NORTHEASTERN SECTION

NEWSLETTER

SPRING 1996

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FUTURE SECTION MEETINGS

June 7-8, 1996: Hampshire College
Local Arrangements: David Kelly
Program Chair: Robert Hayden, Plymouth State College

November 22-23, 1996: UMass-Boston
Local Arrangements: John Lutts
Program Chair: Joe Witkowski, Keene State College

OTHER SECTION ACTIVITIES

Minicourse: Babson College, April 20, 1996
Unifying Themes in Discrete Mathematics
Ralph Grimaldi of Rose-Hulman Institute of Technology
Coordinator: Gordon Prichett, Babson College

Short Course: University of Maine Orono, June 16-21, 1996
Project CALC, David A. Smith and Lawrence C. Moore, Duke University
See Page 8 for details

Regional Dinner Meetings: Spring 1996
Coordinator: Larry Braden, St. Paul's School
See Page 20 for details

NOMINATIONS

1997 NES/MAA Award for Distinguished College or University Teaching of Mathematics
Committee Chair: Donna Beers, Simmons College
See Page 7 for details

CHAIRPERSON'S MESSAGE

In my first Chair's message for the *Newsletter*, I present to the Section a few announcements and a few questions. I hope you will read the announcements and give me the benefit of your thinking on the questions by writing to me as soon as possible, even if it's just a note to say, "Yep...made it to the end of that first paragraph before you lost me." My e-mail address is cleary@smcvax.smcvt.edu. While I am quite certain that my comments will be less gracious and less informative than those of my distinguished predecessor Donna Beers, I hope that you will all help me to correct any errors of omission or commission in future issues.

ANNOUNCEMENTS

Many thanks to all of the people who toiled on both the Local Arrangements and Program Committees for the Fall 1995 meeting at Salem State. Mary Platt of Salem State and Phil Mahler of Middlesex Community College deserve special mention for their hard work in organizing the local arrangements and program for this well-attended event.

Congratulations are in order for Professor Colin Adams of Williams College who is the 1996 winner of the Northeastern Section Award for Distinguished College or University Teaching of Mathematics. Colin was our student chapter presenter at Salem State and his "brother-in-law", Professor Mel Slugbate, delivered a captivating after dinner talk on knot theory. Anyone who has gotten to examine Colin's list of activities and accomplishments will appreciate how difficult it would be for one person to achieve so much without the benefit of a powerful ally like Professor Slugbate!

The Section is grateful to Joe Witkowski of Keene State College for his service as student paper coordinator for our Section meetings for the past several years. Joe is stepping down from that role and is being replaced by his colleagues at Keene, Ockle Johnson and Dan Carter. Joe remains busy in the Section, serving as Program Chair for the Fall 1996 meeting at UMass-Boston.

Negotiations are underway for a joint meeting of the Seaway (Upstate New York) Section and our Northeastern Section for the Fall 1997 meeting at Siena College near Albany. I will be looking for volunteers to hold up our Section's end of the program committee before long. Volunteer now before you get asked to do something more demanding!

Details of the Section's events for spring and summer 1996 can be found in the recent mailing packet the Section distributed as well as throughout this *Newsletter*. Of particular interest is the Spring meeting to be held at Hampshire College in June. We hope you will make every effort to attend as Bob Hayden of Plymouth State and the rest of the Program Committee have made a great effort to put together a timely and useful schedule of events.

QUESTIONS/CALLS FOR ASSISTANCE

First, some specifics. My most immediate task is to line up a site for the Spring 1997 sectional meeting. Any volunteers? With our Fall 1996 meeting set for Boston and the likelihood that Fall 1997 will be near the Section's western boundary we seem to have a good "east-west" distribution

of sites and so geography needn't be a prime consideration. The fact that I have served as a Local Arrangements Chair shows that administrative savvy is not a prerequisite for the job. It is a wonderful way to introduce your campus and local community to the mathematicians and teachers in our Section.

Volunteers are needed for a number of other jobs within the Section; please write or call me to express interest or to get descriptions of the jobs available.

On to a more general question to help us with our long term planning for the Section: What should we do to encourage membership and participation in our Section's events? I noticed while leafing through my most recent copy of *FOCUS* that there is a dizzying array of workshops, short courses, and seminars for MAA members to consider attending this year. Yet at a time when many colleges are cutting support for professional development, who will populate these classes? I know that many colleges, including my own, have been increasing the amount of scholarly work expected of their faculty. Does anyone else get the feeling we are moving toward an era of increased specialization in which we are all expected to give a short course but never to take one?

One obvious short term solution is to run courses that have support from granting agencies or private industry. But in the long term what are the events that our members want us to sponsor and provide?

I look forward to hearing from many of you soon and I will be glad to see you at Hampshire College in June!

Richard Cleary
St. Michael's College
Chairperson, NES/MAA

GOVERNOR'S MESSAGE

The January meeting of the Board of Governors in Orlando was certainly different. Most of the staff of the Washington Office was unable to attend because of the snowstorm. The meeting went on as scheduled, however, and we managed to cover the entire agenda.

In a previous message, I promised to keep you up to date on the future of national meetings, in general, and summer meetings, in particular. This coming summer the MAA and the AMS will hold a joint meeting in Seattle (August 10 - 12). This is the last time a joint summer meeting will happen for a while - at least until the next century. The MAA has hired a consultant to consider the feasibility of holding small (500 - 700 participant) meetings which will be cost effective and entirely self-supporting. It looks like there will be a meeting in Summer 1997 but I won't have any details for a while. Future joint winter meetings will be as follows:

1997 San Diego-January 8 - 11;
1998 Baltimore-January 7 - 10;
1999 Undecided
2000 Washington, DC-January 19 - 22;
2001 New Orleans-January 3 - 6.

