NORTHEASTERN SECTION

NEWSLETTER

SPRING 1999

Volume 21 **Number 1**

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NORTHEASTERN SECTION
MATHEMATICAL ASSOCIATION OF AMERICA

FUTURE SECTION MEETINGS

June 11-12, 1999: Colby College, Waterville ME
(NOTE DATE. IT IS NOT THE USUAL WEEKEND.)
Local Arrangements:
Fernando Q Gouvea
Program Committee:
Philip S. Blau, Boston University, co-chair
Sarah Mabrouk, Boston University, co-chair

November 19-20, 1999: Bradford College, Haverhill, MA
Local Arrangements:
Martha Boles

OTHER SECTION ACTIVITIES

Regional Dinner Meetings: Spring 1999
Co-ordinator:
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Awards: NES/MAA Award for Distinguished Teaching: See page 8

Web page: access it via http:/www.maa.org or directly with
http://scsu.ctstateu.edu/~maa_nes/main.html
webmaster:
Ross Gingrich, Southern Connecticut State University
gingrich@scsu.ctstateu.edu.

Chair's Message

As I write this, it is snowing but my mind is on June in Maine and my memories are of San Antonio in January. The Joint meetings in January were wonderful. We had temperatures in the 70's. We had dramatic performances on the life of Lewis Carroll and mathematical explanations of different methods of piano/harpsichord tuning. Our Section was well-represented with Tom Banchoff taking over as MAA President at the end of the meeting, Jim Tattersall making sure the whole thing ran smoothly, and Bob Case continuing our string of national distinguished teacher awards. Mike Rosen of Brown also was on the prize stage for distinguished writing and Serge Lang of Yale received another of his string of awards. My newsletter co-editor was a co-organizer of an MAA session on Geometry that ran thru three different time periods and was well-attended and lively. Donna Beers and Mary Platt gave me the lead for our Spring Mini-course. Ed Sandifer, Frank Battles, and Laura Kelleher helped me represent the Section at the Officer's meeting and we did our best to invite everybody to Providence in July for Mathfest. There were many others from the Section in San Antonio. Read Dennis Luciano's report on page 5. My point is that if you have never been to a national meeting of the MAA, you have to come to Providence on July 30th. Preliminary information is on page 20. Our section has three distinguished teacher award winners speaking and all three of them won national distinguished teacher awards. (See page 19.) But before Mathfest, come to Maine in June for the Section meeting at Colby. Sarah Mabrouk and Phil Blau have planned a lively meeting and Fernando Gouvea has arranged for our comfort during the stay. The program starts on page 10 and hotel and local directions start on page 27 As usual, Ed Sandifer, Ockie Johnson, and Ross Gingrich have their usual pleas for speakers or information. See pages 17 and 18. Finally, after all the excitement of the Spring and Summer, come back to Providence in October for the eastern Sectional meeting of the AMS at Providence College.

The Distinguished Teaching Award will be presented at the Section banquet in June This year's recipient is Prof. Charles I. Vinsonhaler of the University of Connecticut. Read the comments on him on page 7. Ed Sandifer is the chair of the committee to select this year's distinguished teacher. His request for nominations on the next page.

Kathy Bevelas has given us lots of information about AMATYC and NCTM affiliates' happenings. See page 9.

Also, check out the article on "Good Will Hunting" on page 18. I got it from Colby's departmental newsletter and browse Colby's site for more..

Distinguished Teaching Award Nominations Due

Ed Sandifer (sandifer@wcsub.ctstateu.edu), chair of the committee to choose the Section's award winner, asks that preliminary nominations be sent to him by October 1, 1999. Nominators will receive a packet and be asked for additional information by November 1. Candidates should be known as outstanding teachers on their own campuses and their influence should extend to the broader mathematical community. The files of nominated candidates remain open in future years.

From the Co-Editors

NORTHEAST MAA NEWSLETTER 20 YEARS OLD

This is our newsletter's 20th anniversary. For those of you old enough to have memories of 1979, try to remember if you received Volume 1 Number 1 of the Northeast Section Newsletter then! We note Dorothy Meserve, who had retired from Johnson State College and who taught part time at U Vermont, was editor of this first issue, Don Small (then of Colby) was Section "Chairman", Roger Cooke (U Vermont) was Vice-Chair and Don Kreider (Dartmouth) was Governor. Notice that none of these people resided south of the northern Massachusetts' border. That might explain why the next meeting was to be held in June at U Maine-Orono. We note with nostalgia that the registration fee was only $2, dorm rooms were $9.50, and a "hearty" lunch was promised for $5. Speakers on the program included Stanley Bezuszka (Boston College) on number theory for non-math majors and Jean Smith (Middlesex Community College) on math anxiety - perhaps we can still use advice on these topics. There was also an announcement of a June short-course at Orono to be given by Maynard Thompson of Indiana University on Applications of Mathematics in Medicine and Biology, a topic that would also fit the April 1999 Math Awareness theme of math in the life sciences.

