public awareness problem. We tried a committee, with a $5,000 budget. We tried using a portion of a staff person (the Development Officer), who had little experience or aptitude. We were now trying a single staff appointment, with modest support and an enormous set of responsibilities. We often solve problems with the smallest conceivable investment, and then gradually add resources until there is some effect. This conservative approach has much merit. But in some situations it is the *wrong* approach, directing limited resources across many projects with negligible effect in each.

The Proposal

If we are to succeed at public awareness, we need to make a commitment. That commitment requires creating a Media Relations department by hiring two Media Relations staff (middle-level appointments) along with a secretary for support. The two staff members will complement one another — one with mathematical training and writing skills, the other with the management and oral communication skills. Much of their responsibility would be shared, and they will work closely with each other as well as the Notices Deputy Editor (Allyn Jackson) and the Washington Office (Sam Rankin and Monica Foulkes).

excerpts from Att. #1, May 2000 ECBT Minutes

A large part of the job of the new public awareness group will be seeking out new opportunities
— things not yet imagined — and that is perhaps their most important responsibility.
Nonetheless, there are many obvious activities that need to be done immediately.

- **News releases**. As described above, the Society puts out regular news releases about events,
  articles in the Notices, prizes, etc. Writing the copy for these releases is only part of the job:
  One has to maintain an up-to-date list of media contacts, select the appropriate contacts for
  each release, follow up with personal contacts in special cases, and respond to inquiries from
  the media. This is routine but time-consuming work. Before Allyn Jackson began working
  full-time for the *Notices* she did most of this writing. Much of it should now be the
  responsibility of the Media Relations Office.
- **News clippings**. Maintaining a comprehensive collection of mathematically based news
  stories is routine work, but it is essential for several reasons. First, it is the only reliable way
  to measure changes in media coverage over long periods of time. Second, it is a valuable
  resource to which one can refer science writers when working on stories. Finally, it provides
  a systematic way to build a database of press contacts (with some knowledge of their past
  work). We have made a modest effort at unsystematic collection of such material, but the
  new office can do this effectively.
- **Meetings publicity**. We have done a poor job in generating press coverage of our meetings.
  At the Joint Meetings each year, we have tried to send out press notices in advance to tell
  local reporters about potentially interesting events. We need more follow up, however. At
  some sectional meetings there are programs of interest as well (most recently, one on
  quantum computing at the Lowell meeting.) At special meetings, like the Mathematical
  Challenges conference in August of this year, we need to carry out a publicity campaign as
  well. Such efforts require a dedicated staff of people working full time during the meeting
  itself.
- **Press room**. During the Joint Meeting we need to make science writers feel welcome and
  supported. To do that, we should have a small press area for the media, as well as people
  available to answer questions. Until we build up a group of writers who attend the meeting,
  we will have to issue personal invitations to selected news writers. With some work, the
  number of such writers attending the meeting will climb. It requires much work (and time) to
  accomplish this.
- **Liaison with What's New editor**. The mathematician working on the What's New section of
  e-MATH has had little support, except through our technical staff in Providence. The media
  relations office would work directly with this person to update the material for the press and
  to coordinate this section of e-MATH with the rest of public awareness.
- **Liaison with Math on Web editor**. Math on the Web is a section of e-MATH developed
  largely by Patrick Ion in Ann Arbor. The goal is to turn over maintenance of this section to a
  volunteer, who can keep it fresh and relevant. It is a valuable resource for mathematicians,
  and although it is not unique as a portal to mathematics material on the web, it is one of the
  best resources for research mathematicians. One of the problems with turning it over to a
  volunteer is finding a way to integrate the section with the rest of e-MATH. Again, the media
  relations office can serve that function.

excerpts from Att. #1, May 2000 ECBT Minutes

- **Manager for What's Happening**. While the first four volumes of What's Happening in the Mathematical Sciences were written by a single individual, there has been a desire to try a different approach for the next volume. The goal is to have working mathematicians write individual chapters, and then to have a single editor work them into a volume. This kind of project requires coordination and considerable effort. The media relations office will provide a mechanism for managing this project, working with the acquisitions staff as well.
- **Staff contact for Arnold Ross lectures**. The Arnold Ross lectures have been largely administered by the Meetings Department, primarily because they handled the logistics of the lecture. Working with the selection committee, however, involves much more than logistics. The Media Relations office will be able to provide contacts with potential host sites, publicity for the event itself, and even follow up with the students and teachers who attend.
- **Staff contact for AIP Inside Science project**. The American Institute of Physics has a vigorous public awareness program, including production of radio and television material. After several years of pilot testing, they recently launched a new project to provide science spots (scripts and video clips) for local news programs in the nations 277 television markets. They invited other societies to joint them, and they seem particularly interested in having mathematics as part of the effort. Joining will mean a financial commitment from the AMS, but more importantly it requires someone who can work with groups of mathematicians to provide ideas for science spots involving mathematics. The media relations office will serve as the primary contact with AIP in case the AMS decides to join this effort.
- **Editor for e-MATH announcements**. The homepage of e-MATH has both a static part (the toolbar used to navigate to the rest of e-MATH) and a dynamic part, which includes announcements and short news items. At the moment, this is maintained by the technical staff with the help of the Executive Director, who serves as "editor" for the homepage. The Media Relations office will be a far better editor.
- **Editor for NSF mathematics snapshots**. In the spring, the present director of the Division of Mathematical Sciences asked for material that could be used by NSF staff for promoting mathematics. Even the Director of NSF wants this kind of material for speeches and presentations. This requires finding many items (encryption on the internet, eyeglass lens design, global positioning satellites, etc.), and then finding a high-quality photograph for each along with a few sentences explaining the role of mathematics in the area. This is work in progress, but it is the kind of work that the Media Relations office should carry out continually.
- **Work with Washington office on Media Fellows**. The Washington office has managed the AAAS Media Fellows for the AMS and will continue to do so. The Media Relations office, however, should work with the Media Fellows *after* they have completed their summer's work. There should be regular contact with the fellows, they should be invited to contribute to projects, and they should attend our annual meetings to work with the Media Relations office in doing publicity and managing the press room. This will make the Fellows program far more valuable than it already is.
- **Work with Allyn Jackson on Notices material**. There is a need for coordination of public awareness (and public relations) with the Notices. The Media Relations office will be able to carry out that coordination, providing both information that the Notices may want to use *and* using the Notices as a source of information. It may be that some routine news writing can be

carried out by the Media Relations office as well, much as it is done now by contract employees.

- **Contact with reporters**. Cultivating a group of reporters and science writers is a key function of the Media Relations office. Over time, the goal of this office is to create a network of reporters and writers who are interested in writing about mathematics. That requires cultivating such a group and then providing resources to answer questions when they arise. Responding to reporters quickly and appropriately is the single most important factor in generating interest.
- **Contact with other societies and institutes**. Mathematicians have few successes in public awareness to boast about. Other sciences do better, and we should be willing to learn from them. A large part of the Media Relations work will be to talk regularly with other scientific societies as well as institutes, soliciting ideas and emulating programs that seem to work. This will mean regular contact with Media Relations personnel in the various Washington-based societies as well as institutes such as MSRI, which has carried out interesting public awareness efforts in recent years.
- **Contact with universities**. There are many departments throughout the world with innovative public awareness programs and projects. Part of the Media Relations effort should be directed at finding those programs to gather ideas for further efforts by the Society. Part of this effort should be directed at merely publicizing such programs, however, in order to encourage others to emulate them.
- **Contact science museums**. Science museums traditionally have steered away from mathematics, which has a reputation as a prosaic subject. Regular contacts with museums may help to change their minds, and it will provide the mathematical community with a resource for further publicity and outreach.
- **Inside AMS brochure**. In 1988, the Society produced a 24-page booklet called "A Look Inside the AMS". Many organizations provide similar kinds of materials, promoting the Society and its services. At present, the AMS provides a slim membership brochure and almost nothing else that publicizes its programs. While 24 pages may be far too much, the Society needs to produce material that explains its structure, programs, and services. This material needs to be updated regularly. The Media Relations office will have this as a regular, ongoing task.
- **Producing Newsletter**. At a lower level, there is little publicity for events that take place involving the Society and its leadership. As an alternative to placing this material in the Notices, it may be better to provide a 4-page newsletter that will be mailed with the Notices a few times each year. The newsletter will serve as a vehicle for communicating with the membership. The Media Relations office will be the home of such a newsletter.
- **Publicity for outreach programs**. While publicizing our programs to members and mathematicians is important, it is also important to publicize them to people outside the mathematics community. We should create small brochures for meetings such as SACNAS (the Society for the Advancement of Chicano and Native American Scientists) or AAAS (the American Association for the Advancement of Science). The Media Relations office will prepare such material as well.

This is a long list of responsibilities, and naturally many of them will not be accomplished immediately. The list makes clear, however, that trying to carry out public awareness with a single person will be a frustrating experience.

The details of the Media Relations office — its precise staffing and structure — may have to change as the office develops. The key ingredient in creating the office is to commit a substantial sum of money to the effort.

...

Summary

As an organization, we are not used to making large, new financial commitments to outreach. Part of the reason is a natural (and healthy) fiscal conservatism; part of the reason is a worry about the future of publication programs that fund that outreach. These are good reasons to be cautious.

On the other hand, public awareness is not merely one more outreach activity aimed at a special part of the community — it lies at the heart of the mission of the Society and benefits every mathematician. The associated public relations activity directly influences membership and our relationship with the rest of the scientific community. This is therefore an investment that has both altruistic and selfish motivation, and it may be an investment *in* the Society as well as *by* the Society.

Making this commitment would be an act of faith. The successes may not be immediate and the payoff may not be obvious for several years. The *need* for public awareness is obvious, however, and Society is in a position to fulfill that need, if it makes a commitment to do so.

John Ewing

Promoting Undergraduate Research in Mathematics

Undergraduate Research in Mathematics: Description and Background

For a number of years undergraduate research programs have played an important role in developing mathematical talent in the United States. These programs have been valuable for encouraging mathematically gifted undergraduates to continue on to graduate level studies in mathematics or other scientific fields. In fact, many practicing mathematicians today had their first research experiences in such programs. At a time when the number of graduate degrees granted in mathematics to U.S. citizens has fallen to its lowest point in nine years, support of undergraduate research, with a view to increasing the pool of qualified undergraduates, is all the more important.