Washington, DC was chosen as the site of the 2000 meeting because there will be lots of activities for the new millennium going on in the Nation's Capital. Before I get inundated with e-mail messages, let me assure you I know the new millennium begins on January 1, 2001. The MAA officers and staff know, too. But, the rest of the world seems to be celebrating in 2000, so when in Washington ....

On another topic, at the Fall Northeastern Section meeting, many Section members who have been MAA members for twenty-five or more years were presented with their certificates at the Friday banquet. Many others received their certificates by mail. If anyone else would like to have their certificate, I'd be happy to provide it.

As always, I appreciate your continued support and hope to see many of you at future Section or national meetings.

Karen J. Schroeder
Bentley College
Governor, NES/MAA

THE HOWARD EVES AWARD

On November 17, 1995, the fortieth anniversary of the Northeastern Section, the Howard Eves Award for Meritorious Service to the Northeastern Section was presented to Clayton Dodge of the University of Maine. For many years, Clayton provided local arrangements for the Section's Short Course and served as a member of the Section's Executive Committee. He has spoken at numerous Section meetings and his dry since of humor and love of geometry make him truly "Evesian".

The Howard Eves Award was created in 1990 to honor a member of the Northeastern Section who has provided outstanding service to the Section. It was named after the co-founder and first Chairperson of the Section, Howard Eves. It is given every five years.

MINUTES OF THE LAST MEETING

The Fall Meeting of the Northeastern Section was held on November 17-18, 1995 at Salem State College. There were approximately 170 in attendance.

The Christie Lecture

Ingenious Mathematical Amateurs-M. C. Escher (artist) and Marjorie Rice (homemaker) by Doris Schattschneider, Moravian College, MAA First Vice-President.

NES/MAA Teaching Award Presentation

Interactive Geometry on the Internet-Where Will it Lead? by Thomas Banchoff, Brown University.

Workshop

The Internet for Mathematics Educators and Researchers by Joyce E. Anderson and Kendra Song, Salem State College.

Rhode Island Calculus Reform Project

Limits by Helen Salzberg, Rhode Island College.
Derivatives by Vivian Morgan, Rhode Island College.
Sequences and Series by Lewis Pakula, University of Rhode Island.
Differential Equations by Michael Latina, Community College of Rhode Island.

Invited Papers

Incorporating the NCTM Standards into the Classroom by Roberta Kieronski, University of New Hampshire at Manchester.
Towards a New Precalculus Course by Mako Haruta and Raymond McGivney, University of Hartford.
How to Cheat Your Way to the Knot Merit Badge by Scoutmaster Mel Slugbate by Colin Adams, Williams College.
Patterns in Eigenvalues by Persi Diaconis, Harvard University.
Culturing the Change: Attending to the Critical Dimensions of Mathematical Education Reform by Uri Treisman, Charles C. Dana Center for Mathematics and Science Education at the University of Texas at Austin.
Mathematics, Public Policy and Health Care Reform: A Personal Sampler by Arlene Ash, Boston University School of Medicine.

Contributed Papers

Mary Frances Winston Newson: An Early American Woman in Mathematics by Betsey Whitman, Framingham State College.
Women in Mathematics and Science: Past, Present and Future Borders by Ann Moskol, Rhode Island College.
From Pythagoras to Knot Theory to the Music of the Cantor Array by Barbara Hero, North Berwick, Maine.
de Beaume's Proof of the Pythagorean Theorem by C. Edward Sandifer and Cynthia Gubitose, Western Connecticut State University.
Motivation Reform by John Goulet, Worcester Polytechnic Institute.
Statistics via the Internet by Gail Broome, Providence College.
The Teaching of Vector Field Theory by Domina Eberle Spencer, University of Connecticut and Uma Y. Shama, Bridgewater State College.
Trajectory Solid Angle's Impacts on Physics and High Technologies by Po Kee Wong, Systems Research Company, Somerville, MA.

Student Papers

Is a Five Game Playoff Series Long Enough? by Melissa Menard, St. Michael's College.

Harnessing the Wind: Rotating Cylinders as Sails by Mr. Kelly McDonald, Bates College.
A New Look at Old Numbers by Colleen Hennessy, Merrimack College.
The Relationship between Sidecut Radius and Turn Radius on a Snowboard by David Ferrone, Bates College.
The Art of Painting from Albrecht Durer's Perspective by Gail Ann Goddard, Merrimack College.
The Implications of Modifying the Hill-Keller Model of Running by Jason Ryan, Bates College.
Cardinality Equals Variety: An Application of Set Theory to Diatonical Systems by Ethan Wecker, Bates College.

At the business meeting, Rick Cleary, on behalf of the entire Section, thanked Donna Beers, for her splendid service as Chairperson of the Section and presented her with a memento in recognition of her many accomplishments. Numerous other items were discussed which are presented elsewhere in this *Newsletter*.

Lynne Durkin
Bentley College
Secretary/Treasurer NES/MAA

PUBLISHERS

We of the NES/MAA would like to thank the following text book publishers who exhibited their latest offerings at the Fall 1995 Meeting held at the Salem State College:

Mathematical Association of America
PO Box 91112
Washington DC 20090-1112
(800) 331-1620

W. H. Freeman and Co.
41 Madison Avenue
New York Ny 10010
(212) 576-9400

Addison-Wesley Publishing Co.
Anita Devine
1 Jacob Way
Reading MA 01867
(508) 657-0599
anitad@aw.com

Houghton Mifflin Co.
Colleen Shanley
103 State Street
Newburyport MA 01950
(508) 462-9923
colleen_shanley@hmco.com

McGraw Hill
Arthur Levine
173 Paradise Road
Swampscott MA 01907
(617) 599-2954
alevine@aol.com

Harcourt Brace/Saunders
Ken Washburn
104 Foster Road
Swampscott MA 01907
(617) 599-1187

Prentice Hall
Erin Canavan
PO Box 610324
Newton Highlands MA 02161-0324
(617) 630-9575
erin_canavan@prenhall.edu

1997 NES/MAA AWARD FOR DISTINGUISHED COLLEGE OR UNIVERSITY TEACHING OF MATHEMATICS

Nominations are now being accepted for the 1997 NES/MAA Award for Distinguished College or University Teaching of Mathematics. Any member of the Northeastern Section may nominate any other NES/MAA member for this award.