We called Dorothy Meserve at her retirement home in Arizona to ask her about those early days. For those who knew her, rest assured that she sounded lively. I can only presume that she was an energetic newsletter editor. She said that Don Small wanted to have a newsletter and she volunteered to do it. Her husband was between books at that time and she didn't have to do her usual typing and proofreading. In case you don't know, her husband, Bruce, is a professor emeritus from the University of Vermont and has written thirty-six

books. She said that the newsletter started as a way to spread information about the Sectional meetings. The information was not getting to the membership. She said that it was a "nightmare" getting people to send in information by deadline. She had to "haunt" people. She arranged a bulk mailing permit from her small town in Vermont with the help of a friendly postmaster. She didn't have the advantages we have. She used a selectric typewriter, not the wordprocessor we use, and she had to use the phone to get people, not the e-mail we use.

We also called Don Small, who is now at West Point. He said that he wanted a newsletter because the Northeastern Section is large both geographically and numerically and the officers needed a way to get more participation at meetings and to get more people involved. He remembers that there was an annual Fall meeting but the Spring meeting was every other year. The only other activity the Section did was the Short course at Orono and that had just started. He felt the newsletter would get more people involved and produce more activity.

There is one person whose name appears in this newsletter and in the first issue. In Spring 1979, Jim Ward was recorded as chair of the nominating committee and listed as giving a talk on "Vector Spaces of Magic Squares." This time, he is sending us news from Bowdoin and asking for advice. See page 22.

One of the enjoyments of this job is reading newsletters from other sections. Some are extensive and some are minimal. Most have messages from the governor and the chair. It is very instructive to hear the same officers' meeting or the same governors' meeting at the national meetings described by different people from all over the country. Our Governor gives one of the best descriptions. Please let the co-editors know if you would like to browse through back issues of our sections's newsletters.

MILLENIUM CONTEST

The co-editors challenge the membership to come up with an appropriate mathematical "top ten list" that marks the coming change of millennia. You need not be as creative as David Letterman. You don't even have to stick to the number ten although we will not read any list of the top 1000 theorems of the millennia. We'd especially like to get lists from student Math clubs or MAA chapters or classes in the history of mathematics. We will print appropriate responses in future newsletters.

Governor's Message

Our two professional mathematics associations, the AMS and MAA, again selected a great site for the joint meetings this past January. Of course it was easy to do, since San Antonio has been one of their regular sites for quite some time. This happened to be my third visit to the home of the Alamo. It was refreshing to leave the frigid climes of the northeast for sunny skies and temperatures in the 60's. I wish I could tell you something about the meetings, but between my Governor's responsibilities and the interviewing I conducted for the two open positions in our department, there was little time to take advantage of the great program and event schedule. Next year will certainly be different.

As you may know, the MAA Summer MathFest will be held in Providence from July 31 to August 2, 1999. Keynote speakers were announced at the Governor's meeting, and the list is spectacular. The details can be found in this Newsletter and an upcoming issue of FOCUS. Please give attention to this event since I am confident that it will prove to be one that will make our section most proud. I hope that the members of our section will show their support for the MAA by attending this special meeting in large numbers. The overall program and special activities planned will make this a meeting that surely should not be missed. I look forward to seeing lots of my northeastern colleagues there.

Given the services of MAA online and FOCUS publications, I find that it is less and less necessary to report on the national activities that I hear about at the semi-annual Board of Governor's Meetings. In fact, my coverage simply cannot match what is already being communicated. Hence, I will report on only the key themes that I am aware of. In San Antonio, the Board of Governors spent considerable time discussing the membership situation of the MAA. The overall individual membership in the MAA has been in steady decline during the mid to late 90's. It appears that the increase in new membership is not keeping pace with the number of memberships that are not being renewed annually, typically through retirement or what one might call lack of use. The leadership of the MAA is obviously concerned. Are the services of the MAA simply not attractive to young mathematicians or is the character of our new Ph.D.'s one that places less importance on professional affiliations? There has not been enough data collected to draw any reasonable conclusions at this time. The MAA individual membership is about 26,600, while the AMS is only slightly higher at about 27,000. They, of course, are

experiencing the same ill-effects that we are. Lots of suggestions have been made to help to turn the tide of decline. I hope our organization will be successful in its efforts. I sense we must do a better job of making the MAA more attractive to High School teachers, to professors at two-year colleges, and possibly to our international colleagues, although the latter may be not cost effective.

Of course each MAA section can help this cause. Some of the things that our section might want to consider toward this goal could be: encourage the appointed MAA representatives at our institutions to discuss the merits of MAA membership to their non-member colleagues; create PROJECT NExT-like programs for young mathematicians entering our section (more than eight sections have done this and MAA start-up funds are available); create a category for institutional membership in our section; add a session on contributed papers from high school teachers to our semi-annual section meetings. Exactly what do we need to do to increase the membership in the Northeastern Section? Simply put, how do we attract new members while still embracing the goals that the MAA sets forth?