Current summer research programs for undergraduates are usually small, focused programs held on college and university campuses across the country, in which some of the best mathematics undergraduates work with faculty and collaborate with each other for six to eight weeks during the summer. Many students repeat the experience when given the opportunity. At the present time there are more than 70 such programs in mathematics offered in a variety of formats. The Director's Summer Program at the National Security Agency is the largest such program. The National Science Foundation funds a number of summer programs through its Research Experiences for Undergraduates (REU) program.

Participating in a summer program is just one of many ways that an undergraduate can do research in mathematics. Summer and academic year opportunities are sometimes funded by a student's college or university, rather than a government agency or private foundation. Mathematics students may participate in research during the academic year, for a single semester, a year or as part of a 4-year comprehensive program. Several well-known intensive programs are Mathematics in Moscow and the Budapest Semester in Mathematics. In some programs, all students work on aspects of a single topic, while in others, each student is paired with a faculty mentor who presents a project and guides the student throughout the time period. Still others form small groups of students who work together on a single project. Many incorporate regular meetings, seminars, computer training and social functions. Almost all require a final research project, usually consisting of a paper and/or presentation.

These programs have been very successful in nurturing mathematical talent in the U.S., and in recent years have also taken on the task of encouraging underrepresented minorities into mathematics. For example, a well-known program that is run by the Mathematical and Theoretical Biology Institute (MTBI) and directed by Carlos Castillo-Chavez, now at Arizona State University, has cultivated a large number of talented Latino and Native American students. Programs at Miami University of Ohio and the University of Puerto Rico at Humacao have been similarly successful.

A Conference on Research Experience for Undergraduates, 1999

While undergraduate mathematics research programs have been in existence for many years, there have been few attempts to document the variety and success of these programs. In 1999, the first conference on summer undergraduate mathematics research programs was held over a three-day period, and included directors of past and present REU and REU-type programs, students who had participated in such programs and representatives from federal agencies with a stake in summer undergraduate research programs.   The aim of the 1999 conference was to examine summer undergraduate mathematics research programs as they had existed over the previous 25 years and to do some strategic planning for the future, with the dual goals of improving traditional programs by sharing information, and of exploring ways in which summer research programs can be used to encourage the most talented undergraduates to pursue graduate degrees in mathematics and science. In the 1999 Conference, valuable information and experiences about existing summer undergraduate mathematics research programs were shared among program directors and student participants. Ideas about involving faculty, working with students, and post-program tracking of students were successfully exchanged, and continue to be shared through the distribution of the proceedings volume, of which nearly 500 copies have been distributed to interested parties. The proceedings volume is also available, in PDF form, to interested persons through the AMS website.

2006 Conference Proposal

In recent years, the Annual Survey of the Mathematical Sciences has documented that the percentage of new doctoral recipients (from U.S. institutions) who are U.S. citizens is decreasing yearly – in 2004 it was the lowest percentage observed in nine years. In consideration of this fact, the proposed conference for 2006, *Promoting Undergraduate Research in Mathematics*, will build on the information gathered at the 1999 Conference and aim to produce strategies to promote undergraduate research with the intention of broadening the pool of U.S. citizens in graduate mathematics programs. Some of these strategies may include expanding existing and establishing new undergraduate research programs.

We propose to hold a three-day conference in September 2006 to bring together people who have been active in promoting undergraduate research in mathematics. While the conference will be similar to the one held in 1999, it would involve almost twice as many participants with a view to expanding the number of undergraduate students doing research in mathematics. Therefore, the conference will include representatives from as many existing undergraduate research programs as possible as well as representatives from institutions desiring to start new undergraduate research programs. In order to accommodate all interested faculty, programs and institutions, there will be a limit of one representative from each existing undergraduate research program, with some exceptions.

The outcome of the conference will include answers to the following questions:

1. How can institutions support undergraduate research?

2. How can we help mathematics departments create or offer more opportunities for undergraduate research?

3. How can undergraduate research programs do more to increase diversity in the profession?

4. How can mathematics departments, along with undergraduate research programs increase the number of U.S. citizens entering doctoral programs in mathematics?

Organizing the conference

Joseph Gallian (University of Minnesota Duluth), Aparna Higgins (University of Dayton), Ivelisse Rubio (Universidad de Puerto Rico, Humacao), and Frank Connolly (University of Notre Dame) will be organizing this conference. These individuals are all mathematicians who care deeply about and have been very active in promoting undergraduate research in mathematics. Their expertise will be invaluable in the development of this conference. They have been selected to represent a variety of undergraduate research experiences as well as to ensure that the conference will achieve its goals. The program will include the following features:

1. Attendance of approximately 60 invited participants from among the directors of various types of current and past undergraduate research programs in mathematics, and representatives from institutions that have expressed an interest in starting new undergraduate research programs. Up to 20 additional attendees will be included from among appropriate personnel at the federal agencies with a stake in undergraduate mathematics research programs, and executive personnel from interested mathematical societies.

2. Location at the Westin Hotel, Rosemont in Chicago, September 28-30, 2006.

3. A program outline as follows:

> • Begin on Thursday evening with a reception, followed by a banquet with a keynote address to establish the focus of the conference.

> • Spend Friday in sessions focused on establishing new programs and expanding existing research opportunities, as well as assessing the needs of students and programs. This discussion should advance the conference toward answers to Questions 1 and 2 above.

> • Spend Saturday morning in an in-depth session focused on issues concerning the involvement of underrepresented groups. After lunch, the focus will shift to examining how to engage and support students in the study of mathematics in all phases of study from college through graduate school, especially during critical transition points. This discussion should advance the conference toward answers to Questions 3 and 4.

AMS staff will handle all of the meeting arrangements associated with the conference.

Report of the Conference

There will be written proceedings of the conference, just as was done for the 1999 conference. Joseph Gallian, who was the editor for the 1999 proceedings volume, and is one of the current conference organizers, will be the editor for this conference's proceedings volume. The proceedings will draw directly from the conference sessions, including a description of current undergraduate research programs, written by each program director attending. Also, it would incorporate material prepared in advance of the conference. These materials will include articles on the following topics: *Differences Between Competition Mathematics and Research Mathematics*, *Feeder programs* and *Helping Students Present Research.*

The proceedings will be published by the AMS and provided to all registered conference participants, to appropriate individuals at NSA and to other federal agencies. It will be made available to the public at no cost.

Data Collection

In preparing for the 1999 conference, an effort was made to collect data on former REU students prior to that event, and was focused on giving a retrospective from the point of view of past students to understand outcomes of the programs in terms of student development. Since then, the AMS staff has continued to collect data from these students through an annual mailing that tracks each student's contact information, in anticipation of an in depth survey in 2006.

Benefits

We face a crisis in the American mathematics community: we are not replenishing our pool of mathematicians and mathematically trained scientists. We have compensated by using both senior and junior mathematicians from abroad, many of whom are trained in our universities. The American community has benefited greatly from this arrangement, but we have not planned for a possible future in which talent from abroad becomes scarce. Mathematics is the enabling discipline for all science, and the fact that fewer and fewer Americans are pursuing careers centered on mathematics ought to worry scientists at every level and in every discipline.

Studying the problem at its roots and seeking innovative ways to reverse this trend will eventually lead to a program for change. But these are long-term goals, likely to take many years of enormous effort. Undergraduate research programs have been effective in nurturing talent and sparking interest in mathematics at the highest level. Although they vary in design and detail, they have a common goal of bridging the gap between undergraduate and research level mathematics.

The 1999 Conference on Summer Undergraduate Mathematics Research Programs cultivated the sharing of information on what has made these programs successful. Based on this exchange of ideas and increased understanding of undergraduate research programs, the proposed 2006 conference is a logical step in establishing more research opportunities for undergraduate based on successful models, and is a practical solution

for bringing in the most talented students in *any* population into research level mathematics as we face a steadily decreasing pool of native mathematicians. Additionally, while we are still struggling to attract underrepresented minorities into research level mathematics, we do know from recent experience that using undergraduate research programs to work with talented minority students can have immediate, dramatic effects. Building on those successes means seeking out and encouraging the most talented minority students in programs patterned on successful undergraduate research programs of the past. This is a partial solution, but it is a pragmatic way to begin… with immediate effect.

We believe that sharing experience, gathering information and planning for the future together will benefit the entire mathematics community and the scientific community beyond.

American Mathematical Society
Budget for
Promoting Undergraduate Research in Mathematics

	Amount ($)

Conference Expenses

PARTICIPANT EXPENSES
Transportation
    Organizing committees (four individuals)

For planning meeting (Spring)	1,400
For planning meeting (JMM - 1 person)	500
For conference	1,400

    AMS senior staff (one individual)

For planning meeting (Spring)	350
For conference	350
Conference participants (60 individuals)	21,000

Meals
    Organizing committees (four individuals)

For planning meeting (Spring)	360
For conference	1,186

    AMS senior staff (one individual)

For planning meeting (Spring)	90
For conference	297
Conference participants (60 individuals)	17,790

Lodging
    Organizing committees (four individuals)

For planning meeting (Spring)	600
For planning meeting (JMM - 1 person)	300
For conference	1,968

    AMS senior staff (one individual)

For planning meeting (Spring)	150
For conference	297
Conference participants (60 individuals)	29,520

Registration

Organizing Committee (four individuals)	160
AMS senior staff (one individual)	40
Conference participants (60 individuals)	2,400
Meal costs for staff and other participants (15 individuals)	4,448

Participant expenses subtotal		84,605

OPERATING EXPENSES

Hotel space charges & conference fees	2,600
Communications (phone & postage)	500
Freight	350
Supplies, general	250
Hotel audio-visual services	2,700
Photocopies	300

American Mathematical Society
Budget for
Promoting Undergraduate Research in Mathematics

	Amount ($)

OPERTING EXPENSES, CONTINUED
Administrative expenses:
    AMS Staff (Programs staff)

Salary and benefits	1,638
Transportation and lodging	1,764
AMS Conference Coordinator	
Salary and benefits	4,921
Transportation and lodging	882

Operating expenses subtotal	15,905
Total conference expenses	100,509

Data collection and reporting

Staff time, Programs Department	3,275
Postage	200
Supplies, general	50
Total, data collection and reporting	3,525

Conference proceedings

Course release time for editor (Gallian)	15,000
Prepress publication costs (450 pages)	2,965
Printing (750 copies)	8,000
Distribution costs	1,500
Total, conference proceedings	27,465

Total pre-overhead expenses	131,499

Less items not sibject to overhead:

Conference participant support	84,605
Course release time for editor	15,000

Overhead base		31,895
Overhead* @	25.00%	7,974
Total funding requested		**139,473**

*AMS NSF-approved overhead rate for federal grants is 46%.
    The AMS is voluntarily reducing this rate to 25%.