Help us identify who should be considered for this award!

Send for a nomination form

or

Send a one page letter in support of an outstanding teacher

and the Selection Committee will ask the candidate's Department Chairperson to complete the nomination form.

Recipients of the Section Awards are eligible to receive a National MAA Award. As established by the Board of Governors, the awards are to be made to teachers of mathematics at the post-secondary level who have been widely recognized as extraordinarily successful. Their teaching effectiveness must be documented and must have had influence beyond their own institutions. Recipients of the National awards must be members of the MAA teaching in the United States or Canada.

Contact: Professor Donna Beers, Department of Mathematics, Simmons College, 300 The Fenway, Boston MA 02115, (617) 521-2389, dbeers@vmsvax.simmons.edu

Single page letters of support should be received by June 15, 1996.
Completed nomination forms must be received by October 1, 1996.

NEWS FROM NEMATYC

The New England Mathematical Association of Two-Year Colleges held their annual conference on Friday and Saturday, March 22 and 23, at Dean College in Franklin, MA. Dr. Thomas Banchoff of Brown University was the the featured speaker at the Friday night dinner and Dr. Mary Margaret Shoaf-Grubbs was the featured speaker at the Saturday luncheon. Other presentations included: TI-92 workshop, Internet sessions, Computer Troubleshooting, Calculus with the Graphing Calculator and Critical Thinking and Problem Solving in Statistics, etc. The meeting was chaired by Elaine Previte of Dean College.

A one-week graphing calculator short course will be presented in conjunction with the Ohio State University and Texas Instruments at Dean College on August 12-16, 1996. Instructor will be Dr. Donna Christy of Rhode Island College. The course will focus on integrating the TI-83 (yes, 83) and the TI-92 into College Algebra and Calculus. Fee is $125 before June

30; $150 after June 30. Fee includes meals, snacks, instructional materials, and loaner calculator. Special pricing available on Texas Instruments graphing calculators. For more info contact Elaine Previte at Dean College (508) 541-1800 or at EPrevite@aol.com.

U. MAINE SHORT COURSE JUNE 16-21, 1996: ANOTHER CALCULUS REFORM WORKSHOP

The last ten years have seen many new approaches to learning mathematics, most centered on how students learn rather than how teachers teach. Interactive learning environments, group learning, real-world problems, and writing are some of the "new" ideas. David A. Smith and Lawrence (Lang) Moore of Duke University, supported by a National Science Foundation grant, will discuss the calculus reform movement and survey a range of new materials. However, the main emphasis will be on the Project CALC materials, developed at Duke University, which feature real-world problems, hands-on activities, discovery learning, writing and rewriting, teamwork, intelligent use of tools, and high expectations of students.

They have developed a three-semester calculus program based on a computer or calculator laboratory. Students work in teams to explore real-world problems with real data, conjecture, test, discuss their work with each other, and write up their results and conclusions. Workshop participants will play the role of students, working in teams to design a student activity and then present it to the whole workshop. Finally, we will discuss how to implement the new approaches at different types of institutions. We will have loaner TI-82 calculators to use. Prior experience with this calculator is not required.

Professors Smith and Moore are Co-Directors of Project CALC: Calculus As a Laboratory Course, which is supported by the National Science Foundation. The Project laboratory materials were awarded the prize of Best Curriculum Innovation: Mathematics in the 1991 EDUCOM Higher Education Software Awards Competition, and the Project CALC course was cited in 1993 by Project Kaleidoscope as one of 29 Programs That Work in science and mathematics education.

For further information contact: Clayton W. Dodge, 5752 Neville/Math, University of Maine, Orono, ME 04469, Tel. 207/581-3908, or e-mail: dodge@gauss.umemat.maine.edu.

MINICOURSE

The NES/MAA annual minicourse is being held at Babson College on April 20, 1996. The course, *Unifying Themes in Discrete Mathematics*, is being taught by Ralph Grimaldi of the Rose-Hulman Institute of Technology. Local Arrangements are under the direction of Gordon Prichett.

FALL 1996 MEETING

The Fall Meeting of NES/MAA will be held at UMass-Boston on November 22-23, 1996. Local Arrangements are being headed up by John Lutts and the Program Committee is being chaired by Joseph Witkowski of Keene State College.

CALL FOR STUDENT PAPERS

Students (and recent graduates) from the Northeastern Section are invited to present papers at the Spring Meeting on topics in mathematics, statistics, or computer science. The presentations will be 15 to 20 minutes in length, on either expository work, research projects, employment experiences, or problems from mathematical periodicals. Prizes will be awarded and the registration fee and cost of meals and dormitory housing will be waived for one student presenter per paper at the Spring Meeting.

Almost every college/university has students working on projects, problems, and mathematical research. The success of a student paper session depends primarily on faculty members identifying prospective papers, encouraging their students and arranging departmental financial support when possible. If there are no potential student papers on your campus for the Spring Meeting, we urge you to initiate student projects now for presentation at the Fall Meeting.