In my fall Governor's Message I wrote about the current job market conditions for mathematicians in academia. I would like to end this message by summarizing the experience that we had this year. Our department (MATH/CS) had two open positions: one in mathematics, no specialization required, and the other in computer science. The application deadline was December 4th for the mathematics position and February 14th for the computer science position. We received 230 applications for the former and only 30 for the latter. Certainly not a surprise to anyone, but then again the numbers in the math search are down significantly from three years ago when we last searched for a mathematician. The numbers are not due to fewer new doctoral recipients. In fact, during the 1997-98 academic year there were 1216 such recipients, the highest since 1993-94. I guess applicants are heeding our advice by being more selective in their application process. Nevertheless the unemployment rate for new doctoral recipients did not significantly change last year (7%). The good news is that the number of positions in academia held by new recipients increased by 10.7% compared to the prior reporting year. The increase was primarily due to more opportunities in non-doctoral degree granting departments. Interestingly, the percentage of U.S. citizen degree recipients obtaining positions in U.S. doctoral degree granting departments (19.5%) is lower than the percentage for non-U.S. citizens (24.0%). However in the non-doctoral granting departments, the percentages are 35.4%

and 15.9%, respectively. Is anyone surprised by this?

The Employment Register at the national meetings in San Antonio had three different venues for interviewing, an excellent system from my perspective. We had five department faculty members doing the interviewing and collectively met with 63 mathematics candidates and 8 computer science candidates, which is precisely why I was unable to do anything other than interviewing while in San Antonio. The mood of the candidates is clearly changing. We saw a lot of happy, smiling job seekers. There were a number of small colleges from the northeast recruiting there; in fact, more than I can ever remember. It will probably be a mistake to try to list them here, but why not live dangerously: Western New England College, Fairfield University, Providence College, Southern Connecticut State University, Connecticut College, Keene State, Merimack College, Hamilton College, Trinity College. (about 45%).

I look forward to seeing those of you that I know and those that I hope to meet at the Spring NES-MAA Meeting at Colby College and, of course, in Providence for the MathFest.

Respectfully,
Dennis M. Luciano, Governor, NES-MAA

Professor Charles Vinsonhaler wins Distinguished Teaching Award

Prof. Charles I. Vinsonhaler of the University of Connecticut is the Northeastern Section winner of the 1999 Award for Distinguished University Teaching of Mathematics. Rick Cleary, who chaired the committee that chose Prof. Vinsonhaler, wrote that Jim Hurley, the nominator, did an excellent job presenting the case for Vinsonhaler. The committee was impressed that Vinsonhaler learns every student's name in a class of 300, that he started UConn's highly successful actuarial program, and that he is extremely patient with non-majors. Here are two quotes from the supporting material:

> " His concern is not just for the best math majors, who are almost all in the actuarial science program Chuck started. He has devoted years of effort to a problem solving course for the mathematically weaker students."
>
> ...PJ McKenna, Prof., Math, UConn

" ...Chuck's students that we have hired at The Travelers, as well as students working for other companies, are experiencing tremendous success and are emerging as future leaders in the actuarial profession."

... Charles N. Vest, UConn '82,
The Travelers Insurance, Hartford.

We asked Professor Jim Hurley, the nominator, to say a few words about Professor Vinsonhaler. Her is what he had to say:

"In thinking of outstanding teachers, our own experience as students shapes the process. Many of us trace the attractiveness of mathematics as a career to inspiration from an instructor with an eye- and mind-opening ability to bring the subject alive. That's as it should be, for since at least the time of Buddha, Confucius, Socrates and Jesus, the legacy of great teachers has come from their capacity to inspire disciples.

"One of the great benefits of the calculus-reform movement has been the opportunity it has offered mature professors of mathematics to work closely with colleagues, and in so doing to see first-hand some truly inspirational teachers at work. Such experience inspired me to nominate Chuck Vinsonhaler first for the honor of University Teaching Fellow at UConn and then for the MAA Distinguished University Teaching Award. As PI on our two calculus reform projects, I saw my long-standing admiration for Chuck's gifts as a seminar expositor broaden into appreciation of his remarkable skills in all aspects of teaching. From working with him on group projects, to sitting around a table analyzing the results of an experiment, to seeing both faculty and TA's seizing on imaginative approaches as soon as he described them, it was impossible not to take note of Chuck's mastery of the teaching process.

"The same dedication and drive that created our Actuarial Science Program---and guided it from nascence to stature as one of the nation's premier centers for actuarial teaching, learning and research---permeates all of Chuck's teaching.

Watching him interact with colleagues in seminars, faculty and TA's discussing calculus, high-school teachers, and students, one sees at every level an uncanny knack for stimulating excitement---and eliciting everyone's best efforts. In combination with his apparently boundless energy and skill in managing multiple projects simultaneously at the highest level of quality, it is easy to see why his unique talents have had such wide-ranging effect. The challenge in nominating Chuck was to try to paint in the few pages available an accurate picture of that enormous impact in the lives of so many students and colleagues."