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Applied

REPORT BY: Peter J. WITBOOI

Dated: 17 August 2005

On CONFERENCE ATTENDANCE

CONGRESS, 70'th Anniversary of the CHINESE MATHEMATICAL SOCIETY

25-29 July 2005, WEIHAI, China

I wish to thank the Chinese Mathematical Society for having invited me to attend the above congress. I also wish to thank the CMS for providing accommodation, meals and local transport during my attendance of the conference. Furthermore I wish to express my heartiest gratitude to the American Mathematical Society for paying my air-fare from Cape Town, South Africa to Weihai, China.

The plenary talks were of high quality and many of them were relevant to research projects in progress in my home department, including of course my own research interests. Regarding the session talks, I took advantage of this opportunity to familiarize myself with the latest developments in Mathematics of Finance. I was also able to engage in discussion with specialists in Mathematics of Finance from China and also with delegates from other countries. Thus the conference presented me with the beginning of

what promises to be an extended co-operation in especially Mathematics of Finance.

Thus, academically I regard my trip as having been truly fulfilling.

Ever since my first e-mail contact with the Conference Organizing Committee, my interaction with them was efficient and pleasant. I had a warm reception, and the hospitality throughout was splendid. Students from the English Language Department of Shandong University, who were on duty to assist those delegates who could not speak the Chinese language, were excellent.

I found the Chinese people to be friendly and helpful. I am impressed with their work rate and achievements.

I wish to thank the University of the Western Cape for having granted me special leave to attend the conference. A special word of thanks goes to the International Relations Office of UWC who administered the purchase of the air-ticket.

Prof. P.J. Witbooi

Copies To:
  CMS, Dr Huijuan WANG
  AMS, Prof Herb CLEMENS
  UWC, International Relations Office
  UWC, Science Faculty.

Allocation of Spendable Income

The 2006 budget reflects the following allocations of spendable income from the unrestricted endowment.

MR Citations Project ($80,000): For the past several years, Math Reviews has added a new kind of data to the database -- lists of references, tagged with the corresponding MR number when it exists. The resulting collection of citation data, based on the data within MR itself, provides a new way to study and understand the mathematical literature. At the moment, these reference lists exist for only about 200 journals. Next year, the project will be expanded further to include more than 300, going back to 2000. For most, this means having the reference lists keyboarded by an outside contractor (Apex). These lists are essential to "mine" the data for our citation database.

Congressional Fellow ($78,000): In 2005, the AMS began support of a Congressional Fellow through the AAAS program. Fellows do not provide direct services to the supporting organization, and a large part of the value is building a relationship between those who provide support and the congressional office in which the person works. We are trying out this program for a year or two to measure its ultimate value. The total annual cost will be approximately $100,000.

Young Scholars Program ($50,000): The Society has provided small grants to young scholars programs across the country for the past 5 years, and the program will continue in the future. In 2005, grants totaling $80,000 were awarded to 8 programs across North America. The same amount is budgeted for 2006. Eventually, this program will be supported by income from the Epsilon Fund, which currently amounts to more than $1,000,000 (endowment and quasi-endowment combined). In the meantime, the Society uses income from the unrestricted endowment and operating income to fund the grants.

Project NExT Support ($15,000): The Society has agreed to fund 6 Project NExT Fellows each year at $2,500 each. (Approval is done on the consent agenda in year X-2 for support in year X – see item 2C.2 in the present agenda.) The money pays for the Project NExT program and the expenses incurred by the fellows at two meetings. (Travel is paid by the fellow's department.)

AAAS Mass Media Fellowship ($10,000): For a number of years, the Society has supported one or more mathematics graduate students, who spend 6-8 weeks in the summer working with a media outlet (newspaper, magazine, or radio/TV station). The program has built a cadre of young mathematicians with some experience in carrying out public awareness, and we have used them in various ways (often at the annual meeting). This has been a great program for the entire science community, increasing the number of scientifically literate journalists (as well as the number of media-savvy young scientists).

Mathjobs ($10,000): This service provides a way for mathematics departments, job candidates, and referees to exchange various materials related to job searches. It was created at Duke University, and it continues to reside there. Customer support is now done by the AMS, which also provides overall control and administration. The number of departments and candidates continues to grow, and the Society is now prepared to be more aggressive in promoting the service. Duke receives a stipend of $10,000 each year to update and support the software and hardware behind the service.

What's Happening in Mathematics **($15,000):** The next volume in this series was supposed to appear in 2004, and then in 2005 ... but the writing was delayed ... and then delayed further. The writer with whom we originally contracted backed out of the project part way through, and we had to start again in late 2005. The AMS anticipates producing volume 6 in 2006. The allocated funds from the unrestricted endowment cover part of the expense of writing the material.

Book and Journal Donation Program ($10,000): Over the past several years, we have funded the shipment of donated books and journals to institutions, mainly (but not exclusively) in developing countries. This has been a valuable program for the community of mathematicians, and it has been good for the Society's image as well. Until now, the program has been exclusively funded by donations from the Stroock Family Foundation. In order to expand the program, the Executive Director proposes to use a portion of the income from the unrestricted endowment to supplement the donations from the Stroock Foundation (see item 2.12). The program will continue to be run in its present form, which matches donor with recipients and pays the costs of shipments.

John Ewing

AMERICAN MATHEMATICAL SOCIETY

To: Investment Committee

From: Gary Brownell, Connie Pass

Subject: October 7, 2005 Meeting Minutes

Date: October 25, 2005

Cc: Carol Couto, Joanne Arruda, Karen Mollohan, John Ewing

The Committee met from 11:30 to 1:30 on Friday, October 7, 2005. Attendees included Committee members John Franks, Linda Keen, Don McClure, and Peter Weinberger (by phone), plus staff members Connie Pass, Carol Couto, Joanne Arruda, John Ewing and Gary Brownell.

The Investment Committee Charge was attached to the agenda for reference.

1. **Performance review.** The following are the portfolio returns (AMS calculated, net) vs. benchmarks for 2002, 2003, 2004, and year-to-date through August 2005. The red entries are those whose returns have trailed their benchmark by more than .5%. Additional details are in the I section of the green pages.

	2002	**2003**	**2004**	**Aug 2005**
Frontier	(26.4)% vs. (22.1)%	27.0% vs. 28.7%	5.9% vs.10.9%	2.7% vs. 1.9%
Vanguard 500	(22.1)% vs. (22.1)%	28.6% vs. 28.7%	10.8% vs. 10.9%	1.9% vs. 1.9%
Vanguard Total	(20.9)% vs. (20.9)%	31.6% vs. 31.7%	12.6% vs. 12.6%	3.0% vs. 3.2%
Vanguard REIT	3.8% vs. 3.6%	35.7% vs. 36.8%	30.7% vs. 31.5%	9.5% vs. 9.6%
Cohen & Steers	2.8% vs. 3.8%	38.1% vs. 37.7%	38.5% vs. 31.6%	10.8% vs. 9.8%
Fidelity Intl Ind	(16.0)% vs. (15.7)%	38.3% vs. 39.2%	19.9% vs. 20.7%	5.1% vs. 4.8%
PIMCO	10.2% vs. 10.3%	5.6% vs. 4.1%	5.1% vs. 4.3%	3.5% vs. 2.9%
Total Portfolio	**(13.3)% (net)**	**23.9% (net)**	**11.2% (net))**	**3.4% (net)**

The Committee reviewed performance. No action was taken.

2. **Asset allocation.** The Committee should consider whether any rebalancing should be made to conform to the current asset allocation policy (adopted at the November 2003 ECBT meeting and documented on the Investment Committee website http://www.ams.org/investcom/). Below is a spreadsheet showing the allocation percentages as of the date indicated. The current allocation policy is:

Equity investments (including foreign equities)	65%-85% of total.
Foreign equities	Up to 10% of total.
Alternative investments	Up to 10% of total.
Fixed income	15%-25% of total.

ASSET ALLOCATION		Aug 05 Balance	% of Total	Policy
Equities				
US Equities	Frontier Capital Management	$8,228,000		
	Vanguard S&P 500 Fund	4,770,000		
	Vanguard Total Mkt Fund	23,584,000		
	Total domestic stock accounts	36,582,000	65.0%	
Foreign Equities	Fidelity International Index	4,303,000		
	Total foreign equity accounts	4,303,000	7.6%	*Up to 10%*
Total Equities		**40,885,000**	**72.7%**	*65%-85%*
Alternative Investments				
REITs	Vanguard REIT Fund	1,493,000		
	Cohen & Steers REIT Fund	1,680,000		
Total Alternative		**3,173,000**	**5.6%**	*Up to 10%*
Fixed Income	**PIMCO Total Return**	**12,193,000**	**21.7%**	*15%-25%*
TOTAL		**$56,251,000**	**100.0%**	

As of the date indicated, the portfolio conforms to the current allocation policy. No action is required.

3. **Transfer of funds from operations to long-term investments.** In November, the CFO will recommend to the BT that $3,100,000 be added to the Supplemental Portion of the ESF. This will require the addition of approximately $2,000,000 in new money. The Committee should determine how the $2,000,000 should be allocated among existing funds. Since the portfolio currently conforms to the allocation policy, a simple solution would be 25% to PIMCO and 75% to equities (all in one account or split in some way).

   Action taken – The Committee concluded that 25% of the transfer should be added to the Pimco Total Return bond fund, and 75% should be added to the domestic stock income funds; of the 75%, a portion should be added to the S&P 500 index fund sufficient to increase its balance to approximately $5,000,000 (a level at which fees are lowered), with the remainder going to the Total Stock Market fund.

4. **Investment Committee Self Evaluation.** In 2004 we received a document from Vanguard – *Investment Committees: Vanguard's View of Best Practices*. At that time we discussed using this as the basis for a "self evaluation" of the Investment Committee. Staff provided the Committee with:
   - Memo re: Investment Committee Self Evaluation
   - Self-Evaluation Best Practices Tool (with preliminary comments from staff)
   - Investment Committee Questionnaire

   These documents should be reviewed in advance of the meeting. Committee members should note practices that they believe may require attention. The Committee should focus on these areas during

the meeting with the goals of determining how well the Committee functions overall and what specific areas need attention. A report should be prepared for the November BT meeting.