Interested students should send an abstract and current address, with phone number, by May 14 to: Dan Carter/Ockle Johnson, Department of Mathematics and Computer Science, Keene State College, Keene NH 03431. Telephone (603)-358-2555. All proposals will be reviewed by department faculty members.

CALL FOR CONTRIBUTED PAPERS

Participants are invited to submit contributed papers for either the Spring or Fall Meeting. We are particularly interested in papers which will appeal to a variety of participants. Your presentation should be approximately 15 minutes in length. Please send a typed abstract together with a list of any special equipment you may need to Ed Sandifer, Department of Mathematics and Computer Science, Western Connecticut State College, Danbury CT 061810 (203) 837-9351, or via Internet at Sandifer@wcsu.ctstateu.edu. The deadline for the Spring Meeting is May 14 and for the Fall Meeting is October 27.

INVITED SHORT PAPERS

The format of Invited Short Papers will be similar to that of Contributed Papers, but a concerted effort will be made to coordinate the topics with the main theme of the meeting. Consequently, arrangements for Invited Short Papers will be made well in advance.

At this time, we would like to accumulate a list of presenters and topics for possible presentation at future meetings. Papers should be for a general mathematical audience and approximately one-half hour in length. Junior faculty are particularly urged to participate.

If you would like to suggest a speaker or a topic, send your ideas and nominations to Ed Sandifer. (See "Call for Contributed Papers" for his address.) The deadline for submission will be **at least two weeks prior** to the deadline for submission of material to this *Newsletter*.

NORTHEASTERN SECTION OF THE MAA
SPRING MEETING: JUNE 7-8, 1996
HAMPSHIRE COLLEGE, AMHERST MASSACHUSETTS

THEME: REACHING OUT – TO SCHOOLS, INDUSTRY, AND JOBS

Note: All sessions and exhibits will be in Franklin Patterson Hall (FPH). ELH, MLH and WLH refer to the East, Main and West Lecture Halls

Friday, June 7

2:00-6:00	Registration: Franklin Patterson Hall Lobby	
2:00-3:00	Executive Committee	Rm G13
3:00-5:00	**Fitchburg State College and the Lunenburg School System: A K-12/College Partnership** (limit 40: sign up at registration desk) Richie Bisk, Fitchburg State College & Noreen Berry, Lunenburg School System	ELH
3:00-5:00	**Using Writing in Teaching Mathematics** **Tom Rishel, Cornell University**	Rm 108
5:00-6:00	**Redesigning Precalculus: A Modeling and Exploratory Approach** Marsha Davis, Eastern Connecticut State University	MLH
6:30-8:00	Reception and Dinner	Dining Commons
8:00-8:10	Welcoming Remarks Gregory Prince, President, Hampshire College	MLH
8:10-9:05	**Women and Mathematics at Cambridge** James J. Tattersall, Providence College	MLH

Saturday, June 8

7:30-11:00	Registration: Franklin Patterson Hall Lobby	
7:30-5:00	**The 17 Board**	2nd Floor MLH
7:30-9:00	Continental Breakfast	2nd Floor Lobby
8:30-3:30	**Exhibit of Innovative K-12 Mathematics Materials**	Rm 108
8:30-9:55	Student Papers Session	TBA

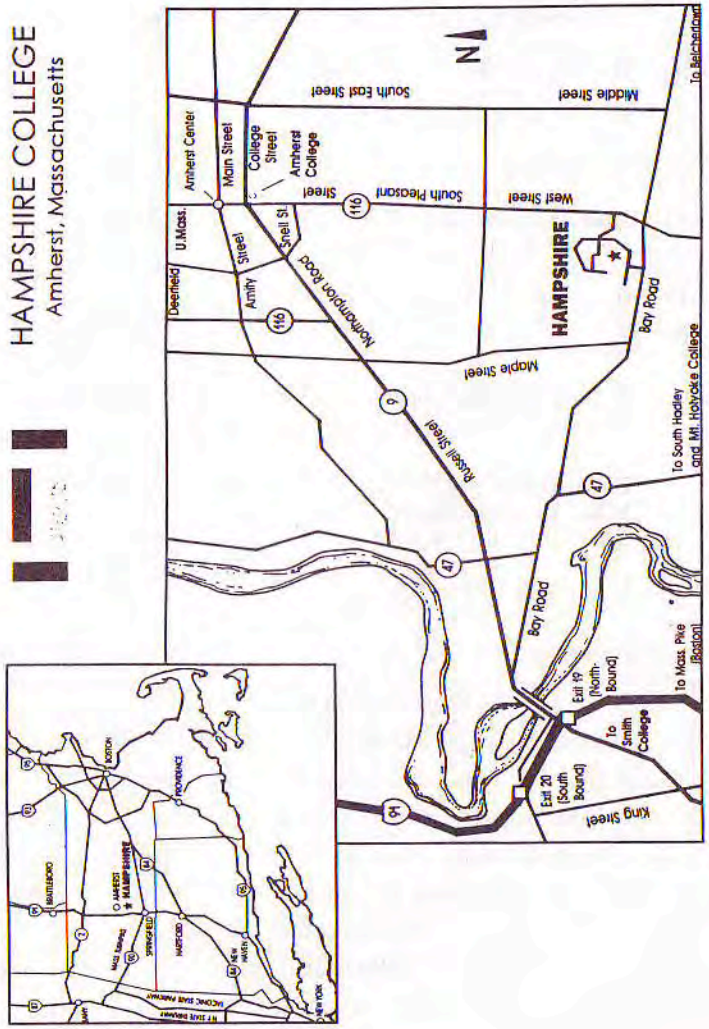
8:30-9:55	**Panel Discussion on Statistics In the Schools:** **Statistics Materials for the Schools** Anne Sevin, Framingham State College **The Advanced Placement Test in Statistics** Rosemary Roberts, Bowdoin College **Statistical Training of Future Teachers** Michelle Lamarre, Plymouth State College	MLH
10:00-10:30	**Introduction to the Exhibit of K-12 Curriculum Materials** Robert A. Rosenbaum, Wesleyan University	MLH
10:30-11:00	Break, Tour Exhibits	
11:00-11:55	**How to Prove That There Is No Simple Answer** Herbert S. Wilf, University of Pennsylvania	MLH
11:55-12:15	Business Meeting	MLH
12:15-1:15	Lunch	Dining Commons
1:15-2:10	**Industrial-Academic Partnerships: Mutual Benefits** Martha J. Siegel, Towson State University	MLH
2:15-	**Panel Discussion: What Do Math Majors REALLY Do?** Chaired by Rick Cleary, St. Michael's College	MLH
3:15-4:05	Contributed Papers Session	TBA