From the Two-Year Colleges

MATYCONN is co-sponsoring (with PIMMS) the following workshop on June 24-30, 1999. Class Time is 8:30-3:30. The cost of the workshop is $275.
Teaching Chaos and Fractals Using Technology Grades 11 - 16
Gateway Community Technical College, North Haven
This workshop will focus on an introduction to the basic ideas of chaos, the fundamental definition of chaos and applications of chaotic behavior in the real world. Participants will explore chaotic behavior as it relates to population dynamics, weather pattern models, satellite motion, and studies of heart and brain functions through EKG and EEG scans. Other topics will include families of one-dimensional functions (including the logistic family), bifurcation diagrams, and iterative processes for developing fractals. Computers and graphing calculators will be used throughout the workshop. Participants should be familiar with use of a graphing calculator. Each participant will receive a TI-89 calculator, computer software, a copy of *Fractals for the Classroom: Strategic Activities*, Vol. 2 (NCTM), and other instructional material. The course will be taught by Denny Gulick of the University of Maryland (College Park) and Jon Scott of Montgomery College, Takoma Park, MD. Gulick is the author of 'Encounters with Chaos' and other university texts. Scott is a member of the Board of Governors of MAA.

More information and an application can be found at www.wesleyan.edu/pimms.

NORTHEASTERN SECTION OF THE MAA
SPRING MEETING: June 11 -12, 1999
COLBY COLLEGE, WATERVILLE, ME
THEME: Mathematics Education

Program committee
Sarah Mabrouk (Boston University), Co-chair
Phil Blau (Boston University), Co-chair
Kathy Bevelas (Manchester Community College)
Fernando Gouvea (Colby College)
Ed Sandifer (Western Connecticut State University)

Local Arrangements
Fernando Gouvea (Colby College)

Friday, June 11, 1999

2:00 - 6:00 p.m.	Registration
2:00 - 3:00 p.m.	Executive Committee Meeting
3:00 - 3:50 p.m.	**The Not-So -Golden Rule** George Markowsky, University of Maine
3:00 - 3:50 p.m.	Student Papers
4:00 - 6:00 p.m.	Student Posters
4:00 - 4:50 p.m.	**How I (Almost) Became a Millionaire or Why Didn't I Really Learn Those Elementary Functions** Kathy Bavelas, Manchester Community College
5:00 - 5:50 p.m.	**Active Learning - High-Tech and Low, In-Class and Out** Murray Eisenberg, University of Mass., Amherst
6:00 - 6:40 p.m.	Reception
6:45 - 8:00 p.m.	Dinner
8:00 - 8:10 p.m.	Opening Remarks
8:10 - 9:00 p.m.	**Second Battles Lecture:** **Chaos, Fractals, and the Internet** Robert L. Devaney, Boston University

Saturday, June 12, 1999

8:00 - Noon	Registration
8:00 - 8:50 a.m.	Future Colleagues
8:00 - 12:00 p.m.	Student Posters
9:00 - 9:50 p.m.	**Mathematics Across the Curriculum** Jerry Johnson, University of Nevada, Reno
10:00 - 10:30 a.m.	Break
10:30 - 11:20 a.m.	**Meaning and Formalism in Mathematics** Ed Dubinsky, Georgia State University
11:30 - 12:00 p.m.	Business Meeting
12:00 p.m. - 1:00 p.m.	Lunch
1:00 - 1:50 p.m.	**Waking Them Up: Three Tried and True Ways to Spice up a Lecture** Sandy Rhodes, Keene State College
2:00 - 2:50 p.m.	Bob Case **Interactive Learning**
3:00 - 3:50 p.m.	Contributed Papers

Descriptions of talks and Biographies of Presenters

Friday, June 11, 1999
George Markowsky

Title: The Not-So Golden Ratio
The golden raio, also called the golden section or the golden number, has captured the popular imagination and is discussed in many books and articles. Generally, its mathematical properties are correctly stated, but much of what is presented about it in art, architecture, literature, and esthetics is false or seriously misleading. Unfortunately, these statements about the golden ratio have achieved the status of common knowledge and are widely repeated. Even current high school geometry textbooks make many incorrect statements about the golden ratio. This talk discusses some of the most commonly repeated misconceptions and sets the record straight.

Biographical Information:
George Markowsky received his BA in mathematics from Columbia University and his MA and PhD in mathematics from Harvard University. From 1974 to 1984 he worked at IBM's Thomas J. Watson Research Center. Since 1984 he has

been at the University of Maine and is currently the Chair of the Computer Science Department. His primary mathematical interests are lattice theory, discrete mathematics and the applications of computers to mathematical problems. He became interested in the golden ratio as a result of preparing a talk on the subject for the Classics Club at the University of Maine.

Kathy Bavelas

Title: How I (Almost) Became a Multimillionaire or Why Didn't I Really Learn Those Elementary Functions

This workshop will ask participants to play the role of students in a pre-calculus or calculus I (review of elementary functions at the beginning of the course). Students (in a group setting) will try to outfox the crotchety old lady and take her for her millions. The little old lady, however, was a mathematics teacher before retiring, so getting her millions won't be easy. Please bring your graphing calculators. After role playing the activity, we will discuss various possible extensions and how, if students had applied of the Rule of Four as well as good problem-solving strategies all groups could have become millionaires.

