NORTHEASTERN SECTION

NEWSLETTER

SPRING 1994

VOLUME 16 NUMBER 1

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FUTURE SECTION MEETINGS

June 3-4, 1994: Salve Regina University
See this *Newsletter* for details

November 18-19, 1994: University of Hartford
Local Arrangements: Cecilia Welna
Program Co-Chairs: Yuangian Chen and Jeffrey McGowan,
Central Connecticut State University

June 2-3, 1995: Bates College
Local Arrangements: Robin Brooks
Program Chair: William Roberts, Plymouth State College

CHAIRPERSON'S MESSAGE

It is a privilege to send my first message to you as Chairperson of the Northeastern Section of the MAA. I recognize, with pleasure, our Section Officers, most especially our immediate past Chairperson, Laura Kelleher, and our *Newsletter* editor, Frank Battles, who have been helping to smooth the way for me as your new Chair. It is an honor to work with colleagues who have been friends for many years.

Next, I want to acknowledge you, the members of the Section, who do the lion's share of the work of the Section in promoting mathematics and mathematics education and in planning our special events. Many thanks to the organizers of the Fall NES/MAA Meeting at Westfield State College, particularly to Miguel Garcia of Gateway Technical Community College and Rick Porter of Northeastern University who co-chaired the Program Committee, and to Maureen Bardwell and Dianne Haber of Westfield State College who took care of local arrangements. The workshops, panel discussions, and lectures were simply first-rate. So was the hospitality. Congratulations to Karen Schroeder who hosted our first-ever Student Career Conference, held last October at Bentley College. By every measure, this program was a huge success.

This spring offers a rich array of NES/MAA events from which to choose. First there will be five regional dinner meetings in April, with themes ranging from wavelets to mathematics portfolios to research in calculus learning to number theory. See page 21 for further information. Second, on Saturday, April 9th, an NES/MAA Minicourse on *Teaching the Introductory Statistics Course* will take place at The College of the Holy Cross. The presenters will be Robin Locke, a member of the Statistics in the Liberal Arts Workshop (SLAW) who teaches at St. Lawrence University, and Richard Cleary of St. Michael's College. David Damiano of Holy Cross is taking care of local arrangements. Third, our Spring NES/MAA program is scheduled for June 3-4, 1994 at Salve Regina University in beautiful Newport, Rhode Island. Its theme will be *Linear Algebra* and detailed information on the program may be found in this *Newsletter*. The Program Committee for this Spring Meeting is headed by Edward Sandifer of Western Connecticut State University, and William Stout of Salve Regina University is the Local Arrangements Coordinator. Please note that a special feature of the program will be the presentation of the 1994 NES/MAA Award for Distinguished College or University Teaching of Mathematics. On a personal note, as Chair of the 1994 Teaching Award Committee, I can say that our Section "suffers" from an embarrassment of riches; we are fortunate to have many truly gifted mathematics teachers in our Section. You and I know this is so because the lectures we attend at our Section meetings provide us with a window into their classrooms. So, come and join us in celebrating excellence in teaching with this special presentation. For information on how you may nominate someone for the 1995 Teaching Award, see page 10 of this *Newsletter*.

Last, for the 15th year, Don Small of the United States Military Academy and Clayton Dodge of the University of Maine have organized a University of Maine-MAA Shortcourse on the *History of Calculus*, to take place in June 20-24, 1994 at the University of Maine at Orono. The speaker will be Frederick Rickey of Bowling Green State University. For more detail see page 11. Pre-registration material should reach you shortly.

Fall 1994 promises some unusual mathematical delights. The annual Fall

NES/MAA meeting, to take place at the University of Hartford on the Friday and Saturday before Thanksgiving, November 18-19, 1994, will feature the theme *Mathematics for the Millennium*. Program Co-Chairs for the meeting are Yuangian Chen and Jeffrey McGowan of Central Connecticut State University and the Local Arrangements Coordinator is Cecilia Welna of the University of Hartford. See page 22 for more information.

In addition, an interdisciplinary event is planned for the fall of 1994. Victor E. Hill IV of Williams College, who is an organist and harpsichordist and mathematician, will give a musical/mathematical presentation, *Mathematical Aspects of the Music of Bach*, on Friday evening, October 21, 1994, at 8 p.m. at the new Fine Arts Center at Regis College in Weston, Massachusetts. Sr. Claire Archambault from Regis College is taking care of local arrangements. For more information, see pages 23-24.

To summarize, many mathematical events are planned for the upcoming spring and fall. Please save these dates. We need your continued assistance in planning programs, suggesting speakers, and coordinating local arrangements. Do you have an idea for a workshop or a minicourse or shortcourse? Would you like to serve on a program committee or host an upcoming NES/MAA meeting? Please write or phone or e-mail me. Your suggestions will be most welcome. If you would like to host a dinner meeting, please contact Judy Carter, Regional Dinner Meetings Coordinator, Department of Mathematics, North Shore Community College, Danvers MA 01923, (508) 762-4000 x6664.

I am looking forward to working and visiting with you at upcoming events.

Donna Beers
Simmons College
Chairperson NES/MAA

GOVERNOR'S MESSAGE

Well, I attended my last Board of Governors Meeting on January 11 in Cincinnati during the AMS-MAA Joint Meetings. As usual the President of the MAA, Don Kreider, and the Secretary of the MAA, Gerald Alexanderson, skillfully directed the group through a long, detailed agenda during the all-day affair. I have developed a great appreciation of the talents and sincere commitments of the key players who form the nucleus of leadership of the MAA. It is truly amazing how well they complete their numerous tasks and responsibilities in spite of the unforeseen problems that develop. It seems that in every Board of Governors Meeting there is always a minor, sometimes major, crisis to respond to, which makes the meetings always interesting, since the agenda is normally set up to go off like clockwork. Last year, in San Antonio, it was the Denver Resolution, and this year we had, believe it or not, a similar situation.

In 1992 the City Council of Cincinnati approved a human-rights ordinance which outlined legal recourse for those discriminated against in hiring and housing on the basis of race, sex, religion, disability, Appalachian origin or sexual orientation. In November of 1993, Cincinnati voters passed Issue 3, a charter amendment that would prevent the city from enforcing the part of the human-rights ordinance dealing with sexual orientation. At the request of Issue 3 opponents, a federal judge has delayed implementation of the amendment pending a trial this summer. However, the day prior to the

Governors Meeting, a piece of legislation was presented to the city council to repeal the entire human-rights ordinance. As a result, Don Kreider brought this to the attention of the Board for discussion, and requested the Mayor of Cincinnati, Roxanne Qualls, to meet with the Board later that afternoon. Our discussion merely reaffirmed the position we had taken with regard to the Denver situation. Mayor Qualls spent a considerable amount of time with us later that day and handled the difficult position that she was in extremely well, and I suspect many of the Governors shared my admiration and respect for her as Mayor of a major city. Upon her departure, the Board of Governors drafted a statement indicating our position with regard to holding meetings at cities that repeal such ordinances. This was hand delivered to the city council prior to their vote on the day following our meeting. The city council voted against the repeal. As an interesting aside, Mayor Qualls was voted into office at the same time Issue 3 was passed, yet Mayor Qualls' background clearly indicates her pro-position with regard to human-rights. Obviously, the counter forces were unaware of her prior activities in this area!