Program Committee:
Bob Hayden, Plymouth State College, Chair
Diane Bergeron, Springfield Technical Community College
Ann Kizanis, Western New England College
Dennis Luciano, Western New England College
Lucy Dechéne, Fitchburg State College
Dave Kelly, Hampshire College

with special thanks to
Donna Beers, Simmons College
Rick Cleary, St. Michael's College
and James J. Tattersall, Providence College

Local Arrangements:
Dave Kelly, Hampshire College

HAMPSHIRE COLLEGE
Amherst, Massachusetts



DIRECTIONS

Hampshire is a 3 hour drive from New York City. Follow Route 95 to New Haven, Connecticut, and then Route 91 north from New Haven to Northampton, Massachusetts (Exit 19). Take Route 9 east to the center of Amherst, and then turn right onto Route 116 south. Hampshire College is located three miles south on Route 116. (An alternate route to the college is posted at the intersection of Routes 9 and 47.)

It is approximately two hours to the campus from Boston. Follow the Massachusetts Turnpike to Exit 4. Take Route 91 north to Northampton (Exit 19) and Route 9 east to Amherst. At the town center turn right onto Route 116 and follow it south for three miles to Hampshire. (An alternate route to the college is posted at the intersection of Routes 9 and 47.)

A regional map is shown on Page 12 and a campus map appears on Page 14.

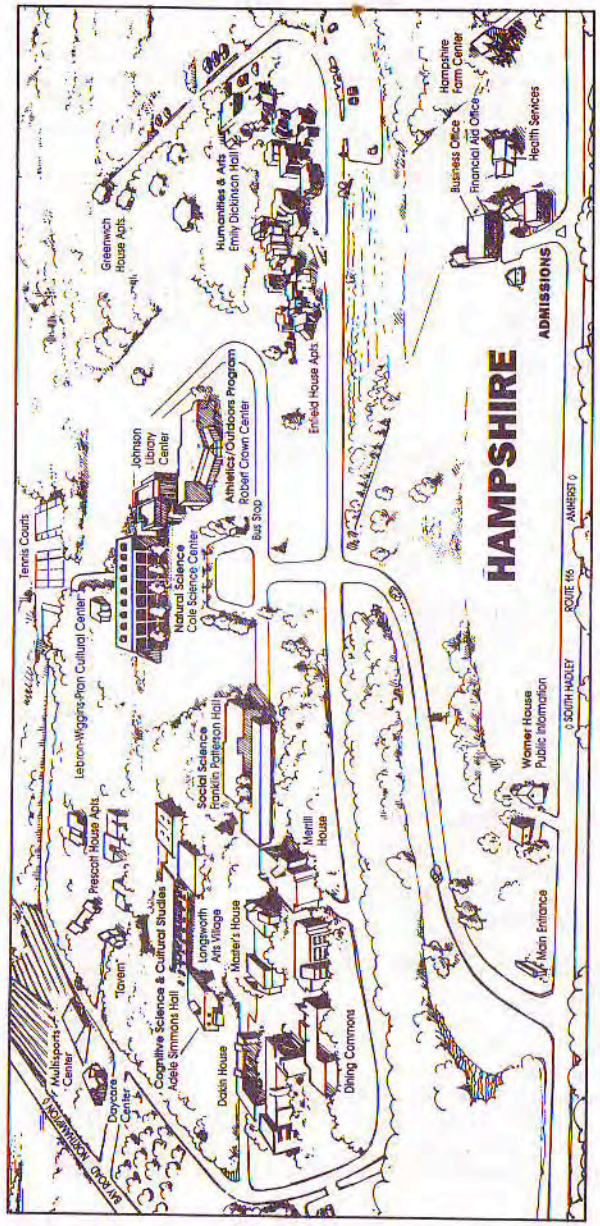
ACCOMMODATIONS

Dormitory rooms are available in Merrill Hall for $20.00 which includes linen. Those wishing to stay in the dorms should indicate such on the preregistration form.

Our meeting coincides with an Alumni Weekend at nearby Amherst College. We were able neither to reserve a block of rooms nor to obtain a discount. Those wishing more than the (admittedly minimal) dormitory accommodations will probably have to travel to Holyoke or South Deerfield. Below is a list of some local motels in the general area: (all area codes are **413**)

The Lord Jeffrey Inn on the Common, Amherst	253-2576
University Motor Lodge, Amherst	256-8111
Howard Johnson's Motor Lodge, Rte 9, Hadley	586-0114
Northampton Quality Inn, Rte 5, Northampton	586-1211
The Autumn Inn, Northampton	584-7660
Motel 6, South Deerfield	665-7161
The Deerfield Inn, Deerfield	774-5587
Candlelight Motor Inn, Greenfield	772-0101
Yankee Pedlar Inn, Holyoke	532-9494
Susse Chalet Inn, Holyoke	536-1980
Holiday Inn, Holyoke	534-3311
Ramada Inn, West Springfield	781-8750
Howard Johnson's, West Springfield	739-7261
The Marriott Hotel, Springfield	781-7111
The Holiday Inn, Springfield	781-0900
Berkshire Bed & Breakfast (reservation service)	268-7244

Those wishing to stay at any of the above, should, of course, make their own arrangements.