Biographical Information:

Kathy Bavelas received her BA from University of Connecticut, her MS from Central Connecticut State University, and her MALS from Wesleyan University. Her recent honors include Who's Who In American Education, Who's Who Among of America's Teachers (1998), Distinguished Professor in Residence at the CT Academy for Education in Mathematics, Science, and Technology, CT Academy for Education Fellow, MCTC Teaching Excellence and Distinguished Service Award, PIMMS (Project to Increase Mastery in Mathematics and Science) Fellow and the 1995 MCTC Women's Leadership Award. She has served as secretary, vice-president, president, and past president for the Mathematics Association of Two Year Colleges in Connecticut. She is active in the NES-MAA, serving as the two year college representative, being a member of the program committee for the Fall 1997 Section meeting and the Spring 1998 Section meeting. For the past 6 years, she has spent her summers writing and providing professional development for the field test teachers for Math Connections, A Secondary Core Curriculum Project which is now being published by Its About Time.

Murray Eisenberg

Title: Active Learning—High-Tech and Low, in-class and out

"Active learning" connotes a variety of instructional strategies and techniques that may be used in place of, or in addition to, conventional lectures. We present a number of examples of active learning approaches and activities from freshman and sophomore calculus, linear algebra, and differential equations. These range from out-of-class multi-week projects that involve computer programming to brief individual or shared problem-solving exercises during class that use nothing other than paper and pencil. The discussion will touch upon rationales for such activities as well as related issues of educational goals, consonance of active learning with instructor's attitudes and experience, and the ideal classroom/lab physical environment. Our evaluation of these activities' effectiveness has been largely informal, owing primarily to small class sizes, and so the presentation will include anecdotal evidence of the impact the activities have had on students and instructor alike. There will be opportunity for interchange with the audience.

Biographical Information:

Murray Eisenberg is Professor of Mathematics and Statistics at the University of Massachusetts, Amherst, where he has taught since 1965. His principal mathematical interest is the topology of dynamical systems. He has published articles on topological dynamics, topology, the APL and J programming languages, and the use of computing in teaching math. He has made conference presentations about and conducted workshops on the *Mathematica* software package. He is the author of three undergraduate texts: "Axiomatic Theory of Sets and Classes", "Topology", and "The Mathematical Method". Murray has been using computers to teach mathematics for over twenty years. He has been an implementer of Wattenberg's "Calculus in a Real and Complex World" reform curriculum and its sophomore sequel on multivariate calculus, linear algebra, and differential equations. Recently he has been a participant in a multi-institution project to bring active learning to introductory college science and math courses.

Robert L. Devaney

Title: Chaos, Fractals, and the Internet

We will describe some of the "chaos games" and "fractal movies" that we use with students from sixth grade through graduate school. The goal of the games and

movies is to help students understand the geometry of affine transformations. We will also describe some of the related tools available over the Internet.

Biographical Information:
Professor Robert L. Devaney received his BA from Holy Cross College and his PhD from the University of California, Berkeley. He taught at Northwestern, Tufts, and the University of Maryland before coming to Boston Univeristy in 1980. His research area is Dynamical Systems. He is also director of the NSF sponsored Dynamical Systems and Technology Project at BU.

Saturday, June 12, 1999
Jerry Johnson

Title: Mathematics Across the Curriculum
Mathematics Across the Curriculum is an NSF-funded program (DUE 9354652) whose aim is to improve the quantitative literacy of students and promote their appreciation of mathematics by integrating quantitative components into a variety of courses in the university curriculum. It was conceived at the University of Nevada, Reno along the lines of a successful "Writing Across the Curriculum" model. Our goal is to enhance the quantitative content of courses where it exists and introduce it where it does not, thereby increasing students' exposure to applications of mathematics in a variety of courses and making quantitative learning a shared responsibility across campus. In particular we will describe quantitative components we have implemented in political science, humanities, anthropology, psychology, and art, among others. We will also discuss a mathematics competency testing program for economics, nursing, and the natural sciences. We are currently moving some of this testing to a web-based format.
A Math Across the Curriculum web site has been established that allows users to get detailed information and to download documents and resources. The URL is http://www.math.unr.edu/MAC

Biographical Information:
Jerry Johnson received his B.S. from Oklahoma State University and his M.S. and Ph.D. from University of Illinois, Urbana. He was an Full Professor at Oklahoma State University and a Vistiting Professor at Penn State University before joining the faculty at the University of Nevada, Reno as a Professor and the Director of the Mathematics Center in 1993. He has been Chair of the Department of Mathematics and Director of the Mathematics Center since 1995. He has

presented numerous conference papers and colloquium talks. Dr Johnson has published more than seventeen papers in refereed Mathematics journals, and he has more than twenty-four publications related to Mathematics Education.