The Committee discussed several areas of the Self-Evaluation Best Practices Tool in detail. It was decided that John Franks would edit the evaluation portion of the tool to reflect the Committee's consensus and circulate it to the other members for confirmation. The final version of the document is attached. In summary, the AMS practices in this area conform well to this set of best practices. Some areas are noted for improvement, and these should be addressed at the May meeting.

The Investment Committee Questionnaire is attached and includes the Committee responses. These were positive, with a note that staff should provide certain additional information on the website and in the monthly reports.

5. **Agenda for May meeting.** The Committee decided that staff should draft changes to policies and other documents as indicated by the self-evaluation.

Investment Committee Charge

General Description
- Committee is a standing committee of the Board of Trustees.
- Number of members is generally four – the Treasurer (Chair) and the Associate Treasurer serve ex officio; a third Trustee and an additional member (who need not be a Trustee) are appointed by the Chair of the Board of Trustees.
- Term is three years for members who are not ex officio.
- Staff support is provided by the Deputy Executive Director.

Responsibility
The Committee's primary responsibility is to assist the Board in fulfilling its oversight responsibilities with respect to the management of the Society's long-term investments.

Principal Activities
The principal activities of the Committee include:
- Monitoring the performance of the Society's investments. This may include, but is not limited to, meeting with investment advisors periodically and reviewing performance reports prepared by staff or others.
- Reviewing, and where appropriate, modifying the Society's long-term investment strategy.
- Reviewing investment policies and recommending changes when appropriate.
- Recommending action to the Board of Trustees on matters that involve investments when appropriate.

Other Activities
The Committee recommends to the Board of Trustees which investment managers or investment vehicles to use.

The Committee recommends to the Board of Trustees the spending rate to be used for endowment funds.

Miscellaneous Information
The Committee generally meets at ABC or ECBT meetings, but may meet at other times.

The Society maintains a website with information relevant to the Investment Committee. Such information includes minutes, investment performance information, and other information relating to the Society's investments.

Authorization
11/90 ECBT Minutes, Item 7.10 reads:
> Regarding the Investment Committee, the BT approved a recommendation from the Investment Committee that, henceforth, this Committee should consist of the Treasurer, Associate Treasurer, and another member of the BT to serve a three-year term. The BT

concurred with the Investment Committee's suggestion that Gehring be appointed to serve on this Committee for 1991, 1992, and 1993.

11/91 ECBT Minutes, Item 7.7 reads:
Add a fourth member to this Committee: T. Benny Rushing.

11/02 ECBT Minutes, item 3.5
Charge was updated.

Note to the Chair
Committee chairs should be informed, at the beginning of each fiscal period, the budget of their committees and cautioned to remain within the budget. Such items as travel reimbursement to, accommodations for, and meals for guests of any kind fall within these budgets.

Work done by committees on recurring problems may have value as precedent or may have historical interest. Accordingly, the Council has requested that a central file system be maintained for the Society by the Secretary. Committees are reminded that copies of every sheet of paper should be deposited (say once a year) in this central file. Confidential material should be noted, so that it can be handled in confidential manner.

AMERICAN MATHEMATICAL SOCIETY

To: Investment Committee

From: Gary Brownell, Connie Pass

Subject: Investment Committee Self Evaluation

Date: September 22, 2005

In 2004 we received a document from Vanguard – *Investment Committees: Vanguard's View of Best Practices*. At that time we discussed using this as the basis for a "self evaluation" of the Investment Committee. Apart from simply good practice, such a review should be done because of the size of the Society's long-term investments and the increased risks associated with such a large asset. In addition, we are in a period where governing bodies, audit committees, and organizational leadership are all subject to increased scrutiny.

I have used the Vanguard document to provide lists of best practices. These are in a table format with space provided for comments as to how well AMS follows each practice. Where possible, I have indicated how AMS stacks up. In addition, I have developed a questionnaire to be filled out by each of the Committee members to gather information about more subjective aspects of our practices. The two items are attached as:

> **SELF-EVALUATION BEST PRACTICES TOOL**
> **INVESTMENT COMMITTEE QUESTIONNAIRE**

Our goal should be to complete as much of this as possible before the October Investment Committee meeting, to finalize the self-evaluation at the October meeting, and to report to the full Board in November.

SELF-EVALUATION BEST PRACTICES TOOL

This tool is based on *Investment Committees: Vanguard's View of Best Practices.* The original document can be found on the Investment Committee website (http://www.ams.org/investcom/manual/Vanguard-best-practices.pdf). The broad statements of best practices are included followed by more specific descriptions. These more specific descriptions are in table form, with the best practice on the left and the AMS practice on the right. An original document was prepared for the committee by Gary Brownell and Connie Pass. It has been revised by members of the committee.

Committee members have reviewed the "Best Practices" listed below and noted areas where the AMS practice may need to be improved. The items highlighted in yellow are areas where it appears that the AMS practice may differ from the "Best Practice".

Best practice #1: *An investment committee should have an explicit understanding of a portfolio's purpose and objective and a clear definition of success in determining whether the portfolio fulfills that purpose and meets that objective.*
The purpose of an investment committee is to oversee a pool of assets. As such, it is imperative that the committee members share an understanding of the goal for that money and that they articulate the goal as explicitly and frequently as possible. A goal without a definition can be difficult to understand, and it can make it challenging for committee members to evaluate their progress toward reaching the goal.

A clear, realistic investment policy statement is the most effective way to define a portfolio's purpose and to measure a committee's progress in fulfilling that purpose. The policy statement also serves as an objective framework for making decisions, some of which can be difficult. Since investment committees are made up of individuals who may have different attitudes and ideas about managing money, the policy statement can help to neutralize the emotional component that can intrude on a committee's decision-making process.

In addition to explicitly stating a portfolio's objective, an effective investment policy statement should always include:

Best Practice	AMS practice.
A summary of the committee's investment strategy, which should reflect the portfolio's objective. For example, "The assets are to be invested with the objective of preserving their long-term, real purchasing power while providing a relatively predictable and increasing stream of annual distributions in support of the sponsoring organization."	Such a statement is included in the AMS policy. See http://www.ams.org/investcom/manual/lt-invest-pol-nov2003.pdf
A process to evaluate the committee's progress in meeting the portfolio's objective, including a timetable for measuring that progress.	This is not done explicitly, although the Committee reviews performance regularly. We do not believe a timetable measuring progress is appropriate. A schedule according to which we evaluate performance, is included in the Long-Term Investment Policy,

A quantified measure of the amount of money to be spent in any given period.	<mark>This is not included in the investment policy</mark>. The Committee does give attention to spending rates, and the total spending is included in the annual budget. A quantified measure of the amount of money to be spent in a given period is reviewed by and subject to the approval of the BT. It would be useful to include as an Addendum to the Long-Term Investment Policy a statement of the currently approved Spending Rate, the next scheduled date for review by the BT of the Spending Rate, and a summary of the amounts made available for the operating budget in the previous n years, where n is something like 5.
Guidelines governing the selection, evaluation, and, if necessary, termination of an investment manager. The guidelines should be specific enough to provide the committee with direction, but not so narrow that the committee can't use its collective judgment.	<mark>Not included.</mark> The policy includes this statement: "The Long-Term Investment portfolios will be monitored periodically for consistency in investment policy, return relative to objectives, and investment risk as evidenced by asset concentrations, exposure to extreme economic conditions, and market conditions. Results will be measured over trailing three to five year periods." We believe that this statement as it stands is appropriate. In recent years we have largely opted for index funds guided by these principles.
An explicit strategy for risk control, including an asset allocation strategy that governs the rebalancing of investments.	Included.

While a large number of endowments' investment policy statements include definitions of the endowments' asset allocation strategies and investment objectives, a much smaller number state their rebalancing and investment-manager policies. Table 1 lists responses to the 2003 NACUBO (National Association of College and University Business Officers) questionnaire, which surveyed more than 700 college and university endowments about what they address in their investment policy statements.

Of course, there are limits to how helpful an investment policy statement can be in a committee's decision-making process. In the end, the committee's collective judgment must prevail. In this respect, there are a few key qualities that successful investment committees share. In general, they:

Best practice	AMS
Rely on the investment policy statement for guidance when making decisions about the portfolio.	<mark>This is not done explicitly.</mark> However, such decisions are made only after discussions that consider policies, long-term needs, and risks. We believe this is appropriate.
Act as fiduciaries, not as portfolio managers.	True.
Review the portfolio as a whole and recognize that some assets will outperform at various times while others will lag.	True.
Base decisions on facts and sound judgment, distinguishing between opinion and insight.	My opinion is that the Committee does its best to base decisions on facts and sound judgment and that individual members often mention whether or not they are giving opinions, are citing the work of others, or are speaking from an emotional context.
Measure the success of the portfolio relative to its ability to meet the goals of the organization and not necessarily on how it fares compared with a benchmark or the portfolios of peer groups.	<mark>Probably not true.</mark> This may be the case because the portfolio easily provides for the limited amount of spending it needs to produce and because it met its goal as a reserve fund some time ago. At the May 2006 meeting of the BT the policies governing operating income and reserves will be reviewed. Changes (if any) in these policies should be reflected in the statement of objectives on the investment committee. At that point this item could be revisited and means to measure our success in meeting these objectives considered.

Best practice #2: *An investment committee should create a charter that outlines the role of its members, support staff, and—if applicable—consultants.*
A successful investment committee starts with having the right people as members. In general, we suggest the following:

Best practice	AMS
Do not confer membership as a reward.	True for AMS.
Avoid relying too heavily on a single committee member for either financial support or investment expertise.	True for AMS.
Avoid—or at least acknowledge—potential conflicts of interest. For example, it is inappropriate to hire the firm of a committee member as the investment manager.	Never been an issue.
Identify the length of time that members are expected to serve and be clear about which positions are permanent (for example, the chief financial officer) and which rotate. Consider a minimum of five years of service for those committees with the discretion to determine the length of members' terms.	True for AMS, except that members who are not ex officio have terms of three years.
Do not rotate more than one-third of the members on or off the committee in any one term. This ensures continuity in managing the portfolio and avoids the risk of a wholesale shift in approach.	True.
Make sure that new committee members are familiar with the organization's investment goals and approach. Members should be seriously interested in investment issues but should not necessarily be investment professionals.	Probably true.
Encourage members to regularly attend committee meetings and to document the committee's discussions and decisions so they take their participation seriously.	Members are encouraged to attend. Staff document discussions and decisions.
Make sure that members understand their fiduciary responsibilities and, if applicable, the potential liabilities of serving on a committee. This is particularly true for members of committees that oversee ERISA (Employee Retirement Income Security Act)-qualified assets.	True.
Ensure that members are familiar with the guidelines for establishing and monitoring the portfolio by linking the charter to the investment policy statement.	Not done. This should be done by appending a copy of the Charge and the Long-Term Investment Policy to each agenda.