HAMPSHIRE COLLEGE

Hampshire College, currently celebrating its 25th anniversary, is a private, experimenting, coeducational, liberal arts college dedicated to actively engaging its c. 1050 students in the design of their own education. Hampshire was the catalyst for the creation of Five Colleges, Inc., a consortium among Smith, Amherst, Mt. Holyoke, Hampshire, and the University of Massachusetts. Free bus service connects the campuses day and night, cross-registrations are easy and frequent, libraries are fully linked, and faculties interact in many ways. Hampshire's 550 acre campus of former woodland and orchards is located at the foot of the Holyoke range in the Connecticut River Valley.

The College does not have departments (nor grades, nor tenure, and almost no endowment), but its mathematicians have embraced the hands-on, problem-and-project oriented approach of Hampshire's School of Natural Science. The NSF-funded Five College Calculus in Context course (in which a nonlinear differential equation model for epidemiology is introduced on the first day of class) was first developed at Hampshire. The Hampshire College Summer Studies in Mathematics regularly attracts some of the country's best high school students for an intensive six-week encounter with serious mathematics. Information on both of these programs and a mounting of the 17 Board will be featured at our June meeting.

ABSTRACTS/SPEAKERS

Fitchburg State College and the Lunenburg School System: A K-12/College Partnership

Noreen Berry, Lunenburg School System and
Richard Bisk, Fitchburg State College

This workshop will be limited to 40 participants on a first-come first-served basis. Sign up at the registration desk.

Institutional partnerships are built upon individual partnerships. This presentation/workshop will focus on four years of a professional partnership between a middle school mathematics teacher and a college mathematics professor, and its impact at both of their institutions. The presenters will describe their involvement with Project PALMS (the Massachusetts initiative to improve mathematics and science education), their work on the steering committee of a regional mathematical alliance, and their experiences team-teaching professional development courses and workshops. Participants will engage in activities that have mathematical meaning at a variety of levels. They will have the opportunity to discuss how to develop and maintain a partnership.

Noreen Berry is a Partnership Advancing the Learning of Mathematics and Science (PALMS) specialist in Lunenburg, Massachusetts and is currently teaching Grades 7 and 8. She has taught mathematics at the Middle and High School levels in Lunenburg for the past 14 years, and has also focused on grades K-8 through her involvement with PALMS. She co-chaired the Lunenburg Mathematics Task Force in the revising of the curriculum to reflect the Massachusetts Curriculum Frameworks. Her primary interest is in enhancing the teaching and learning of mathematics, and in integrating it with other disciplines. She is on the steering committee

of the Montachusetts Mathematics Educators alliance (M^2E), and is an active member of NCTM, ATMIM, and ATMNE. Ms. Berry has presented workshops, courses, and conferences at both the state and district levels. She holds a masters degree in education from Fitchburg State College, and a bachelor's degree in marketing from UMass-Amherst.

Richard Bisk is a professor of mathematics at Fitchburg State College. His professional interests include mathematical modeling, working with K-12 in-service and pre-service teachers to improve mathematics education, and strengthening academic standards and expectations at his institution. He has been actively involved in Project PALMS for the last four years, and since 1963 has co-chaired M^2E, a regional academic alliance. He earned his Ph. D. in mathematics from Clark University.

Using Writing in Teaching Mathematics
Tom Rishel, Cornell University

Writing projects are being used more and more in all kinds of mathematics classrooms, with varying degrees of success. In this workshop, Tom will discuss some of the major issues relating to written work, such as: How can we turn bad assignments into good ones? What is to be learned from faculty in other disciplines about structuring assignments? How can grading be made more relevant? Is a writing assignment what I really want to be doing for my class?

Tom's approach will be interactive, with questions and discussion encouraged. He will provide plenty of examples from calculus, history of mathematics and geometry classes, and so the workshop should be relevant to instructors at every level of college teaching.

Tom Rishel is a graduate of Youngstown State University who received his Ph. D. in topology from the University of Pittsburgh. He has taught at the University of Pittsburgh-Greensburg campus, at Dalhousie University in Canada, and, since 1974, at Cornell University, where his title is Senior Lecturer. Last year, Tom won the Seaway Section Outstanding Teacher Award. He has taught everything from precalculus, through linear algebra and differential equations, to Galois theory, functional analysis, and, of course, topology. Tom also runs more slowly than Rick Cleary, and eats less than Rick does.

Redesigning Precalculus: A Modeling and Exploratory Approach
Marsha Davis, Eastern Connecticut State University

Major technology-based calculus reforms such as Calculus in Context, The Harvard Project, and Project Calc have been implemented in college classrooms across the country. Major shifts in emphasis of such calculus reforms, as well as a change in the mode of instruction, necessitate a corresponding change in precalculus instruction. This session presents a vision for precalculus that includes mathematical modeling of real-world phenomena, mathematical explorations, use of graphing technology, and active participation of students in whole group, small group, and independent learning situations.

Marsha Davis (Ph. D. - University of Connecticut) teaches at Eastern Connecticut State University. She is co-author of *Precalculus: Concepts in Context*, a textbook/laboratory manual in the spirit of calculus reform. Dr. Davis is a member of the ARISE writing team (COMAP's high school

curriculum project funded by the NSF). She has been an invited speaker at numerous national conferences, including AMAYTC, ICTCM, SIAM, ASA, and MAA.