Human rights issues will most likely continue to be in the forefront of our decisions to select future sites for national meetings. Furthermore, since our organizations must select such sites with a considerable amount of leadtime, I suspect the situations that we have encountered at the last two winter meetings will not be going away. We may find ourselves meeting in San Francisco quite often in the future!

One of the most important items on the Board of Governors agenda for the Cincinnati meeting was the request for the approval of the MAA Strategic Plan. You will recall that this document has been in the making for about three years under the able direction of Tom Tucker. At the San Antonio meeting, the Board approved the Mission and Goals Statements in the Strategic Plan. The remainder of the document was shared with our Section and committees for further input, and, as might be expected, the list of suggested initiatives has grown. At the Cincinnati meeting, the Board approved the remainder of the document, keeping in mind that the strategic plan is to be viewed as an evolving document that guides our choice of program and activities. It is our best view at this time of the kinds of activities appropriate for the MAA to consider. As such, it is a guide for our sections committees, officers, and members and a continuous stimulus for discussion of our priorities.

The big news of the fall for the MAA was the launching of *Math Horizons*, which was mailed in bulk to every college and university in mid-November. Don Albers and his staff have worked extremely hard to produce a beautiful and exciting new MAA periodical. At Western New England College, it received rave reviews from our students and from the faculty. The inaugural issue was so interesting, entertaining, and thought provoking, that the copies that we received were in high demand. It was only four years ago when Marcia Sward, Executive Director of MAA, remarked in a discussion about new journal ideas, "When are we going to do something for students?". Well it is definitely a reality now; however, the next year or so will prove to be the litmus test to see if the mathematics community truly takes hold of this excellent publication. Its success will need the assistance of mathematics departments throughout the country.

Have you read the inaugural issue of *Math Horizons*? Was the mid-November bulk mailing to your university distributed to students and faculty? If the answer to either of these questions is no, I urge you to rectify

it. This journal will not only heighten the interest of students in mathematics and assist in the recruiting of mathematics majors, but it will be a resource to us in the teaching of mathematics. It is important for it to be a success, and each mathematics department should appoint a faculty member, say the MAA Department Representative (see page 19), to oversee the acquisition of a suitable number of subscriptions for the college/university and the distribution of the journal. The price cannot be beat! For $100.00 your institution will receive 20 annual subscriptions with four issues per year. Obviously, the bulk mailing allows such an incredible subscription rate. Search out $100, $200, or $300 in your department budget to process the number of subscriptions that will serve the interests and needs of your students and faculty. I challenge the departments in the Northeastern Section to make *Math Horizons* a reality, in ample number, at their institutions. I am confident that this periodical will prove to be an asset to the mathematics community, but the proof of this will never be known unless we "buy into" the journal during its first two years, the initial period that is so critical to the longevity of this excellent initiative.

My visit to Cincinnati left little free time in my schedule of activities. As a Governor, there are other meeting sessions that I am requested to attend in addition to the all-day Governors meeting. And having been appointed to two national committees made the week even more hectic than I could have imagined. To complicate matters even more, I interviewed candidates for the open positions at Western New England College during the two day Employment Register! Hence, free time usually occurred either early in the morning or late in the evening. My morning runs seemed like nighttime runs since Cincinnati is at the western edge of the eastern time zone. So what is usually a way for me to see the sights of a new city proved to be of little help. Cincinnati truly is a riverfront city, overlooking the Ohio River, on across to the state of Kentucky. Along the rivers edge there is, as best as I could see, a beautiful park meandering east of the professional sport facilities. There is also a magnificent, seemingly old, suspension bridge arching over the river from the city to the picturesque city of Covington, Kentucky. The historic parts of Covington appeared to have been finely maintained and certainly entertain many tourists who visit Cincinnati. Probably the best view I had of the city of Cincinnati was on a fairly balmy Wednesday, at least compared to our present winter in the northeast, when I was able to squeak out a few hours during the mid-morning for a run over to Covington to the top of a park that sat up high overlooking the river and the entire skyline of the city. And although the run was far longer than I had expected, the park and the view certainly will be remembered. I also managed a visit to one of the many Skyline Chili restaurants and had Cincinnati chili "five ways!" This is a must for every visitor to the city. All in all it was a busy, productive week, but somehow I think it would have been even more successful if the city was about 500 miles further south. The conference facilities and the hotel locations with the connecting walkways were excellent. But the weather simply didn't cooperate. Later in the week, running in the much colder and windier weather proved to be quite an adventure. One morning, there was "steam" rising high over the river to the underpinnings of the suspension bridge, and this was quite an eerie, but truly a remarkable, sight to see. I have noted that the next three winter meetings are scheduled to be in the cities of San Francisco, Orlando, and San Diego. It's too bad that my term as Governor wasn't for six years!

I would like to end by offering my comments and views regarding the

Employment Register and the current market for new Ph.D.'s in mathematics. This past fall, my department initiated its search for a new member quite late as compared to prior searches. We advertised in two consecutive issues of the Chronicle for Higher Education in December and sent a posting describing the position and requirements for potential candidates to approximately 500 colleges and universities throughout the United States. We deliberately kept if off of the e-mail bulletin board for fear of receiving hundreds of computer generated responses! Prior to our departure for the national meetings we had received 200+ applications for the position. The search committee screened these, as best as possible, and identified about 30-35 candidates that I would seek out in the Employment Register or outside of the register, if they were in attendance at the meetings. We contacted each of these individuals prior to the meeting, indicating our interest in them and requesting that they try to meet with us while in Cincinnati. All of this proved to be quite fruitful. The Employment Register has improved a great deal from the past due to the new matching algorithm that is currently in use. Since I had committed myself to all four interview sessions over the two days, I was able to request interviews with twenty applicants. The applicants also made their requests and qualified a limited number of them as high priority requests. The matching algorithm virtually guarantees an interview when there are mutual requests, usually grants all employer requests, and usually grants the high priority requests of the applicants. As a result, the interviews that take place are usually significant for both the employer and the applicant. We interviewed 40 applicants in the register, and each was a good match for the open position. The individuals that I spoke to were sincerely interested in locating at a small college that emphasized teaching excellence. They never flinched when we mentioned a 12 credit hour teaching load. And furthermore, almost all of them had already formally applied for the position. This was hardly the case when I was involved in prior Employment Registers. Outside of the register, we also interviewed another 10 applicants and did follow up interviews on the employment register interviewees that we found of great interest. The quality of the applicant field was simply overwhelming to me. It was extremely difficult to reduce our 50 contacts to a more manageable number to report to the search committee on campus. On the plane trip back to Springfield, we were able to narrow the list to 25 candidates, knowing that each of them had excellent credentials and would be a nice fit within our academic community. I left with many thoughts about the current market, but one certainly was paramount in my mind---how fortunate I am not to have to compete in that field of applicants! Incidentally, if you would like any good leads on quality applicants, don't hesitate to contact me.