No investment committee will be successful without an ongoing commitment to documentation, so there should be a clear process for recording a committee's activity and decisions. Keeping a written record of meetings assures continuity and accountability and is a useful reference when decisions need to be revisited. Oral history, while providing perspective, can be dangerous if relied on too heavily.

Investment committees frequently hire others—such as money managers and consultants—to handle a portion of their assignments. Committee members should communicate as much as possible about the organization they represent—its culture, challenges, and goals—to prospective staff members and managers during their evaluation. The best committees take advantage of the expertise these professionals can provide and avoid second-guessing their recommendations. Relationships with individuals or firms who are hired to assist the committee are strongest when there is open communication between all the parties involved.

Best practice #3: *An investment committee should adopt a clear investment strategy that includes a reasonable set of assumptions about the organization's risk tolerance and the portfolio's expected return.*
Once a portfolio's objective is established, it becomes the committee's responsibility to decide how assets are invested and by whom. The investment strategy should *always* represent what is optimal for meeting the stated objective. If a pool of assets is targeted for a specific purpose and the organization has little tolerance for a potential shortfall, then the portfolio should be invested accordingly no matter what the market environment is at the time.

It is also important for the committee to have realistic expectations of investment returns. This is especially true for committees responsible for assets that an organization may need to meet expenditures. If expected returns and spending assumptions aren't considered together, there is a risk that assets may not be available when they are needed (for example, when a foundation needs to fulfill its spending commitments). Forecasting returns is an inexact science. In general, committees should use conservative assumptions and consider the portfolio's performance history as a guide and not a predictor of its future returns. Market conditions over the lifetime of the assets will determine the portfolio's value, not average annual return assumptions. A mismatch between outlays and return expectations can result in increased spending at a time when assets are declining. In the *2003 NACUBO Endowment Study,* a majority of endowments reported that their investment policies addressed how their returns related to their spending policies, as shown in Figure **1.**

Figure 1
Investment Policy Features: How Endowment Earnings Relate to Spending Policy
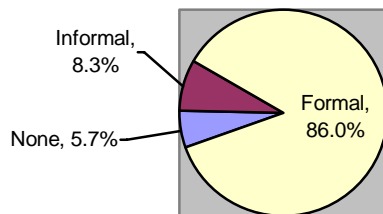
Source: *2003 NACUBO Endowment Study*

Committees may also overlook risk control as an important consideration. Too often their focus is exclusively on a portfolio's future returns without evaluating its risks. Over the long term, an 80% equity/20% fixed income portfolio will have a higher expected return than a portfolio with a 60% equity/40% bonds allocation, but it may also have much worse performance over shorter time periods.

> Comments on AMS
> AMS now evaluates its asset allocation policy every five years. At that time, staff and the Committee look at such issues as historical returns of asset classes, risk, etc. Consideration is given to historical total return given various allocations between equities and debt.

Best practice #4: *An investment committee should have straightforward process for hiring managers to implement an investment strategy and for identifying the circumstances under which a relationship with a manager can be terminated.*
Once the portfolio objective is established, the committee must assign the responsibility for managing the assets. For most committees this means hiring one or more investment managers.

Using the investment policy statement as a reference, the committee should establish criteria for the selection of an investment manager, making sure that the criteria are multidimensional, instead of relying on a single factor. This is especially true when the committee evaluates a prospective manager's past investment returns. Performance should be considered as part of the evaluation process, but it should never drive the committee's decision.

In addition to following the guidelines established in the investment policy statement, the best committees:

Best practice	AMS
Clearly articulate to prospective managers the roles that the portfolios will be expected to play and the assignments for which they are being hired.	The AMS has not conducted a manager search in several years. Instead we have relied on index mutual funds and, in some cases, actively managed mutual funds. When we have searched for managers, we have tried to follow the sorts of practices that are mentioned here.
Look beyond managers' "stories" and test their credibility by speaking with their clients—both current and former.	
Do not approach the manager-selection process as they would if they were running a business. Many investment committee members are successful businesspeople who frequently—and rightfully—base their business decisions on short-term results. However, if committees were to use a short-term approach in evaluating the performance of potential managers and investment strategies, it could lead to poor decisions.	Since this is not a regular activity and has not been done recently, it would not make a lot of sense to try to evaluate the Committee in this area. Instead, we should strive to follow these sorts of practices during any future manager search.

Conduct both qualitative and quantitative manager reviews. They look beyond the numbers and evaluate managers using truly independent information. This should always include reviews of the managers' overall business health. Finally, the best committees value the importance of a manager's solid record of compliance with regulators.

Develop a strong level of expertise about investment issues.

Allow adequate time to interview a potential manager, especially if the manager makes a presentation to the committee. The best committees identify key questions ahead of time and aren't afraid to ask tough—but fair—questions.

Pay close attention to managers' fees and consider using performance-based incentive fees. A committee should make sure that a manager's fee structure is aligned with the portfolio's time horizon. For example, the fee for an active equity manager—whose portfolio can vary quite a bit from a benchmark's over short time periods—should be based on performance over periods longer than, say, the trailing 12 months. Most important, the measure by which the manager is evaluated and paid should be closely aligned with the portfolio's objective.

Understand that there is a point beyond which the investment manager is not likely to alter the core investment approach of his or her organization, so pursuing a "customized" approach might not be in either the portfolio's or the manager's best interests.

Many of the key points associated with successful manager selection hold true for manager oversight. Once a manager is hired, the committee should establish a managerial review process. How often is the manager expected to meet with the committee? What is the preferred style for written communication between the parties? In general, the best committees:

Best practice	AMS
Recognize that markets are cyclical and, as such, that there will be periods when a manager, or a group of managers, will do well and others when they will do poorly. An understanding of what drives those results helps committees to have constructive conversations with managers.	True.
Require that any outstanding issues be discussed, if necessary, in a written report. Such issues may arise during a manager's responses to questions during a committee meeting or in the normal course of business. The committee should keep track of any issues and how—or whether—they are resolved.	Generally, this hasn't been necessary. However, we have done exactly this in the past when deemed necessary.
Acknowledge potential pitfalls before they materialize. The performances of benchmarks and peer groups need to be scrutinized in addition to the performance of the manager's portfolio. Performance numbers can be time-period dependent and should be evaluated over multiple periods. In addition, a committee should recognize that there may be a difference between conventional measurements of performance and those the committee is using to assess the portfolio's progress. The portfolio's relative performance versus a benchmark or peer group may not be the most relevant analysis.	We tend to focus on benchmarks or peer groups. The investment committee agenda should include numeric multi-year average performance data for investment managers and benchmarks in addition to the (currently available) graphical representation of this data. This will encourage a multi-year comparison for evaluation.
Match the right time period to the investment strategy. Applying a short time frame to analysis of a portfolio positioned for long-term results can result in poor committee decisions, which, in turn, can harm the portfolio's ability to meet the established objective. Three years should be the minimum time frame for evaluating the performance of an equity manager, and longer time frames should be used to evaluate the performances of more specialized strategies.	We use a long time frame.

Best practice #5: *An investment committee should exercise common sense and discipline.*
Serving on an investment committee is not easy. Members can have very different opinions about how to reach an objective, and they can espouse competing demands. Committee decisions may involve a trade-off between the immediacy of current circumstances and the commitment to future needs. The temptation

for members to yield to short-term pressures is great. The best committees recognize these dynamics and manage to satisfy them by using good judgment. In general they:

Best practice	AMS
Do not invest in a particular strategy because "everyone else is doing it."	True
Are skeptical when they hear "this time it's different."	True
Remain committed to the objective and strategy outlined in the investment policy statement.	True

Practices to Avoid

While this paper focuses primarily on the practices committees should follow, there are obviously some they should avoid. Clearly, poor execution of any of the "best practices" and of items related to them would result in a less-than optimal committee experience. There are, however, a number of overt actions that can undermine a committee and significantly reduce its probability of success, among them:

Worst practice	AMS
Using an artificial measure of the portfolio's success that is not related to the portfolio's objective.	Avoided by AMS.
Allowing one person's opinion to dominate, even if that person is an investment professional or a major donor.	Avoided by AMS.
Acting as a portfolio manager and not as a fiduciary.	Avoided by AMS.
Treating rebalancing as a market-timing exercise.	Avoided by AMS, generally. That is, we do not necessarily rebalance immediately based on quantitative decision points, but we rarely stay outside of our asset allocation guidelines, and then only for short periods.
Using performance as the sole criterion for the selection or termination of a manager.	Avoided by AMS as to selection. Performance has tended to be the main criterion for termination.
Making a decision because "everyone else is doing it."	Avoided by AMS.

INVESTMENT COMMITTEE QUESTIONNAIRE

Please review these questions in advance of the meeting.
[Investment Committee responses are shown in *italics*.]

Investment Committee Charge

The Committee's charge was last updated in 2002. It can be viewed at
http://www.ams.org/investcom/manual/Investment-Comm-Charge-1102.pdf and a copy is attached to the
Investment Committee meeting agenda.

Regarding the charge and related issues:

• Do you believe the size of the Committee is appropriate? *Yes.*

• Do you find the composition of the Committee to be appropriate? *Yes.*

• Is the term of office appropriate? *Yes.*

• Are the activities described in the charge appropriate? *Yes.* Should scope be increased or decreased?
  No.

Investment Expertise

Over the years, the Committee has used outside expertise in different ways. Sometimes there has been
more than one active manager, and this sometimes provided the Committee with alternate views of the
investment environment. For a time, we had a broker who would visit with staff or with the Committee.
And for a few years, we employed an independent, fee-based consultant. Currently, the only investment
professional who meets with the Committee is the representative from Frontier Capital Management.
Although people can find fault with this or that piece of advice, one of the benefits of contact with these
outside experts has been a great education for staff in how the world of investment management works.