Ed Dubinsky

Title: Meaning and Formalism in Mathematics
A question that is important in the philosophy of mathematics and mathematics education is, What is the source of mathematical ideas, of meaning, in the mind of an individual? It is surely the case that this question does not have a single answer applicable to all mathematics and all people, so it is unsurprising and appropriate that many answers have been proposed. One possible source that may not have been given sufficient attention is formalism in the sense of expressing mathematical concepts in a formal language.
In this talk, after discussing briefly some sources of mathematical ideas that have been considered in mathematics education such as direct physical experiences, metaphors, analogies, and intuition, I will consider two ways in which formalism can relate to mathematical meaning. One way is to capture an idea, perhaps held vaguely and intuitively and then use formal analyses to make it more precise and to investigate its properties. An even less considered use of formalism is to begin the development of an idea from its formal expression and to use the syntax to construct meaning for the concept.
Both of these uses of formalism are skills that mathematicians generally possess and students need to learn. Although this is a major responsibility of mathematics education, it is not one which we are very successful at for more than a very small percentage of students. A major point of the talk is to describe some pedagogical approaches that can help students develop these skills so as to incorporate formalism as a powerful tool in understanding difficult mathematical concepts.

Biographical Information:
Ed Dubinsky received his B.S. from Temple University, his M.A. from University of Pennsylvania, and his Ph.D. from University of Michigan. He was an Associate Professor at Tulane University and a Professor at Clarkson University and Purdue University before becoming a Professor at Georgia State University. He was a Visiting Professor at the Polish Academy of Sciences in Warsaw, University of Bonn in West Germany, University of California at Berkeley, and University of New Hampshire. In addition, he was a Research Associate at McMaster

University and a Visiting Scientist at the Education Development Center. Dr. Dubinsky received the award as Outstanding Undergraduate Teacher and the Charles B. Murphy Award for Outstanding Teaching from Purdue University. He has published numerous articles in Mathematics, Mathematics Education, and Computer Science journals. He has written eight books and given more than 120 invited lectures and conference presentations since 1984. His current professional interests include development of instructional materials for Post-Secondary Mathematics courses and development of new approaches for teaching Calculus and Abstract Algebra.

Sandy Rhodes

Title: Waking Them Up: Three Tried and True Ways to Spice Up a Lecture
In this interactive session, participants will be introduced to three techniques commonly used to get students involved during a lecture. Participants will leave the session prepared to test out these techniques in their own classrooms.

Biographical Information:
In addition to a Ph.D. in mathematics from the University of Massachusetts at Amherst, Sandy Rhoades has an M.Ed. in counseling and human development from St. Lawrence University. Her way of melding these seemingly disparate interests in mathematics and learning and growth is to create ways to draw people into learning mathematics. Sandy spent three years teaching at Smith College in Massachusetts before beginning a position at Keene State College in New Hampshire in the fall of 1996. She has facilitated a variety of workshops and special sessions on active learning.

Robert Case and Carla Oblas

Title: Interactive Learning
This session is intended to explore the issues of student-active mathematics learning which arise from using group problem-solving as the principal strategy.

Biographical Information:
Bob Case was chairmen of the Department of Mathematics at St. Anselm College from 1967 to 1970. In the seventies, he developed and taught graduate courses in

logic at Northeastern University where he is an Associate Professor of Mathematics. In the eighties, he was involed in Calculus reform and in the nineties, he is working with high school teachers in Boston where state-of-the-art Calculus courses have begun in five schools which previously offered no Calculus whatsoever. Dr. Case is the 1998 Distinguished Teaching Award winner for the Northeastern Section and the winner of the 1998 National Distinguished Teaching Award for the MAA.

Carla Oblas is Assistant Professor of Mathematical Practices at Northeastern University, and a coordinator of the Interactive Mathematics Program for New England.

Requests for Participation in Spring Meeting

Please note there are four parts of the Spring 1999 Program where participation is being requested below. Ross Gingrich is calling for student posters, Ockle Johnson is calling for student papers, Rick Cleary is calling for future colleaugues, and Ed Sandifer is calling for contributed papers.

Student Poster Call

The Northeastern Section is sponsoring a poster session for students at its Spring Meeting.. Students are invited to display their solutions to the problems of the 1999 Mathematical Contest in Modeling (MCM), sponsored by COMAP. The poster session at the Spring Meeting is designed as a presentation, not a competition.. Students from schools that do not participate in the competition are also welcome to submit posters. To present a poster at the poster session, register with Ross Gingrich at gingrich@scsu.ctstateu.edu, or at Mathematics Department, Southern Connecticut State University, New Haven CT 06515 by April 30, 1999. The meeting registration fee will be waived for one member of each team. Each presentation is limited to one standard-sized poster board, approximately 48 in by 36 in. Participant supply their own free-standing poster board, and it should be free-standing. The poster should include the school's name and the names of the team members and the team advisor.
Final details on the poster session will be available on the website.

Student Paper Call

Undergraduate students are invited to present papers at the Spring Meeting on topics in mathematics, statistics, or computer science. The presentations will be 15 minutes long,. Interested students should send abstracts by April 30 by e-mail to ojohnson@keene.edu or by regular mail to Ockie E. Johnson; Department of Mathematics; Keene State College; Keene, NH 03435-2001. E-mail is preferred. Abstracts should include current address, phone number, e-mail address, and name of a faculty sponsor. Those that are accepted will receive prizes and one presenter for each paper will receive free meals and registration at the meeting.