Upon our return to campus, the number of formal applications had risen to 300+. Obviously, not all of these will receive equal attention given the form of some of them. I have received just about every type of application, many are computer generated without even a cover letter, let alone the required statement of intent. Many are received without the required personal statement on teaching, while others think they have composed such a statement, but merely have listed the courses that they have instructed. We have asked for three letter of references with specific attention given to the applicants promise and experience as a teacher of mathematics. Yet we receive many reference letters that hardly mention teaching, other than to say that I suspect that the applicant is a fine classroom instructor. Some letters of reference are very short and nonspecific, a death blow in this

market. Others are seemingly positive until you read between the lines. Even when an applicant's file is complete with regard to our requirements, it can be easily eliminated because of the sense that the applicant probably has no understanding of the character of our college. You cannot imagine the number of times that I have read the statement, "I would like to be at a quality institution like yours," or "I highly recommend this applicant for a position that is research oriented, teaching oriented, or both!" Well when you have 300+ applicants, you search for any way to limit the pool to a size that is at least manageable, and we certainly tried to do this. But the inescapable fact this year is that there is a wealth of high quality candidates looking for secure positions, and when all you have is the paper credentials to use to make distinctions, it becomes nearly impossible to make those fine distinctions in an objective manner. So, in my opinion, to obtain an on-campus interview involves a considerable amount of luck of the draw. Unless of course the search committee had representatives interviewing in Cincinnati!! When it is possible to connect a face, a personality, and a fifteen minute interview with a candidate file, that candidate immediately has a significant advantage over comparable paper candidates, when that short interview was a positive one. And that certainly proved to be the case in our search process. During the last ten days of February, we interviewed on campus candidates from Texas, Oregon, and New York, each of whom we met in Cincinnati and spent considerable time with, both formally and informally, during the meetings. We are extremely excited about the future additions to our department and to the Section. For those individuals, and for us, the Employment Register made the difference.

I must admit that although our search will be a success, I am extremely displeased with current market conditions for new Ph.D's. At the register, there were close to 600 applicants and about only 70 employers, some with more than one position. Not wonderful odds for the applicants! This is happening while the number of Ph.D.'s in mathematics granted by our universities is on the rise. A large percentage of these Ph.D.'s are awarded to individuals who come from foreign countries without U.S. citizenship status. I cannot help but think that those individuals come here in search of future opportunities within our country. Yet I am sure they have the most difficulty in securing academic tenure track positions upon completing their degrees. Having a larger number of graduate students in our programs causes a two-fold problem and greatly impacts an already difficult market. These students, through their assistantships, cannibalize positions at universities that could be offered to new Ph.D.'s, and when they complete their degrees they substantially add to the numbers of past Ph.D.'s still searching for tenure track positions. I cannot help but think of the moral and ethical implications of this situation. The mathematical community, and in particular the Ph.D. granting institutions, need to do more than discuss this issue. Action needs to be taken so that these market conditions will not continue. Just as we have taken steps in the past to increase the number of Ph.D.'s granted to natural citizens and to women, it is now incumbent on us to decrease the total number of terminal degrees granted in future years. Not to do so could be viewed as further exploitation of our graduate students, and would be morally and ethically corrupt.

It is hard to believe that my three year term as Governor expires as of the end of June. I hope I have met some of the expectations of the membership of the Northeastern Section that elected me. I found my responsibilities enlightening, enriching, and very interesting. I was able, in

this role, to meet and work with some excellent leaders, educators, and mathematicians. It will be three satisfying years that I will long remember, and my only wish would be that the length of tenure was longer. However, I know that the Section will be well-served over the next three years given the two governor nominees. I will continue my active participation in the Section, and I will not hesitate to respond positively for another opportunity to represent our Section on the national level.

Dennis M. Luciano
Western New England College
Governor NES-MAA

GOVERNOR'S ELECTION

In January, 1994 ballots were mailed to the members of the Northeastern Section with the following nominees for the office of Sectional Governor:

Karen J. Schroeder, Bentley College
Barry Schiller, Rhode Island College

All votes received by the National Office by March 1 were counted independently by two members of the headquarters staff and verified by the Executive Director. As a result of this election, Karen J. Schroeder has been elected Governor for the period July 1, 1994 to June 30, 1997. Congratulations, Karen!

Karen J. Schroeder served as Chairperson of the Northeastern Section of the MAA from 1989 to 1991. In that position, she applied for, received and served as principal investigator on two grants from the Exxon Education Foundation to the Section for Student Chapters activities, organized the Section's first two one-day minicourses and developed the concept of Regional Dinner Meetings. She served as Student Chapters Coordinator and was Chairperson of the Organizing Committee for the recent Student Career Conference in the Mathematical Sciences. At the national level, she is a member of the MAA Committee on Student Chapters and has been the organizer of that Committee's special paper session for the past two years.

Other Section activities include: Vice Chairperson (1988-1989); Member, Bylaw Revision Committee; Chairperson, Governor Nominating Committee (1990); Member (1992), Chairperson (1993), Teaching Award Selection Committee; Local Arrangements Coordinator, Program Committee Member (1987 Fall Meeting).

She received degrees in mathematics from Emmanuel College and Boston College. For the past twenty-five years, she has taught mathematics at Bentley College where, in 1987, she received the Gregory H. Adamian Award for Teaching Excellence. She has presented papers at national meetings of the MAA, AMATYC and NCTM and at regional meetings of ATMIM, ATMNE, NEMATYC and NCTM. Her current mathematical interests include linear algebra and probability.

The Nominating Committee for the selection of Governor consisted of Laura L. Kelleher, Chairperson (Massachusetts Maritime Academy), Frank P. Battles (Massachusetts Maritime Academy), Donna Beers (Simmons College) and Frank Ford (Providence College).

MINUTES OF THE LAST MEETING

The Fall Meeting of the Northeastern Section was held on November 5-6, 1993 at Westfield State College. There were approximately 100 registrants.

Invited Papers

A Fractal Vision of Nature by F. Kenton Musgrave, George Washington University.
The Christie Lecture: The Early History of the Lucasian Chair by James J. Tattersall, Providence College.
NES/MAA Teaching Award Presentation: Baring the Beauty of Euclid's Algorithm by Thomas Moore, Bridgewater State College.

Workshops

Introductory TI-85 Workshop by Steve Olson, Hingham High School.
Introduction to the TI-82 by Doug Kuhlmann, Phillips Academy.
Advanced Topics on the the TI-82 by Doug Kuhlmann, Phillips Academy.
Intermediate Level Graphics Calculator Workshop: A Recipe for Excitement in the Classroom by Alice Burnstein, Middlesex Community Technical College.
Precalculus Laboratories: Functioning in the Real World by Judy Moran, Trinity College and Mary Murphy, Smith College.