Regarding access to investment expertise:

• Do you believe the Committee has access to sufficient expertise to carry out its charge? Such
  expertise could come from staff, from Frontier, from communications from investment companies,
  and from the Committee members' own experience. *Yes.*

• Do staff adequately address investment issues as they arise? *Yes.*

Website

The Investment Committee has access to a website (http://www.ams.org/investcom/) intended to provide
resources that may be needed to carry out the Committee's charge. The information includes our monthly
reports, an archive of minutes, policies and related materials, and links to other sources of information.

- Do you find this website useful? *Yes.*

- What other information would be useful if added? ***Data on 5-year and 10-year trailing returns.***

- Is the site sufficiently easy to navigate? *Yes.*

Monthly reports

Our standard monthly reports include information on market values, returns, asset allocation, etc. These reports are generally posted during the third or fourth week following month-end.

- Do you find these reports useful and easy to understand? *Yes.*

- What other information would be useful if added? ***Data on 5-year and 10-year trailing returns.***

- Do you find the information appropriately organized? *Yes.*

Meetings, agendas and minutes

The Committee meets twice a year. The October meeting is the longer of the two and includes a visit from our active managers. The May meeting is shorter, and often one or more members attend by phone. Agendas and minutes are prepared by staff and approved by the Treasurer. They include certain recurring items (such as review of portfolio performance) as well as other relevant issues as they arise.

- Do you find that the agendas address the right issues and topics? *Yes.*

- What other issues should be routinely included? ***None noted.***

- Do the agendas include sufficient explanations of issues and supplementary information? *Yes.*

- Do the minutes adequately reflect the Committee's actions? (Minutes are included on the website.) *Yes.*

- Are the length and frequency of meetings adequate? *Yes.*

BOARD OF TRUSTEES
STANDING COMMITTEES

AGENDA AND BUDGET COMMITTEE
(as of February 1, 2006)

James Arthur, Chair (ex officio - President)
Robert Daverman (ex officio - Secretary)
John Franks (ex officio - Treasurer)
Donald McClure (ex officio - Associate Treasurer)
Jean Taylor (ex officio - Chair of BT)

AUDIT COMMITTEE
(as of February 1, 2006)

John Franks, Chair (ex officio - Treasurer)
Donald McClure (ex officio – Associate Treasurer)
Linda Keen (ex officio – third-year Trustee/incoming Chair of BT)
Jean Taylor (ex officio - Chair of BT)

INVESTMENT COMMITTEE
(as of February 1, 2006)

John Franks, Chair (ex officio - Treasurer)
Linda Keen (term expires January 31, 2008)
Donald McClure (ex officio - Associate Treasurer)
Peter Weinberger (term expires January 31, 2007)

LIAISON COMMITTEE
(NOT REALLY A BT COMMITTEE, BUT LISTED HERE FOR CONVENIENCE)
(as of February 1, 2006)

James Arthur, Chair (ex officio - President)
Robert Daverman (ex officio - Secretary)
John Franks (ex officio - Treasurer)
Jean Taylor (ex officio - Chair of BT)

SALARY COMMITTEE
(as of February 1, 2006)

John Franks, Chair (ex officio - Treasurer)
Donald McClure (ex officio - Associate Treasurer)
Jean Taylor (ex officio - Chair of BT)
EXECUTIVE COMMITTEE AND BOARD OF TRUSTEES

STANDING COMMITTEES

LONG RANGE PLANNING COMMITTEE
(as of February 1, 2006)

James Arthur, Chair (ex officio - President)
Robert Daverman (ex officio - Secretary)
John Ewing (ex officio - Executive Director)
John Franks (ex officio - Treasurer)
Robert Guralnick (ex officio - second-year member of EC)
Paul Sally (ex officio - third-year member of EC)
Jean Taylor (ex officio - Chair of BT)

ECBT NOMINATING COMMITTEE
(as of February 1, 2006)

Linda Keen, Chair (ex officio - third-year member of BT)
Linda Keen (ex officio - Chair of Council Nominating Committee)
Paul Sally (ex officio - third-year member of EC)
NOTE: When the position of Secretary is under consideration, the Treasurer is a member of this Committee. When the position of Treasurer is under consideration, the Secretary is a member of this Committee.

TRUSTEE ASSIGNMENTS TO POLICY COMMITTEES

<u>COMMITTEE ON EDUCATION</u>

John Conway (term expires January 31, 2007)

<u>COMMITTEE ON MEETINGS AND CONFERENCES</u>

Carol Wood (term expires January 31, 2007)

<u>COMMITTEE ON THE PROFESSION</u>

Jean Taylor (term expires January 31, 2007)

<u>COMMITTEE ON PUBLICATIONS</u>

Eric Friedlander (term expires January 31, 2007)

<u>COMMITTEE ON SCIENCE POLICY</u>

Linda Keen (term expires January 31, 2007)

TRUSTEE LIAISON ASSIGNMENTS TO DIVISIONS FOR 2006

Division (Division Director)	**Board Liaison**
Executive Director (John Ewing)	James Arthur

Administration (Gary Brownell)
    Electronic Products Development
    Human Resources
    Management Information Systems
    Systems and Operations
	John Conway
	John Franks
	Eric Friedlander

Finance (Connie Pass)
    Distribution
    Facilities and Purchasing
    Fiscal
    Member and Customer Services
	John Franks
	Don McClure
	Jean Taylor

Mathematical Reviews (Kevin Clancey)
    Administration
    Bibliographic Services
    Copy Editors
    Editorial
    Production
    Reviewer Services
    Slavic Languages
    Systems Support
	Don McClure
	Carol Wood

Meetings and Professional Services (Ellen Maycock)
    Meetings and Conferences
    Membership and Programs
    Public Awareness
	Linda Keen
	Carol Wood

Publications (John Ewing)
    Acquisitions
    Printing
    Production
    Promotions
    Sales Administration
	Eric Friedlander
	Linda Keen

Washington Office (Sam Rankin)	John Conway Jean Taylor

**Data Collection and Information Delivery ("Infrastructure") Project
Status Report
October 24, 2005
Gary Brownell**

Since the May ECBT meeting, there has been a significant change in the Infrastructure Focused Planning Project. Attachment 28 of the May meeting included this description of the project:

To support its mission in the most effective, efficient manner possible, the AMS needs business processes (broadly defined) that make sense, are consistent with the mission and goals of the Society, are consistent with the policies expressed by the leadership and senior management, and are consistent with each other. Furthermore, policies and procedures need to provide for and support efficient and effective operations. Finally, it is important that these policies and procedures are properly documented and that that documentation is maintained as our practices evolve.

We must be sure that we maintain a robust, accessible, and flexible technology infrastructure. The technology environment is changing rapidly and the business demands being made of our technology infrastructure are expanding.

It is important that we continue to evaluate our technology infrastructure and to determine how well it supports the operational needs of the Society. We will need to continue to make investments in our technology infrastructure so that the systems are able to meet the Society's business needs.

Project Description

The Infrastructure project will address these issues with: a business process component, an Information Systems (IS) component, and an Information Technology (IT) component. The business process component will span both the IS and IT areas and it will consider both human and computing processes within the Society.

The project was structured with analysis of business processes providing the foundation on which much of the rest of the project would be built. In order to better understand the implications of this from a timing and resource requirements point of view, we selected one process and analyzed it using the techniques developed for this purpose.

After completing the sample process to the extent possible, the Steering Committee met to establish the schedule for completion of the *Business Policies, Rules and Processes* project utilizing our adopted methodology applied to all major processes. It became apparent that the plan we were following would not yield results in reasonable timeframe. Although the methodology could yield useful results, it would take a long elapsed time (approximately 3 years) considering the number of employees available to perform the tasks and the number of processes to be examined. Therefore, information obtained early in the process might become dated, and the *Information Systems Plan* project would be delayed beyond what was considered appropriate for the Society.

It was observed that the other focused planning efforts had produced findings and recommendations and that the Infrastructure Project was defined as a project that carried out recommendations, rather than analyzing situations and simply making recommendations. It was also observed that by using technology staff in the process analysis project, other important work of the technology departments would have to be delayed.

After much discussion the Steering Committee decided to revise the scope of the project to be more consistent with that of other focused planning efforts, to provide a scope with a substantive set of deliverables, and to work within a timeframe measured in months rather than years.

The revised project includes the following key areas and due dates:
- Compile and assess existing documentation of business rules and policies. Final report due February 2006.
- Develop background information on setting standards for future documentation of policies and rules, and the maintenance thereof. Final report due March 2006.
- Complete the Systems Assessments (being worked on in parallel with the Infrastructure Project). Final report due December 2006.
- Develop a means to align our computing infrastructure with the business & technology requirements of the AMS (focused planning for information systems). Final report due November 2005.

The revised plan provides for more review and feedback from executive staff before implementing changes, frees up computing department resources for other important work, and is less of a burden on staff members in other departments.
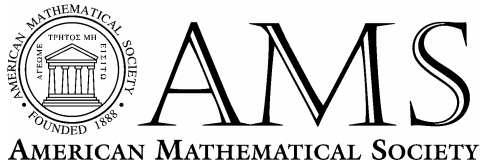
Committee on Science Policy
1527 Eighteenth St. NW, Washington, DC 20036
Phone: 202-588-1100 Fax: 202-588-1853
www.ams.org

AMS
AMERICAN MATHEMATICAL SOCIETY

April 13, 2005

Dr. William Rundell
Director
Division of Mathematical Sciences
National Science Foundation
Room 1025
4201 Wilson Boulevard
Arlington, VA 22230

Dear Bill:

The American Mathematical Society's (AMS) Committee on Science Policy (CSP) met April 7-9, 2005 in Washington, DC.   During the meeting, a lengthy discussion took place concerning the number of mathematicians supported by federal research grants. The CSP feels that not enough mathematicians receive federal research support. Since the NSF now provides approximately 77 percent of the total federal support for academic research in mathematics, the Committee decided to issue the following unanimously approved resolution.

> **The AMS Committee on Science Policy recommends to DMS that it consider redirecting some NSF funds in order to increase the number of individual investigator grants, focus research grants and their equivalent.**

We would appreciate your consideration of this resolution as you plan for DMS activities. Thank you.