Future Colleagues Call

Finishing graduate students or new faculty at Northeastern Section colleges are invited to present 15-minute talks on their professional interest at the Spring Meeting. Those who are interested should register with Rick Cleary at cleary@orie.cornell.edu by April 30th.

Contributed Papers Call

Participants are invited to submit contributed papers for the Spring Meeting. We particularly seek papers appealing to a wide variety of participants. Your presentation should be approximately 15 minutes long. Please send a typed abstract (indicate any special equipment needed) to Ed Sandifer, Math/CS Dept. Western Connecticut State University, Danbury CT 06810, or better, by e-mail to Sandifer@wcsu.ctstateu.edu. The Fall deadline is April 30th.

Good Job Hunting

(The following is reprinted with permission from the Colby College newsletter, *Mudd Pi*. You can access the newsletter at the Colby web site.)

(by Rebecca Green)

Looking for a mathematics-related job that's entertaining--how about screenplay consultant? Granted, films involving mathematics are rare, but *Good Will Hunting* (about a talented young man with a gift for graph theory) was a surprise hit this year and picked up an Academy Award for best screenplay. Matt Damon and Ben Affleck, who co-wrote the screenplay,

consulted Daniel J. Kleitman, a mathematician at M.I.T. The film even refers to some mathematics by name: linear algebra, Fourier analysis and Parseval's theorem all have bit parts in the film.

In order to get mathematically inspired, Damon and Affleck (who also play the young genius, Will Hunting, and his longtime friend) sat in on an informal seminar in combinatorics and graph theory held by Kleitman and Tom Bohman. To be more precise, Kleitman lectured on a proof by Fred Galvin that "the stable marriage theorem implies the k-list colorability of a certain k by k graph." When Damon and Affleck asked if there was a difficult unsolved problem that the hero might solve in the film, Kleitman came up with "P = NP".

One of Matt Damon's pseudo-proofs was invented by Patrick O'Donnell. Credited as math consultant in the film, O'Donnell, who is actually a physicist at the University of Toronto, combined particle physics and graph theory. "If I could have done that proof correctly, I would've published it," he laughs. Luckily, the magic of film technique (fuzzy images and multiple angles) glossed over some of the gaps in the fictitious theorem.

O'Donnell was originally spotted as a potential extra for the film while eating lunch in a Vietnamese restaurant. When the director of the film, Gus Van Sant, discovered that O'Donnell was a physicist, he was hired as a consultant. O'Donnell saved the screenplay from a number of errors. "First they had the character of Professor Lambeau, a combinatorial mathematician, winning a Nobel Prize," he says. "But you can't win a Nobel Prize for math!" As a consolation, Lambeau is made a recipient of the Fields Medal instead.

Matt Damon's handwriting was actually also rendered by O'Donnell. In one scene, Damon scrawls something on a blackboard which turns out to be a solution to a mathematical challenge thrown by Lambeau to his students. In order to find a theorem with a graffitti-like proof, O'Donnell poured through old journals until he found a graph theory problem that fit the bill. You can even check it out in Frank Harary and Geert Prins, "The Number of Homeomorphically Irreducible Trees, and Other Species," *Acta Mathematica*101 (1959), 141-62.

In a review of the film in *Notices of the American Mathematical Society*, Mark Saul observes that "the first frames of the film, under the opening credits, are of a mathematical text out of focus and blurred, as if beheld by a general reader who cannot construe it." This image of mathematics as inscrutable contributes to the mystery of the hero's amazing talent, but, whatever mistakes remain in the mathematical details, there is a more egregious error, according to Saul. Hunting seems to pluck solutions out of the air and is never shown to work at

mathematics. Without this intellectual struggle, "the film misses an essential emotional element of the experience of doing mathematics . . . Indeed, no one in the film is portrayed as taking particular pleasure in doing mathematics." One of the perks of consulting was the opportunity of appearing as an extra in the film itself. Kleitman can be seen strolling through Harvard Square, and O'Donnell plays a bar fly in a scene with Robin Williams (Hunting's psychiatrist) and Stellan Skarsgard (Professor Lambeau).
Both O'Donnell and Kleitman had a good time attending the wrap parties and schmoozing with the stars. At one point, Gus Van Sant, who directed the film, advised his consultant, "Give up physics, Pat! You'll make more money in movies!" Maybe, but O'Donnell isn't quitting his day job any time soon. "The truth is, I haven't received another offer yet," he confesses.

References:

Mark Rambler, "Math Demon," *Lingua Franca*(May-June 1998), p. 11-12.
Mark Saul, "Good Will Hunting," *Notices of the AMS*(April 1988), p. 500-02.