Student Chapter Workshop

How to Grow Fractal Trees by Michael Frame, Union College.

Panel Discussion

Engaging Students in Mathematics by Bob Case, Carla Oblas and Pete Gilmore, Northeastern University; Judy Moran, Trinity College; Michael Frame, Union College.

Contributed Paper Session

What Should We Do About Mathematics Courses For Business Students? by Barry Schiller, Rhode Island College.
Clouds of Points, Ring Theory, and Linear Programming by Ed Sandifer, Western Connecticut State University.

Student Paper Session

Spherical Volume by Aaron Clark and Anthony Iglesias, Westfield State College.
A Representation Problem by Amy Lelievre, Providence College.

On the Mathematics of Flat Origamis by Thomas Hull, University of Rhode Island.
Beyond Square Dance Numbers by Michael Giammarco, Providence College.
OGP Existence in Cosmic Rays by Alexey Koloydenko, Norwich University.
Lexigraphic Generation of Trees by Sandra Harrigan and Matt Hamre, Connecticut College.

At the business meeting, the proposed revisions of Section Bylaws were approved. In-coming Chairperson, Donna Beers, thanked the out-going Chairperson, Laura L. Kelleher, for the fine job that she had done in leading the Section for the past two years and presented Professor Kelleher with a memento in recognition of her many accomplishments. The Treasurer's report was read and indicated that the Section has a sound fiscal base. Numerous other items, discussed elsewhere in this *Newsletter*, were presented.

Lynne Durkin
Bentley College
Secretary-Treasurer

PUBLISHERS

The following text exhibitors displayed their latest offerings at the Fall of 1993 meeting held at Westfield State College:

Addison-Wesley/Benjamin Cummings
Donna DeSimone
Jacob Way
Reading MA 01867
617-944-3700

Educational Electronics
David M. Ullman
70 Finnell Drive
Weymouth MA 02188
1-800-526-9060

Houghton Mifflin Company
Charles Baker
101 Campus Drive
Princeton NJ 08540
609-452-0200

Janson Publications, Inc.
Eric Karnowski/Ann Shallenberger
450 Washington St. Suite 107
Dedham MA 02026
617-326-0009

Wadsworth-Brooks/Cole-PWS
Drew Hall
32 Hampden Street
Northampton MA 01060
203-742-0847

John Wiley
Dick Giggey
133 Eric Drive
Coventry CT 06238
413-586-0883

It is very useful for text and software selection to see so many recent titles on display and the income to the Section is very helpful in defraying expenses associated with the meeting. At this meeting, student presenter book awards were donated by Janson Publications, Inc. We of the NES/MAA would like to thank all of the above mentioned companies for their contributions to the success of the Fall Meeting.

Catherine Lilly
Westfield State College
Local Publisher's Liaison NES/MAA

1995 NES/MAA AWARD FOR DISTINGUISHED COLLEGE OR UNIVERSITY TEACHING OF MATHEMATICS

Nominations are now being accepted for the 1995 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 identify those 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 Laura Kelleher
Department of Basic Sciences
Massachusetts Maritime Academy
101 Academy Drive
Buzzards Bay MA 02532-3400
508-830-5000 x2267

Single page letters of support should be received by June 10, 1994.
Completed nomination forms must be received by October 1, 1994.

NEWS FROM NEMATYC

Inspired by the national AMATYC conference held in November in Boston, members of the New England Mathematical Association of Two-Year Colleges are looking forward to a stimulating annual meeting to be held at Mount Wachusetts Community College on Saturday, April 9. The keynote speaker will be Dr. Terceiro, discussing *What We Need to Teach in a Technological World.* Dr. Terceiro is involved in the Tech Prep movement and has served as a technical consultant to a number of Departments of

Education throughout the country. A wide variety of one-hour presentations are scheduled, as well as a two-hour workshop on using Mini-Tab in elementary statistics courses and another on using the TI-82 to explore introductory and intermediate algebra. At 3:00 p.m., the business meeting will be held, followed by a reception celebrating 20 years of NEMATYC. Join us on a fine spring day in the heart of the beautiful Montachusett Region!

If you would like to receive more information about NEMATYC or the NEMATYC '94 meeting, please contact Judy Carter, NEMATYC Newsletter Editor, North Shore Community College, 1 Ferncroft Road, P.O. Box 3340, Danvers MA 01923-0840. Phone: (508) 762-4000 x6664.

Planning is well underway for **NEMATYC'95**. This meeting will be held at Johnson & Wales University in Warwick, Rhode Island and is being chaired by Professor Joan Bookbinder of Johnson & Wales. This, the first two-day conference, will be held on April 7-8, 1995. Housing will be available at the Johnson & Wales Airport Hotel. For further information contact Joan Bookbinder, Johnson & Wales University, 8 Abbott Park Place, Providence RI 02903. Telephone: (401) 456-1480 or e-mail: jonibook@aol.com.

FRED RICKEY TO PRESENT NESMAA-UM SHORT COURSE: HISTORY OF THE CALCULUS

The calculus is the most beautiful and important creation of mankind. To understand this it is essential that we have a firm knowledge of its history. This will be the primary goal of the 1994 Short Course at the University of Maine June 20-24. Mornings will be devoted to lectures about the mathematicians who made the most important contributions to the calculus. They will include biographical information, details about the individual's contributions to the calculus, and ideas about how this information can be used in the classroom. Afternoon sessions will be devoted to visits to the library, reading original sources, and discussions on teaching history of mathematics courses, and especially how to use the history of the calculus as a motivational tool in teaching calculus. There will also be contributed papers.

Dr. V. Frederick Rickey is Distinguished Teaching Professor at Bowling Green State University in Ohio and recipient of one of the first MAA national awards for Distinguished College or University Teaching of Mathematics. He has given several minicourses at national MAA meetings on *Using History in Teaching Calculus.* This past year Fred has been on sabbatical in Washington D.C. where he has divided his time between being a visiting mathematician for the MAA and doing research in the many libraries in the area. Participants are invited to give presentations related to the topic of the short course on Monday and Tuesday evenings. After morning classes on Wednesday the group will take the usual trip to Acadia National Park for a picnic lunch and an afternoon of sightseeing, hiking, and/or shopping, followed by a pizza party featuring famous Pat's Pizzas and a curriculum discussion. A lobster/steak banquet is planned for Thursday evening. The course will end after lunch Friday noon. For further information contact Clayton W. Dodge, 5752 Neville/Math, University of Maine, Orono, ME 04469-5752. e-mail: dodge@gauss.umemat.maine.edu, Tel.: 207/581-3908.