Sincerely,

Robert Olin
Chair
AMS Committee on Science Policy

NATIONAL SCIENCE FOUNDATION
4201 WILSON BOULEVARD
ARLINGTON, VIRGINIA 22230

April 25, 2005

Professor Robert Olin
Chair, AMS Committee on Science Policy

Dear Professor Olin,

I have received your resolution and want to emphasize the concern we all share about the budget situation. As you have heard from many sources, the scientific funding outlook is bleak. In FY2005 the OMS budget is held flat and this is considerably better than the situation faced by almost every other division within the Foundation. At the policy meeting both the NSF director and representatives of OMS stressed the Foundation's priority is to "protect the core"; in the case of OMS this means individual investigator/small group unsolicited awards. Our overall strategy is to ensure the continued health of the US mathematical sciences and we continually strive to have programs designed with balance in mind. We are also extremely receptive to community input. I assume the committee is aware of the DMS budget breakdown; I have given enough public policy talks for this to be widely known and Deborah Lockhart talked on this subject at the csP meeting. To provide a context, let me briefly re-iterate. Two-thirds of OMS funds go to what you have described as individual investigator grants in the resolution. There are three other main categories. First of these is our interactions, funded through the Mathematical Sciences Priority Area, with other disciplines. These can be within NSF or with agencies such as NIH. The usual formula is both OMS and the partner discipline put up equal funding to support interdisciplinary research at the community boundary. These are individual or small group investigator awards and OMS funds support predominantly PIs from mathematical science departments. This represents 12% of the OMS budget. The second item, accounting for 13% of the budget, is workforce activities; this includes VIGRE, the mathematical sciences postdoctoral program and REV. The driving force here was the many reports over the years that highlighted the shocking state of research support for young mathematicians. Third, institutes and conferences funding makes up the remaining 9%. This portion offers through travel opportunities, some support for substantially more mathematicians than the remaining 90%.
So here are my questions to better understand the AMS resolution:

- Are the interdisciplinary funds in your priority category, or are these considered divertable?
- As noted, the only way to increase a category is to divert funds from another. Did the committee have suggestions as to which of the three (two?) other categories the funds should be taken?
- Given that "individual investigator" grants are at least 2/3 of the total, in order to make a significant change, one of the other areas would have to be dramatically reduced since they are less than a fifth in size. What data or information did the AMS CSP committee use in determining that "individual investigator" awards were underfunded relative to other parts of the OMS budget?
- However, despite the above taxonomy, in reality OMS only funds three items: PI summer salaries, junior mathematician stipends (postdocs, graduate students, . . .) and travel. In this light, does the CSP resolution mean a shift towards the first of these and therefore away from the other two?

Let me close by reiterating the commitment OMS has to advancing the
mathematical sciences and
how essential community dialogue and input is in guiding our decisions.

Yours sincerely,

William Rundell,
Director, Division of Mathematical Sciences
National Science Foundation

AMS
AMERICAN MATHEMATICAL SOCIETY
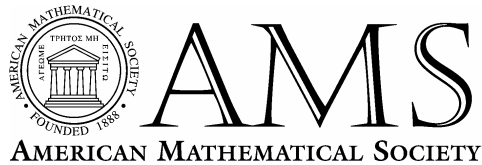
May 26, 2005

Dr. William Rundell
Director
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Dear Dr. Rundell,

Thank you very much for your letter. We apologize for sending a somewhat cryptic message. We hope the following paragraphs will help to explain our reasoning.

At the CSP meeting we learned that over the last few years the budget of the DMS has doubled but the number of principal investigators has increased only slightly. During this same period the success rate for individual grant applications has even decreased. Our resolution was meant to suggest that the NSF consider addressing this issue within the context of a stable or possibly diminishing budget. The CSP does not have sufficient working knowledge of the DMS budget and activities to make any meaningful recommendation as to how to proceed, and in any case the resolution was designed to allow the DMS maximum flexibility in its approach to this question, including the possibility of doing nothing at all.

During our discussion several themes emerged which we will try to summarize. There was an almost unanimous feeling that the cutoff level for NSF funding is currently too high and the number of people funded is too low.

Another impression, based on our interactions with a cross section of the mathematical community, is that young mathematicians encounter tremendous difficulties at some point between 4 to 10 years after the Ph.D. There are many attractive options available to a recent Ph.D. in the form of instructorships, postdoctoral fellowships and other non-tenure track opportunities. But many factors conspire to make the next six years a trying period. Postdoctoral positions are no longer appropriate. The candidate will be coming up for tenure or promotion and, despite the efforts of the NSF to minimize its influence in this direction, the lack

of an NSF grant can make an important difference in a tenure/promotion case. Such a person has probably exhausted the directions that were initiated by his/her Ph.D., and at the same time, his/her family obligations are rapidly growing. Many promising young people become discouraged at this stage of their careers. NSF support during this highly creative period can make a huge difference by providing time, freedom, and motivation for such a mathematician to continue to produce high quality research.

With this in mind, some members of the CSP felt that the current funding balance between graduate students, postdoctoral fellows, and principal investigators may not be optimal. However, the CSP does not intend to become involved with micro-managing the DMS budget, so we did not recommend or even suggest a possible source for the funds to support more PI's. In any case, most CSP members had the impression (which may be incorrect) that funding opportunities of one sort or another are much more abundant for mathematicians under the age of 30 (say) than for older people.

The CSP discussed the possibility of allocating more funds to this age group (approximately 30-40 years), partially at the expense of the funding of graduate students and postdoctoral scholars. On the other hand, there was strong sentiment within the committee that creating another program designed to target an individual age group would ultimately become counter-productive: other crises arise at other stages in a career as well. Some mathematicians are still struggling to become established, 15 years after the Ph.D. Many female mathematicians can best make use of NSF funding at an even later period in life, when they have fewer family obligations and more time for mathematics. It was eventually decided that simply raising the number of principal investigators would be the best way to address these issues, particularly in light of the fact that so much thought and effort goes into the high quality (panel) decisions for unsolicited proposals.

Finally, we would like to add a word of admiration for the enormous efforts invested on the part of the American mathematical community by the NSF staff and administration. The doubling of the DMS budget, especially at this point in time, is a major accomplishment which deserves congratulations. Moreover, there is probably no other agency in the US government where so much thought goes in to spending so little money. The CSP resolution was not meant as a criticism of NSF policies, but rather, as a friendly suggestion by a group of mathematicians who share the goal of the NSF: to strengthen the mathematical sciences in the USA.

Respectfully submitted by the AMS Committee on Science Policy

Attachments

American Mathematical Society
Committee on Education Meeting
October 27-29, 2005
Washington DC

Summary Report

The Committee discussed a number of issues related to mathematics education. Guests of the Committee included representatives from the NSF, Achieve, the Australian International Centre of Excellence for Education in Mathematics, the Business Roundtable, the Business-Higher Education Forum, the Mathematical Sciences Education Board and the U.S. Department of Education. The meeting was very well attended, with 75 participants, including 44 chairs and representatives of masters and doctorate-granting departments.

Discussion of "Reaching for Common Ground in K-12 Mathematics Education"
Richard Schaar (Texas Instruments) provided a handout to attendees entitled "Reaching for Common Ground in K-12 Mathematics Education." The document explained the goals, fundamental premises and areas of agreement reached by a small group of mathematicians and mathematics educators who have undertaken a series of meetings to look for common ground between the two groups in order to improve K-12 mathematics learning in this country. Schaar's presentation centered on this document as he identified those involved and the process by which they reached their conclusions.

This document on K-8 education is being circulated now to gather feedback. More meetings of the group, with an expanded number of participants, are planned. These meetings will address secondary mathematics education and another document will be produced. A meeting of the original group along with additional mathematicians and mathematics educators will take place in March, 2006.

Australian International Centre of Excellence for Education in Mathematics (ICE-EM)
Garth Gaudry (ICE-EM) explained that ICE-EM is a nationally funded project of the Australian government through the Australian Mathematical Sciences Initiative. This ICE program on Education in Mathematics is one of five in different subject areas and is to receive $7.8 million over five years. The objective of the program is to strengthen mathematics education at all levels. Gaudry highlighted some aspects of the different program areas and described some of the facilities, resources and materials used, as well as topics covered.

ICE-EM has also undertaken a pilot program to produce text books for grades 5-10, in addition to providing teacher professional development, supplementary website materials and continuing teacher support. This program will also be funded by the Australian government and strives to help teachers become more effective mathematics educators, improve student learning, and assist parents in understanding the material their children are learning.

"Education for Innovation" and Other Math and Science Initiatives

Susan Traiman (Director of Education and Workforce Policy at the Business Roundtable) explained that the Business Roundtable's members are CEOs of large organizations focused on public policy issues that affect the economy. Their focus is very concentrated on just a few important issues -- one being education and the workforce.

The Business Roundtable is concerned about the U.S.'s ability to remain the world's scientific leader and to maintain its competitiveness in the 21st century. For this reason, they are committed to the goal of doubling the number of bachelor's degrees in science, technology, engineering and mathematics by 2015. Traiman presented a report entitled "Tapping America's Potential: The Education for Innovation Initiative." The report makes a number of recommendations, including building public support for making improvements in STEM education a national priority; encouraging careers in STEM; focusing on high achievement in math and science teaching; reforming immigration and visa policies to attract and retain STEM students; and increasing funding for basic research on an ongoing basis.

Achieve's Projects and Activities in K-12 Education

Laura McGiffert Slover discussed Achieve's work in raising academic standards to better prepare students for post secondary education, work, and citizenship. She highlighted the American Diploma Project (ADP). This project, which has grown to a network of 22 states, involves a wide variety of K-12, higher education, and business representatives. The key finding of ADP is that there is a connection between the skills required for success in college and those required for work. Specifically, it found that to be college and work ready, students need to complete a rigorous set of courses that includes a math requirement of four courses, with a content equivalent to Algebra I and II, Geometry and a fourth course (perhaps Statistics or Pre-calculus), in addition to English requirements.

The next step in this project is to determine what expectations there should be for high school graduates. This requires an analysis of standards, course-taking requirements and assessments across the country. It has been found that state high school standards are not always tied to real-world expectations. In fact, only four in ten high school students complete a college and work ready math curriculum – that is, taking a math course beyond Algebra II by graduation. To improve this situation, Achieve believes states should align standards and assessments with skills required to succeed in both college and work. In addition, states need to administer assessments in a timely fashion so as to address deficiencies while students are still in high school. States should also require a college/work ready curriculum.