Women and Mathematics at Cambridge
James J. Tattersall, Providence College

The Educational Times, a monthly periodical devoted to pedagogical interest, contained a section devoted to mathematical problems and their solutions. W. K. Clifford, an Oxford mathematician, claimed that the periodical did more to encourage original mathematical research than any other European periodical in the late nineteenth century. Approximately three percent of the published mathematical problems and solutions were contributed by women. In particular, we discuss the lives and accomplishments of three women problem solvers: Hertha Ayrton, an accomplished scientist and first woman to have been nominated a Fellow in London's Royal Society; Charlotte Scott, first woman to receive first class honors on the Cambridge Mathematical Tripos; and Philippa Fawcett who placed above the Senior Wrangler on the 1890 Tripos. Selected problems from The Educational Times and the 1880 and 1890 Mathematical Tripos exams will be included.

J. J. Tattersall received his B. A. degree in mathematics from the University of Virginia, M. A. degree from UMass, and Ph. D. from the University of Oklahoma. He has been a Visiting Mathematician at the American Mathematical Society and a Visiting Scholar at both Wolfson College and at the Department of Pure Mathematics and Mathematical Statistics at Cambridge University. He has served as President of the Barnard Club of Rhode Island and Chair of the AMS Short Course Subcommittee. He is a member of the Providence Art Club and edits the Proceedings of the Canadian Society for the History and Philosophy of Mathematics. He has received the Distinguished Service Award from the NES/MAA and serves as our Archivist/Historian. He is Professor of Mathematics and Special Lecturer in Education and Natural Science at Providence College. He is currently on leave from Providence College and is the Distinguished Visiting Professor of Mathematics at the United States Military Academy at West Point.

Panel Discussion on Statistics in the Schools

Statistics Materials for the Schools
Anne Sevin, Framingham State College

The NCTM standards and most state's mathematics curriculum frameworks include strands on statistics and probability throughout the K-12 curriculum. As schools begin to implement these standards, more and more students will be entering college with some knowledge of statistics and probability. This talk will survey recently published textbooks and popular supplemental materials to see what topics in probability and statistics the next generation of entering college freshmen are likely to have studied. The impact of these curriculum changes on the typical college-level introductory statistics course and on preservice teacher training will be explored.

Anne Sevin graduated from Bates College 1968 with a B. S. in Mathematics. After working as a computer programmer and teaching junior high school mathematics, she entered graduate school at Boston University

where she specialized in applied statistics. After receiving her Ph.D. in Mathematics from B.U. in 1977, she worked as a biostatistician at B.U. Medical School for two years. Since 1979 she has been teaching at Framingham State College. She is interested in statistics education at all levels. In 1993 she organized a Quantitative Literacy Workshop in statistics and probability for middle and high school teachers. She was a member of the Massachusetts Mathematics Curriculum Development Committee and has given an number of talks and workshops on teaching statistics.

The Advanced Placement Test in Statistics
Rosemary Roberts, Bowdoin College

The College Board recently approved offering an AP course in statistics. The first AP Statistics exam will be given in May 1997. The Preliminary Course Description, released in Spring 1995, includes a course outline, sample exam questions and scoring rubrics, and a discussion of the philosophy of the course. This talk will focus on these and other issues concerning an AP Statistics course.

Rosemary Roberts has been teaching at Bowdoin College since 1984. She received her B.A. in Mathematics from Reading University, England in 1969, and her Ph.D. in Statistics from the University of Waterloo, Canada in 1981. Rosemary has chaired the AP Statistics Test Development Committee since its inception in 1994. She is a member of the ASA/MAA Joint Committee on Statistics, a co-founder of the Statistics in Liberal Arts Workshop (SLAW), and is active in the ASA's Section on Statistics Education.

Statistical Training of Future Teachers
Michelle M. Lamarre, Plymouth State College

The introduction of statistics into the schools has implications for how we train future teachers. Students at Plymouth State College selected a random sample of 100 colleges and universities in the United States and sent their Mathematics Departments a questionnaire about the statistical content in the program for future high school mathematics teachers. Another team of students did a similar study of the statistical preparation of elementary school teachers. The results of both surveys were analyzed this spring by Michelle M. Lamarre as part of an independent study project in her last semester at PSC.

Michelle M. Lamarre received a B.S. in Mathematics from Plymouth State College in 1996. She completed minors in Computer Programming and Biology, and is the latest in a sequence of students who have worked on survey projects at PSC with Robert W. Hayden. She hopes to pursue graduate study in statistics after a year spent working and saving money.

Introduction to the Exhibit of K-12 Curriculum Materials
Robert A. Rosenbaum, Wesleyan University

There are lots of projects underway to develop teaching materials aligned with the spirit of the NCTM Standards. The NSF is supporting some of these efforts at the elementary, middle, and high school levels. The projects have diverse organizing principles such as "applications", "integration", "use of technology", and "all of the above". Collegiate mathematicians should familiarize themselves with these materials for at

least two reasons: many students entering college in the next decade will have learned their mathematics from such materials; and students in collegiate teacher-preparation programs will be called upon to use such materials when they begin their professional careers. An extensive selection of these materials will be on exhibit during the meeting.

At the end of his term as Chairman of the Pacific Northwest Section of the MAA in 1953, Robert A. Rosenbaum returned East from Reed College to join the faculty of Wesleyan University, where he is now the University Professor of Mathematics and Sciences, emeritus. He spoke at the founding meeting of the Northeastern Section, which he served as Chairman in 1962-1963.

How to Prove That There Is No Simple Answer
Herbert S. Wilf, University of Pennsylvania

Sums or integrals can sometimes be "done" in simple form, and sometimes cannot be. We will discuss some newly developed methods for proving that no closed form evaluation exists, when that is the case. We give several examples of familiar functions that are provably incapable of being expressed in simple form.