NORTHEASTERN SECTION OF THE MAA
SPRING MEETING: JUNE 3-4, 1994
SALVE REGINA UNIVERSITY, NEWPORT RI

Friday, June 3

2:00-6:00 Registration: McAuley Hall

2:00-3:00 Executive Committee Meeting

3:05-4:05 **Courseware for Elementary Linear Algebra**
Homer Bechtel, University of New Hampshire

4:15-5:45 **Geometry in Linear Algebra with MATLAB**
David Hill, Temple University

6:00-8:00 Reception
Cash Bar
Dinner

8:10-8:15 **Welcoming Remarks**
President
Salve Regina University

8:15-9:10 **The Rise, Fall and Possible Transfiguration of Triangle Geometry**
Philip J. Davis, Brown University

Saturday, June 4

7:30-10:30 Registration: McAuley Hall

8:00-8:55 Student Paper Session

8:30-3:30 Book Exhibits

9:00-9:55 **ATLAST: Augmenting the Teaching of Linear Algebra Through the Use of Software Tools**
Steve Leon, UMass-Dartmouth

9:00-9:55 **Student Chapter Session:**
Deranged Solitaire-Is It Crazy to Play?
Rochelle Leibowitz, Wheaton College

10:00-10:30 Coffee Break
Tour of Book Exhibits

10:30-12:00 **More About Linear Algebra**
David Lay, University of Maryland

10:30-12:00 **MATLAB Workshop**
David Hill, Temple University

12:00-12:30 Business Meeting

12:30-1:45 Lunch

1:45-2:45 **Special Matrices and Random Matrices**
Gilbert Strang, Massachusetts Institute of Technology

2:50-3:50 Contributed Paper Session

PROGRAM COMMITTEE CHAIR:
C. Edward Sandifer
Western Connecticut State College

LOCAL ARRANGEMENT CO-COORDINATOR:
William Stout
Salve Regina University

DIRECTIONS TO NEWPORT

Directions by Car:
Salve Regina University is situated at the southeastern end of Aquidneck Island.

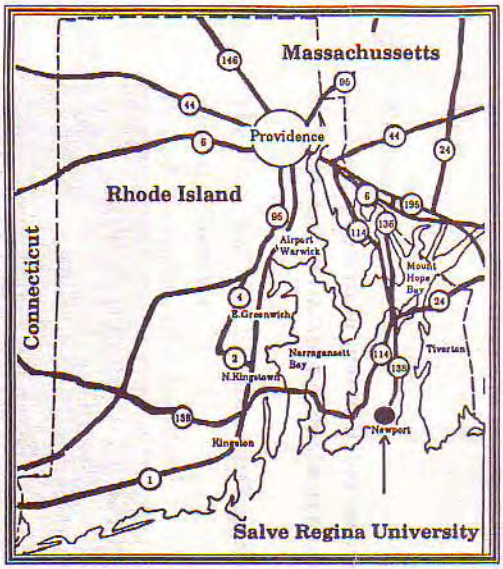
From Western Massachusetts and Northern New England:
Take Mass Pike to exit 10. Take route 146. Stay on 146 to Providence where it joins 95. Get immediately into the left handlane so as to pick up route 195, Newport-Fall River. On the far side of Fall River pick up 24. Stay on 24 to Aquidneck Island. Take route 138, Ramada Inn will be on the right. At the end of the ramp go left. Follow signs to Newport.

From Boston:
Take route 128 to route 24 south to route 138. Follow signs to Newport. Approximately one hour and a half.

From New York:
Take route I-95 to Rhode Island exit 3 (route 138). Follow signs to Newport Bridge. Approximately three and one half hours.

In Newport:
1) Coming over the Newport Bridge, take the first exit, Scenic Route. At the second light, bear right. At the seventh set of lights be in left hand lane and go straight up hill: This is Memorial Boulevard. At the second set of lights, take right on to Bellevue Avenue. Take fourth left on to Narragansett Avenue. (The University is on Ochre Point Avenue, the first right. Miley Hall is the brick building on the right.)

2) Coming from Boston and points north and east, take route 138A off route 138. It will be a left at a blinker just beyond the traffic light. At the second light, take a left, Go by First Beach up Memorial Boulevard. Beyond the third street crossing, take a left at the median and then an immediate right on to Annandale Road. Drive to end of Annandale and take a left on to Narragansett Avenue. Take a right on to Ochre Point Avenue. Miley Hall is the building on your right.



Distances to Salve Regina University

Boston	**80 miles**
Fall River	**20 miles**
Providence	**40 miles**
T.F. Green Airport, Warwick	**32 miles**
Westerly	**43 miles**
Hartford	**175 miles**
New York City	**185 miles**

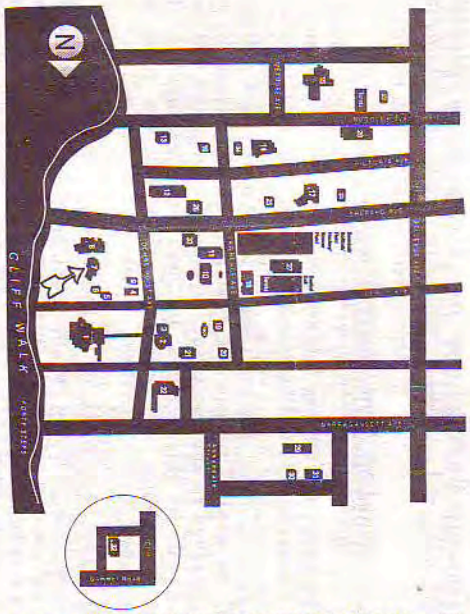
SALVE REGINA UNIVERSITY

Located in the historic seaport of Newport, Salve Regina University is an independent, coeducational institution offering a broad-based undergraduate arts and science curriculum and 16 graduate degree programs. Today, over 2200 students from 40 states and 28 foreign countries attend the University. The distinct advantage of Salve Regina's small comprehensive environment is its rich blending of academic, social and athletic activities aimed at providing students with an atmosphere conducive to individual development. Varsity, club and intramural sports are available for men and women. In addition, the University sponsors an annual lecture series, a monthly music series, and special on-campus weekend activities.

The Mathematical Sciences Department offers programs leading to B.A. and B.S. degrees in Mathematics as well as a joint program leading to a B.A. in Mathematics/B.A. in Secondary Education. The Department also has a graduate program leading to an M.S. degree in Applied Mathematics. The nine faculty members of the Department have investigated and implemented recommendations to improve student learning and retention in mathematics. The Department has incorporated the use of laboratory assignments, graphing calculators and computer software (such as Mathematica© and MATLAB©) not only in the calculus courses but throughout the curriculum.

ACCOMMODATIONS

In addition to the dormitories, lodging in the Newport area is also available at Cliff Walk Manor: (401) 847-1300; Hotel Viking: (800) 556-7126; Howard Johnson's: (800) 446-4650; Seaview Inn: (401) 846-5000; The Comfort Inn: (800) 556-6464; West Main Lodge: (401) 849-2718. Additional lodging is available through the Hospitality Reservation Center: (800) 828-0000.