Report on the Business-Higher Education Forum's Education Initiatives

Brian Fitzgerald (Executive Director of the Business-Higher Education Forum) explained that the Business-Higher Education Forum (BHEF) is an individual membership organization of university presidents and corporate CEOs, along with a small number of foundations. BHEF works to shape policy that addresses important national challenges that are a concern to both business and higher education. Fitzgerald presented the BHEF's Mathematics and Science Education Initiative report entitled "A Commitment to America's Future: Responding to the Crisis in Mathematics & Science Education."

The report addresses specific problems in mathematics and science education, including low student interest in math and science, poor performance in math and science on standardized tests, lack of coordination within states on educational policies and practices, and an under-prepared teaching force that

is poorly rewarded and poorly supported. The report calls upon business and higher education leaders to commit to new and collaborative efforts to improve mathematics and science teaching and learning in P-12.

Report on Department of Education Programs and Initiatives

Pat O'Connell Ross (U.S. Dept of Education) discussed the Department's current efforts to improve student achievement in mathematics, including the Mathematics and Science Partnership Program. This program came out of the No Child Left Behind Act of 2001and focuses on professional development for mathematics and science teachers. The funding for the program has grown from $100 million in 2003 to $180 million in 2005 and states are encouraged to focus these formula grants on priorities identified in their particular state.

An analysis of the first full year of MSP Programs shows that 340 projects were funded across the country, most being in the $200,000 to $250,000 per year range -- although a few were as low as $50,000 and another as high as $5 million. In addition, 50.8% of the MSP projects targeted mathematics, 26.3% targeted science and 22.9% targeted integrated math and science. Most of the funded projects were more than a year in length, with half being two or more years long.

Ross also discussed the DoED Title I Math Initiative. Title I is a $15 billion program for helping children in high poverty, low performing schools. It is the heart of the No Child Left Behind Act and is a collaborative effort to improve mathematics achievement in these schools. The Department of Education is working with the NSF to develop a "tool kit" to assist in this effort by identifying standards of success found in NSF's portfolio of projects funded over the last twenty years.

Changes in NSF Support of Education and Some Implications

Jim Lightbourne (National Science Foundation) discussed changes in the NSF budget over the last few years, comparing FY2004 actual numbers to FY2005 current and the FY2006 request. Specifically, he pointed out that the Research and Related Activities (R&RA) portion of the budget has remained fairly flat over this three year period, while the Education and Human Resources (EHR) portion has dropped about $100 million per year for the last three years. He noted that K-12 programs have seen a significant decrease, while undergraduate and graduate and professional programs have had some decrease.

Lightbourne presented a closer look at the NSF-EHR budget by highlighting the budget numbers in each division and noting that while several should remain constant, others will see a decrease in FY 2006.

Lightbourne also reported that Congress has asked the National Science Board to establish a commission to make recommendations to NSF and the federal government on achieving measurable improvements in the Nation's science education at all levels. Since the intent is really to make recommendations for NSF, it will likely influence NSF programs and budgets in the future.

Report on MSEB's Undergraduate Education Initiative

David Mandel (Director of MSEB) and Jim Lewis (MSEB Chair, University of Nebraska-Lincoln) discussed the Mathematical Sciences Education Board's (MSEB) initiative to attract and retain students in undergraduate mathematics. This study is at the design stage and Mandel asked meeting attendees for input and advice on the shape and scope of this inquiry.

Mandel reviewed statistical data on STEM education, including the number of graduates in STEM and non-STEM fields across all degree levels and the number of degrees awarded in selected countries over the past 25 years. He also mentioned a recent publication by the National Academies entitled "Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future." This report lists several recommendations on how to maintain the scientific and technological superiority the U.S. has enjoyed.

The MSEB study of undergraduate mathematics will concentrate on students, curriculum and pedagogy.

Discussion of "Reaching Common Ground in K-12 Mathematics Education" by Deborah Ball, Joan Ferrini-Mundy, Jeremy Kilpatrick, R. James Milgram, Wilfred Schmid and Richard Schaar

The Committee on Education considered the principles contained in this document, which was presented to the group earlier in the meeting by Richard Schaar. Since the authors are currently seeking feedback on the document, there was much discussion on the best way to provide it. Suggestions were made on the appropriate language and means by which to convey suggestions. A letter providing feedback will be drafted by the COE chair and will be sent to Richard Schaar.

Discussion of COE Role in Communications Project

Roger Howe (Yale University) is currently working on a proposal to have an ongoing study of critical topics in the K-12 curriculum by mathematicians and math educators as part of the Park City Math Institute each year. A steering committee for this project would be formed to include representatives from the AMS, NCTM and MAA. This committee would meet each year at the Park City Math Institute to select topics and people to study these topics and write essays. The AMS representative on the committee would be a member of the Committee on Education.

Discussion of James Milgram's book, "The Mathematics Pre-Service Teachers Need to Know"

The U.S. Department of Education (DoEd) asked the COE to review "*The Mathematics Pre-Service Teachers Need to Know,"* a book written by Jim Milgram through a grant from the DoEd. The book gives recommendations for pre-service K-8 teacher education courses. There was much discussion among committee members about their impressions of the book and it was decided that COE's chair will revise the draft report created from pre-meeting review of the book and provide it to committee members for further comment prior to submission to DoEd.

Discussion of Math for America's Proposal for a Mathematics Teaching Corps

Math for America (MfA), a New York City program started in 2004 to improve the quality of mathematics education by improving teacher quality, is currently working to have a bill introduced in Congress that would establish a national program called the Mathematics Teaching Corps (MTC). The goal of the MTC is to improve mathematics achievement among secondary school students in the U.S. by ensuring that students are taught by well-prepared teachers with superior math content knowledge. The bill would provide fellowships for high school math teachers. The MTC would have two components: recruitment and training of mathematically-capable new teachers; and retention and recognition of outstanding existing teachers. MfA would like the AMS Committee on Education to endorse the MTC program. The Committee on Education agreed to endorse the concept and goals of the proposal.

Panel Discussion on Encouraging Math Majors to go to Graduate School
Paul Sally (University of Chicago) and Francis Edward Su (Harvey Mudd College**)** presented information and ideas about ways their institutions were addressing the need to encourage math majors to go on to graduate school. They discussed graduate statistics, student needs and expectations, faculty rewards, changes in department cultures, space considerations and social aspects of the successful programs at their respective institutions.

Report from Subcommittee Evaluating Education Committees the AMS Participates In
Michael Starbird presented a report (see attached) on behalf of the Committee as a whole regarding the AMS's involvement in other education committees. It was determined that the MAA's CUPM was the only active committee to be evaluated, so this report deals strictly with this committee and focuses on opportunities for future AMS-MAA interaction on the CUPM.

CoE activities at San Antonio, TX Joint Mathematics Meetings, January 2006
Bill McCallum reported that the AMS Committee on Education will host a panel discussion at the Joint Meetings in San Antonio, TX in January 2006. This discussion will focus on "International Perspectives on Undergraduate Mathematics" and will be held on Sunday, January 15th from 8:30 to 10:00 am.

Date of Next Meeting
The next meeting of the AMS Committee on Education was scheduled for Thursday-Saturday, October 19-21, 2006 in Washington, DC.

Submitted by Anita Benjamin
American Mathematical Society
November 11, 2005

Report on the Representation of the AMS on MAA's CUPM
Submitted by Michael Starbird

AMS representatives to the MAA's Committee on the Undergraduate Program (CUPM) have no clear sense of what their role as AMS representative is supposed to be, and the chair of CUPM reports that often the AMS representatives do not attend the summer MAA MathFest meetings where a good deal of the CUPM work is conducted. So instead of concentrating on the reality of the present, this report focuses on opportunities for helpful AMS-MAA interaction on the CUPM.

The CUPM is perhaps most effective when it undertakes a specific project such as producing its roughly decadal *Undergraduate Programs and Courses in the Mathematical Sciences: CUPM Curriculum Guide* that last came out in 2004 and producing its *Curriculum Foundations Project: Voices of the Partner Disciplines* study and report. These two major products involved consultation with many mathematics departments, other departments, and organizations. The development of such projects presents excellent opportunities for AMS representation to play a significant role. Having AMS representation during the working phase of such projects can be helpful in making the MAA products include the AMS priorities appropriately. In the case of the *2004 CUPM Curriculum Guide*, David Bressoud was the AMS representative on the writing committee, which gave the AMS an influential position in the development of the report. What might be improved is the interaction between the AMS representative and the AMS. In Bressoud's case, he sent reports back to the AMS, but received no response. Perhaps the AMS Committee on Education could develop a mechanism for considering the CUPM work in progress as reported by the AMS representative and making considered AMS recommendations that the AMS representative could then champion on the working group.

Another opportunity for collaboration would occur if the AMS recommended projects or components of projects to CUPM that would be of special interest to the AMS. Here are some examples of natural issues:

- How to present the research perspective of mathematics at small colleges and other non-research oriented institutions.
- How to develop appropriate research opportunities for undergraduates at institutions where there is not a tradition of such. There is a subcommittee of CUPM on research for undergraduates.
- How to develop more effective proof-introductory courses.
- An on-line collection of *Illustrative Resources* for effective undergraduate mathematics education is associated with the *CUPM Curriculum Guide* and is seeking contributions. Examples that emphasize effective presentations of AMS values and perspectives would be important elements of the *Illustrative Resources*.

These are all educational projects clearly within the scope of the work of the CUPM on which AMS involvement would be especially beneficial and welcomed.

The other direction of influence is equally important, namely, designing a system by which the perspectives and challenges that are central to the MAA's CUPM are conveyed to the AMS and dealt with as appropriate. The first sentence of the report *Towards Excellence*, written a decade ago by the AMS, is:

"We have a simple message: To ensure their institution's commitment to excellence in research, doctoral departments must pursue excellence in their instructional programs."

This exhortation is perhaps even more valid today than when it was written. Finding effective ways to improve departments' educational contributions at research-oriented universities without sacrificing or compromising their research orientation might well be aided by inviting the CUPM to collaborate with the AMS leadership on these issues. The MAA in general and CUPM in particular have experience with matters of curriculum development and instructional reform that might be useful for the AMS.

A specific recommendation from David Bressoud, current chair of the MAA's CUPM and former AMS representative to CUPM, is that the chairs of the CUPM and the AMS Committee of Education have regular contact.

In summary, in one sense, the AMS is well represented on the MAA's CUPM since several AMS members are on that committee. On the other hand, more clearly focused goals of the interaction would be fruitful for both the MAA and AMS.

This report emerged from conversations with David Bressoud and Diane Herrmann, former and current AMS representatives to CUPM.