The speaker has been Professor at the University of Pennsylvania for n! years, was Editor in Chief of the American Mathematical Monthly in 1987-1991, won an MAA Haimo Award for Distinguished Teaching this year in Orlando, will fly himself to this meeting in his own little airplane, and with some luck, will survive to read about it in this program.

Industrial-Academic Partnerships: Mutual Benefits
Martha J. Siegel, Towson State University

Linkages between business/industry and the college/university can benefit everyone. How to start them, how to keep them going, and how to reap the harvest. Students and faculty can gain a great deal from the association of a Mathematics Department with corporations - from research opportunities to advice about programs. And with public relations benefits too!!

Martha J. Siegel is a Professor of Mathematics at Towson State University, where she has taught since 1971. She just completed a five-year term as Editor of *Mathematics Magazine* and was recently elected Secretary of the MAA. After completing a Ph.D. at the University of Rochester with a specialization in applied probability, she taught at Goucher College before taking the position at Towson State.

In 1977-78, Professor Siegel held a post-doc position (funded by the National Institute of Mental Health and the National Science Foundation) in operations research at the School of Hygiene and Public Health of the Johns Hopkins University. Since 1981, she has been the Director of the Applied Mathematics Laboratory at Towson and has been working with industry, government, and business leaders for the AML and for the Department of Mathematics. More recently, she helped to found the Maryland Mathematics and Science Coalition and is a member of its Executive Committee. She is the author (with Larry Goldstein and David Schneider) of *Finite Mathematics and Its Applications*, now in its fifth edition, and is part of the writing team of the "reform" precalculus text, *Functioning in the Real World*. This is the third time she has visited the Northeastern Section and is pleased to be invited again.

What Do Math Majors REALLY Do?
Panel chaired by Rick Cleary, St. Michael's College

All mathematics professors have been asked, "What can I do with a math major?" Most of us who are college teachers answer this based on some vague familiarity with the actuarial profession and anecdotes of a few former students. We hope in this discussion to examine a much larger pile of evidence and provide a broader picture to present to students, parents and administrators concerned with the outcome of a choice to study mathematics in college. Data presented will include a survey of St. Michael's College mathematics majors, results of similar work at other colleges and universities and national figures as available. Panelists will include recent mathematics majors in the beginning stages of their careers and at least some people who hire mathematics majors.

Rick Cleary is Associate Professor of Mathematics at St. Michael's College where he has taught since 1980 with a four year break to obtain a Ph. D. in Statistics at Cornell University. He has also served as Acting Department Chair (1993-94) and Interim Associate Dean (1994-95) at St. Michael's, as a Visiting Professor at the University of Vermont, and a Visiting Fellow at Cornell. He is currently chair of the Northeastern Section of MAA.

DINNER MEETINGS: SPRING 1996

Another series of NES/MAA Regional Dinner Meetings is being held this spring:

Vermont (4/11): Roger Cooke, University of Vermont, coordinator;
Speaker: Michael Olinick, Middlebury College, *The Mathematics of Decision Making.*
Eastern Mass. (4/18): Melvin C. Tews, College of the Holy Cross, coordinator;
Speaker: Michael J. Rosen, Brown University, *Historical Remarks on Fermat's Last Theorem.* (This is also the Leonard C. Sulski Memorial Lecture.)
New Hampshire (4/24): Larry Braden, St. Paul's School, coordinator;
Speaker: Freeman Dyson, Princeton Institute for Advanced Study, *An Encounter with Saunders MacLane.*
Rhode Island (4/25): Premjit Singh, Johnson & Wales University, coordinator;
Speaker: Patricia Kenschaft, Montclair State College (NJ), *Reaching the Public: Are Mathematicians the New Dinosaurs?*

Please contact Larry Braden of St. Paul's School, Concord NH 03301; (603-225-9104), Coordinator of the Regional Dinner Meetings, for information regarding hosting a dinner meeting for your region in 1997. In addition to those regions represented this year, we would also like to include Regional Dinner Meetings in Maine, Connecticut, the Canadian Provinces and Western Massachusetts or in any other suggested region.

EDITOR'S MESSAGE

Thursday, September 12, 1996 is the date when all information for the *Fall Newsletter* must be received by the editor (address on inside front cover). Thanks to all for their assistance on this issue!

PRE-REGISTRATION FORM

SPRING MEETING OF THE NORTHEASTERN SECTION-MAA

JUNE 7-8, 1996 **HAMPSHIRE COLLEGE**

Mail Registration Form to: NES/MAA
Hampshire College
Amherst MA 01002-5001

Checks should be made out to: **NES/MAA**

You may register at the meeting if you wish; however, it would facilitate the organization of the meeting if you pre-register by mail and it will save you money in that on site registration fees are five dollars more than pre-registration fees. In any case, meals and housing cannot be guaranteed unless reservations are received by Tuesday, May 28, 1996. **It may not be possible to buy tickets to the banquet or lunch at the meeting.** Spouses and guests are welcome at all meals.

REGISTRATION:

Name:_____

Institution:_____

Address:_____

City, State, Zip:_____

Telephone: ( )_____

E-MAIL:_____

PRE-REGISTRATION FEE:

MAA Member ($20.00)
Non-member ($25.00)
Student or unemployed ($5.00) } $_____

MEALS AND HOUSING:

Reception and Banquet
6:30 p. m. Friday: Number ( ) x $20.00 $_____

Continental Breakfast: No charge

Luncheon 12:15 p. m. Saturday: Number ( ) x $15.00 $_____

On Campus Housing for Friday, June 7:
Number ( ) x $20.00 $_____

TOTAL: $_____

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