Legend

1. Ochre Court
2. North Hall
3. South Hall
4. Boathouse
5. Marian Hall
6. McAuley Hall
7. Angelus Hall
8. O'Hare Academic Center
9. Gilmore Academic Center
10. Wakehurst Campus Center
11. McKillop Library
12. Hunt and Reefe Residences
13. Ochre Lodge
14. Founders Hall
15. Gary Mansion/Cecilia Hall
16. Ward-Sheehan House
17. Watts-Sherman House
18. Mercy Hall
19. Maintenance Office
20. Greenhouse/Grounds Office
21. Tobin Hall
22. Miley Hall
23. Seton Hall
24. Bramble Cottage
25. Carnelian Cottage
26. Moore Hall
27. Wetmore-Athletic Department
28. 206 Bugbee
29. Narragansett
30. Narragansett II
31. Narragansett III
32. Conley Hall
33. Manor Center
34. The Hedges

CALL FOR CONTRIBUTED PAPERS

Participants are invited to submit contributed papers for either the Fall or Spring Meeting. We are particularly interested in papers pertaining to teaching, new courses, new techniques and in research you or your students have done relating to classroom material. We encourage you to share your experiences with our colleagues. 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 University, Danbury CT 06810. Telephone (203)-797-4310 or BitNet at SANDIFER@WCSU.CTSTATEU.EDU. The deadline for the Spring Meeting is May 13 and for the Fall Meeting is October 28.

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 room 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 13 to: Joseph C. Witkowski, 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.

ABSTRACTS/SPEAKERS

Courseware for Elementary Linear Algebra

Homer Bechtel, University of New Hampshire

On the first day of Linear Algebra class, I tell students that software, PC-MATLAB, will be used. This talk will describe the administrative and pedagogical issues involved in the successful implementation of the software. The primary thrust will be the design of problem sets that highlight the mathematical theory, making the necessary adjustments to meet the constraints of the software.

Homer Bechtel has been teaching Mathematics at the University of New Hampshire since 1966. For the last nine years, he has focused on the implementation of software as a tool into introductory linear algebra courses. This led to the MAA minicourse at the summer meeting in Boulder in 1989, as well as a three-week NSF supported workshop on computer aided instruction in differential equations and linear algebra at the University of New Hampshire in the summer of 1991.

Geometry in Linear Algebra with MATLAB

David R. Hill, Temple University

We will explore using MATLAB to enhance teaching linear algebra concepts through geometric visualization. Geometric tools include routines for lecture demonstrations, concept explanation, and student exploration and projects. Topics may include row operations geometrically, linear and nonlinear transformations, a geometric view of norms, the principal axis theorem, projections, and the Gram-Schmidt process. No familiarity with MATLAB is assumed.

David R. Hill received his Ph.D. from the University of Pittsburgh. His current interests include instruction with technology in linear algebra and numerical analysis. He has written, published, and lectured extensively about MATLAB for instruction. He was a presenter at the NSF ATLAST workshops in 1992 and 1993 and is involved in the on-going development of an interactive text for linear algebra.

The Rise, Fall, and Possible Transfiguration of Triangle Geometry

Philip J. Davis, Brown University

Triangle Geometry, known a half century ago as College Geometry, had its great days in the early 1900's. Thereafter it declined in importance, but recently has shown signs of a transformed life. The speaker will describe this progression and give his views on the internal mechanisms responsible. An article with the same title will appear in a forthcoming issue of the *American Mathematical Monthly*.

Philip J. Davis is Professor of Applied Mathematics at Brown University. His book, *The Mathematical Experience*, coauthored with Reuben Hersch, won an American Book Award in 1984. He wrote another curious book, *The Thread: A Mathematical Yarn*, a book in which Tschebyscheff's first name plays a key role.

ATLAST: Augmenting the Teaching of Linear Algebra Through the Use of Software Tools

Steve Leon, UMass-Dartmouth

The NSF sponsored ATLAST Project has has a major effect on the way linear algebra is taught at over 200 colleges and universities. During the summers of 1992 and 1993, ATLAST conducted ten faculty workshops with nearly 300 participants from across the United States. Computer exercises designed by the workshop participants will soon be available electronically. A book of *ATLAST Computer Exercises for Linear Algebra* is being compiled and edited by S.J.Leon, Eugene Herman, and Richard Faulkenberry. The book will be published by the Mathematical Association of America and should be available for classroom use in 1995.

The talk will provide an overview of what has been accomplished so far and what is being planned for the future. It will focus on how to design meaningful exercises for Linear Algebra classes and provide a preview of some of the materials developed by the ATLAST participants.

Steven J. Leon received his Ph.D. in Mathematics from Michigan State University in 1971. His specialties are Linear Algebra, Applied Mathematics, and Scientific Computing. His first teaching position was at Weber State

College. He moved to the UMass-Dartmouth in 1979 where he is currently serving as Professor of Mathematics. Dr. Leon is the author of *Linear Algebra with Applications* (MacMillan, 4th Ed., 1994). A Spanish language edition of the book was published in 1993 and an International Edition was published in Singapore in 1990. He is the editor of *IMAGE*, the Bulletin of the International Linear Algebra Society (ILAS) and serves on the ILAS Education Committee. He has also served on the ILAS Board of Directors. Professor Leon is the Project Director of the NSF ATLAST Project. This project has played a major role in reforming the way Linear Algebra is taught.

Student Chapter Session:
Deranged Solitaire-Is It Crazy to Play?
Rochelle Leibowitz, Wheaton College

Deranged Solitaire is defined as follows. Shuffle the deck. Flip the cards over one by one saying the following sequence four times (one card flipped as one word said): ace, deuce, 3, 4,$\cdots$,10, jack, queen, king. A match occurs when the face value of the card flipped coincides with the word just said. A win occurs when there is NO match after flipping all 52 cards. What is the probability of winning deranged solitaire? We answer this question and also answer the question for a generalized deck with n cards and f face values.

Rochelle Leibowitz received her Ph.D. in mathematics from Rutgers University in 1978. She has been Chair of the Mathematics Department at Wheaton College for the last eight years. Her research interests include graph theory and mathematics education. Currently, she is working on using graph theory to analyze the efficiency of clinical testing algorithms in psychophysics.

Special Matrices and Random Matrices
Gilbert Strang, Massachusetts Institute of Technology

Random Matrices, especially with entries of 0 or 1, bring out in a neat way the central ideas of linear algebra. What is the probability that they are invertible? What is their average determinant? Students (and faculty too) enjoy testing these by experiment, which is often the only way.

Gilbert Strang's teaching at Massachusetts Institute of Technology has lead to textbooks on linear algebra, calculus, and applied mathematics. His new text, *Introduction to Linear Algebra*, presents theory and also applications to a wide range of students in the basic course. He is SIAM's Vice-President for Education and on two MAA committees, CUPM and Science Policy, that encourage good teaching and learning.

ALLEGHENY MOUNTAIN SECTION SHORT COURSE

This course will be held June 13-17, 1994 at Allegheny College and will be given by William Dunham of Muhlenberg College. This five-day workshop examines a collection of significant theorems from a 250 year span in the history of mathematics, from Newton through Cantor. Course registration will be $120 and room and board will also be $120 for a total of $240. For further information and an application, contact George Bradley, Department of Mathematics and Computer Science, Duquesne University, Pittsburgh PA 15282. Telephone: (412) 396-5115 e-mail BRADLEY@DUQ3.DUQ.EDU.

SUMMARY OF RESPONSIBILITIES OF MAA DEPARTMENTAL REPRESENTATIVES

I. Communicate to all department members at specific institutions, by any method(s) most efficient at that institution, ALL INFORMATION in the MAA/NES *Newsletter* for each Section Meeting and other Section mailings regarding minicourses, short courses, dinner meetings, etc. which are sent to Section members ONLY: e.g. meeting dates, deadlines for submission of papers, notes from the Chair and the Local Arrangements Coordinator about motel accommodations and special rates/dates, etc.

II. Actively recruit nominations of particularly successful teachers at the specific institution to be candidates for the Section *Award for Distinguished College or University Teaching of Mathematics*. Advise and assist with the preparation of application materials, making sure that adequate documentation of teaching effectiveness (as distinct from scholarship and/or service) is presented in the application, and that materials reach the Section by the date designated on the application.

III. Solicit input from members of the institution's department for ways in which Section activities and programs at meetings could be planned so as to provide assistance with promoting continued mathematical learning for their student population and to encourage greater participation by their faculty in the MAA section meetings.

IV. Be responsible to devise and implement a distribution method appropriate to the specific department's situation for *Math Horizons*, the new MAA student publication.

V. Be the primary liaison between the national MAA Headquarters and the department represented and, as such, act as a conduit for information.

UNIVERSITY OF HARTFORD WORKSHOPS

There will be three workshops at the University of Hartford this summer. These workshops are sponsored by the National Science Foundation and are open to teachers of mathematics at two and four year colleges. The purpose of these workshops is to show instructors how to use technology to solve real life problems using laboratory type assignments in the mathematics courses usually taught in the first two years. There will be an emphasis on how technology can be threaded through these courses starting with College Algebra and continuing through Differential Equations.

Each workshop will be one week long; lunch is provided each day and each participant will receive a $200 stipend per week. The dates of the workshop are:
June 13-17: Differential Equations and Calculus of Several Variables
June 20-24: Calculus of One Variable
June 27-July 1: College Algebra and Pre-Calculus.

The deadline for application has been extended to May 15th. For more information and an application form, contact: John Williams, Mathematics Department, University of Hartford, West Hartford CT 06117. Telephone: (203) 768-4825.

ALUMNI SURVEY SHOWS "MATH MAJORS DO IT ALL"

What do mathematics majors do? Many of us are faced with that question when potential mathematics majors (or their parents) appear in our offices during the course of a year. One of the stock answers I've used, and that I know is a favorite among my colleagues, is to say that learning mathematics opens the door for all kinds of careers. We love to emphasize that we are teaching people skills that extend to problems not seen in undergraduate textbooks.

But since most of us are mathematics teachers who've spent almost all of our professional lives in academia, it's hard for us to be sure that we're right when we paint this rosy picture for students. This was one of the many reasons that I conducted a survey of St. Michael's College mathematics majors from the classes of 1982 to 1992. I wanted to find out what our young alumni were up to, and to see if I'd told them the truth when they were faced with the choice of a major.

First, a few facts and figures: We had 72 mathematics majors in these 11 graduating classes. I later realized that this missed some students who were double majors and had the other major listed first. I hope to follow up with these students, some of our best, soon. I've received 37 responses so far and the results have been astounding:

- Sixteen had completed a Master's or professional degree program since graduation, another three were in the process of applying.

- These graduate programs were in eleven different fields of study, namely Aeronautical Engineering, Business (MBA), Finance, Computer Science, Pharmacy, Optometry, Education, Counseling, Mathematics, Operations Research, and Nutrition.

- Ten other graduates had continuing education with "in-house" programs at their employers or preparing for actuarial exams.

- There was nearly unanimous agreement among the students that they had chosen the right major. Those who were ambivalent wished they had chosen a more technical field such as computer science or engineering.

- A vast majority (32 of 37) also thought that their liberal arts courses were important either professionally or personally.

The jobs held by our graduates were as varied and as interesting as the graduate education choices. Many were in what we would consider standard employers of mathematicians (insurance, federal government, teaching and programming jobs) but others were widely scattered. Some of our most successful graduates were good, but not outstanding as students. While most of our students had remained in the Northeast, we got responses from Wyoming, California and Germany.

These surveys confirmed my hope that our mathematics majors were, in fact, thriving professionally in many different fields. Many of those who had been to graduate school in areas outside of mathematics commented that their mathematics skills made their programs much easier for them than for their fellow students. I would encourage other schools to do some similar

research. It took very little effort (my work study student did all the hard parts) and was very rewarding. Our graduates really seemed to like getting mail from their alma mater that wasn't from the development office, and were very helpful.

Feel free to contact me if you'd like a copy of our survey questions, or for more information: Rick Cleary, Mathematics Department, St. Michael's College, Colchester VT 05439, Telephone (802) 654-2510, e-mail CLEARY@SMCVAX.SMCVT.EDU

DINNER MEETINGS: SPRING 1994

This spring the third annual round of NES/MAA Regional Dinner Meetings is being held. Shown below is a list of those meetings which are scheduled:

Western Massachusetts Region (4/5): Alan Gorfin, Western New England College, coordinator
Speaker: David Kelly, Hampshire College, *The Mathematical and Social History of 17.*

New Hampshire Region (4/6): Larry Braden, St. Paul's School, coordinator
Speaker: Lee Zia, University of New Hampshire, *Introduction to Wavelets.*

Vermont Region (4/6): Rick Cleary, St. Michael's College, coordinator
Speaker: Marge Petit, Vermont Institute for Science and Technology, *What College Faculty Should Know About Vermont's Math Portfolios.*

Connecticut Region (4/13): Ernest C. Schlesinger, Connecticut College, coordinator
Speaker: Edward B. Burger, Williams College, *How to Divide and Conquer the Real Numbers.*

Rhode Island Region (4/28): Barry Schiller, Rhode Island College, coordinator
Speaker: James J. Kaput, UMass-Dartmouth, *Research in Calculus Learning and the Mathematics of Change.*

We are planning now for another series of such meetings for the spring of 1995. If you are interested in serving as a coordinator (especially if your region was not represented for Spring 1994) or in assisting a coordinator please contact Judy Carter, Regional Dinner Meetings Coordinator, Department of Mathematics, North Shore Community College, Danvers MA 01923, (508) 762-4000 x6664.

NES/MAA MINICOURSE

The Fourth Annual Northeastern Section Minicourse *Teaching the Introductory Statistics Course* is being held at The College of the Holy Cross on Saturday, April 9, 1994. The presenters are Robin H. Lock of St. Lawrence University and Richard J. Cleary of St. Michael's College. David Damiano of The College of the Holy Cross is in charge of local arrangements.

FALL 1994 MEETING

Planning is well underway for the upcoming Fall Meeting to be held at the University of Hartford. Local Arrangements are being chaired by Cecilia Welna. The Program Committee consists of Yuangian Chen and Jeffrey McGowan of Central Connecticut State University (Co-Chairs), Steve Krevisky of Middlesex Technical Community College; and Mark Turpin of the University of Hartford.

The theme for this meeting is *Mathematics for the Millennium* and a tentative speaker list includes William Derrick of the University of Montana (*Environmental Modeling*), June Ellis of the Hartford Alliance for Mathematics and Science Education (*Re-writing 9-12 Curriculum),* Steve Krevisky of Middlesex Technical Community College (*Baseball Statistics),* Anne Noonberg of the University of Hartford (*Engineering Mathematics)* and Alan Taylor of Union College (*The Mathematics of Political Science*).

EDITOR'S MESSAGE

Wednesday, September 14, 1994 is the date when all information for the *Fall Newsletter* must be received by the editor (address on inside front cover). If your material could come to me on an IBM compatible floppy disk as an ASCII file, along with a hard copy, that would be very much appreciated. Thanks to Dennis Luciano, Clayton Dodge and Laura Kelleher for using this format!

A question that I have gotten on several occasions is "how much editing do you really do?" My reply is usually "not much". Let me elaborate on this just a little. Most of what is sent to me is only in need of retyping, unless, of course, it arrives in the above suggested format in which case all I have to do is format it. Many of the minor changes that I make are in an attempt to be consistent: for example, several contributors to this issue refer to MATLAB, Matlab and MatLab; I chose to use the form MATLAB throughout this issue.

There are, however, (at least) two items with which I have a personal hangup: (1) Inspired by a letter which appeared in the *American Mathematical Monthly* (April, 1990, page 313) by Professor R.E. Worth of Georgia State University, I use the word "mathematics" as opposed to "math" except in cases where it is used very informally (e.g. "math majors") or is dictated by the context (e.g. *Math Horizons*, a choice of title I find upsetting for such an otherwise fine publication); (2) Having been brought to task for failing to do such in the past, I try to ensure that Diannnnne Haber's first name appears with a minimum of two occurrences of the fourteenth letter of the alphabet.

Many thanks to all the contributors to this issue for their timely and well written input. A special thanks to Rick Cleary of St. Michael's College for presenting his very interesting article *Alumni Survey Shows "Math Majors Do It All"* which appears on pages 20-21. This article tells us the various careers that recent graduates, who majored in mathematics at St. Michael's College, have gone on to pursue. I would also like to thank C. J. O'Donnell (Massachusetts Maritime Academy) and Ellen Lewis for their assistance in our last few bulk mailings, Dicken's Press of Wareham MA (508-295-0505) for the splendid job they do in printing this *Newsletter* and our other mailings, and Laura L. Kelleher (Massachusetts Maritime Academy) for her assistance in the preparation and mailing of such.

SPECIAL INTERDISCIPLINARY EVENT: MATHEMATICAL ASPECTS OF THE MUSIC OF BACH

The Northeastern Section of the Mathematical Association of America and the Departments of Mathematics and Music at Regis College are pleased to announce that the multi-media event *Mathematical Aspects of the Music of Bach* will be presented by Victor E. Hill IV on Friday evening, October 21, 1994. This event will take at 8:00 p.m. in the Fine Arts Center at Regis College, Weston Massachusetts.

Many people think that mathematics and music have some vague sort of affinity, but most often the supposed relationship between the two fields turns out to be in details that are not central to either. In contrast, Victor E. Hill IV explores in this lecture his own experience, as a professional in both fields, of how the mathematical concept of a four-dimensional cube relates to the structure of Bach's fugues. These ideas lead him to a characterization of "elegance" in mathematical proofs and in Bach's music. The talk includes a nine-minute computer-generated film, a painting by Salvadore Dali, and musical examples. No technical background in either mathematics or music is assumed.

Victor E. Hill IV holds an endowed chair as the Thomas T. Read Professor of Mathematics at Williams College, where he is also Harpsichordist/Organist. He serves as Organist-Choirmaster of St. John's Episcopal Church in Williamstown, and as Archivist of the Association of Anglican Musicians. His principal mathematical interests are in group representation theory and in history of mathematics. He is the author of *Groups, Representations, and Characters* (MacMillan, 1976) and *Groups and Characters* (forthcoming); he has also published scholarly articles in both mathematics and music. His multi-media lecture-recital *Mathematical Aspects of the Music of Bach* has been given throughout the country.

Plan to attend this exciting event by completing and returning the form below. Note that ticket prices are lower for those who purchase tickets in advance.

MATHEMATICAL ASPECTS OF THE MUSIC OF BACH

OCTOBER 21, 1994 FRIDAY 8:00 P.M. REGIS COLLEGE

Mail Form to: Sr. Claire Archambault, Department of Mathematics, Regis College, Weston MA 02193

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

Name:_____

Address:_____

City, State, Zip:_____

Tickets:

_____ $10.00 (by mail, received by October 14; will be $15.00 at the door)

_____ $ 5.00 (students)

$ _____ TOTAL ENCLOSED

THE NORTHEASTERN SECTION OF THE
MATHEMATICAL ASSOCIATION OF AMERICA

AND

THE DEPARTMENTS OF
MATHEMATICS AND MUSIC
OF REGIS COLLEGE

ARE PLEASED TO PRESENT

MATHEMATICAL ASPECTS OF THE MUSIC OF BACH

VICTOR E. HILL IV
THOMAS T. READ PROFESSOR OF MATHEMATICS
WILLIAMS COLLEGE

FRIDAY, OCTOBER 21, 1994

REGIS COLLEGE, WESTON MASSACHUSETTS

See the other side of this page for further information!

PRE-REGISTRATION FORM

SPRING MEETING OF THE NORTHEASTERN SECTION-MAA

JUNE 3-4, 1994 **SALVE REGINA UNIVERSITY**

Mail Registration Form to: William Stout
Department of Mathematics
Salve Regina University
Newport RI 02840-4192

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 preregistration fees. In any case, meals and housing cannot be guaranteed unless reservations are received by Friday, May 20, 1994. 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:

Dinner 6:00 p. m. Friday: Number ( ) x $17.00 $_____
Breakfast 7:00-9:00 a.m. Saturday: Number ( ) x $4.50 $_____
Luncheon 12:30 p. m. Saturday: Number ( ) x $7.50 $_____

LODGING:

Miley Hall: $25.00 (single) $31.00 (double) $_____

TOTAL: $_____

Northeastern Section MAA
Department of Basic Science
Massachusetts Maritime Academy
101 Academy Drive, Buzzards Bay MA 02532–3400

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