Mathfest Information

Jim Tattersall, Associate Secretary of the MAA, has a preliminary program of the Providence Mathfest at

www.providence.edu/mcs/tat/meetings/provri.htm

The program is exciting and it is in our section. The festivities begin with a trip to Newport for those who do not attend the Short Course. This is a 9:00-5:00 excursion on Friday, July 30. The trip returns early enough for the opening banquet with Colin Adams, one of our section's distinguished teacher award winners, who will be taking us to the Number Hall of Fame Awards ceremony. Saturday starts with another of this section's distinguished teacher winners , Bob Devaney. He'll also be conducting a student workshop on chaos, fractals, and more. Carl Pomerance will deliver the first of his three Hedrick lectures, this one on prime numbers. Judith Roitman will follow him with a talk on what to do in K-12. The afternoon will have the student workshop, contributed paper sessions including some from ARUME, the MAA sectional officers' meeting, and an AMS-MAA Invited Address on inaudible geometry by yet another member of our section, Carolyn S. Gordon of Dartmouth College. The afternoon will be topped off by your choice of Carolyn Connell's session "How to Get Published: A Workshop on Writing a Winning Paper for an MAA

Journal" or William Hawkins' session on strengthening under-represented minority mathematics achievement (SUMMA) programs. ARUME will have a reception at night.

Saturday morning begins with a third winner of our section's distinguished teacher award giving the first James Leitzel lecture. Tom Banchoff will have this honor and will be speaking on teaching stages. Carmichael numbers will be the topic of the second Hedrick lecture which will be followed by William Massey's invited address on queues with varying rates and their applications. The afternoon has panels on the mathematics education of teachers led by Alan Tucker and on strategies for small colleges led by Robert Talbert and Lanette Poteete-Young, and the NAM-MAA David Blackwell Invited Address "Wide Open Spaces" by Melvin Currie of NSA. Spend the night at the PME banquet or the 25-year banquet and perhaps listen to the PME/ J.S. Frame Invited Address, "The Creation of the Calculus: Who, What, When, Where, Why" by V. Frederick Rickey.

Monday, the final day of the conference, opens with the AWM- MAA Invited Address, "Geometry and Visualization of Surfaces" by another speaker from our section, Chuu-Lian Terng of Northeastern University. Finish out the morning with the last of the Hedrick lectures on smooth numbers and Jeremy Grey's talk on Hilbert's Problems. Jeremy Gray is from the Open University and that school has given us some of the more memorable moments of our last few meetings. The afternoon opens with a panel on strategies to solve potential classroom challenges and includes an open house at the AMS headquarters. Finish your afternoon by listening to Dan Kalman speak on "A Square Pie for the Simpsons, and Other Mathematical Diversions," then hearing about student problem competitions and the mathematical modeling contest, and topping it all off with a Rhode Island Clambake. (What is a Quahog anyway?)

There is even a rumor the mayor and the MAA president will set the rivers on fire for us

From the Colleges

Matt Coleman of **Fairfield University** reports the sad news that **Fr. Maurice Wong**, a long-time Jesuit member of their department, has died. However, there is good news. Fairfield has hired **Laura McSweeney**, a Ph.D. from the University of New Hampshire, who starts next Fall.

Jim Lewis of the **University of Rhode Island** informs us that **Adele Merritt** has finished her PhD working with **Norm Finizio**, and has accepted a tenure-track position at Northeast Louisiana State University.

Barry Schiller of **Rhode Island College** writes that the Department, along with ATMNE and the RI Math Teachers Assoc. has been co-sponsoring a series of panels on mathematics education in the 21st century. There was also a panel on the topic: "What Happened to Content in Mathematics?" (The answer cannot be easily summarized!) He also notes that **Ann Moskol** has extended her NSF-Park City grant to train a core of high school teachers in modern methods of teaching geometry and **Rod Rodrigues** received an International Award for Excellence in the use of Technology in Collegiate Mathematics for innovative web page use.

Kathy Bevalas of **Manchester Community-Technical College(MCTC)** tells us that her department welcomes a new faculty member, **Barbara Paskov** (formerly Eastern Connecticut State University). Barbara is completing her PhD at UMASS. Also, eleven MCTC students entered the AMATYC Math Contest for the first time this academic year. MCTC is hosting the annual MATYCONN spring dinner meeting on April 30. Three faculty members went to the national AMATYC Conference in Portland, Oregon, and presented their department's experiences in promoting reform in mathematics and strategies they have used to implement recommendations in the AMATYC Crossroads document. Eight faculty members have registered for the Chaos course being sponsored by the project to Promote Mastery in Mathematics and Science held at the **North Haven Campus of Gateway C-T College** this June. Finally, she informs us that she, **Kathleen Bavelas,** has been elected to facilitate the newly formed Connecticut C-T Basic Skills Council charged with examining issues of placement and programming for the student who enters the C-Ts under-prepared in mathematics, reading or English.

Jim Ward of **Bowdoin College** writes requesting solutions for this problem. They have uneven section sizes in their Calculus courses. Students can sign up for the section of their choice and are admitted to it until it reaches a maximum (usually 30). Only when the maximum is reached is a student enrolled in a second or third choice section. Needless to say, sections at unpopular times or with not-so-popular instructors are frequently small. Sometimes students even elect not to take a Calculus course until they can get the time and instructor of

their choice. The result is that they often have significantly different size sections of the same Calculus course. This is troubling because it is an issue of educational quality (in that students in the large sections get less attention) as well as a workload issue. While the problems are clear, the solutions are not, and it occurred to him that they might benefit from the experience and practice of others. If you can, e-mail him a brief description of how your department handles calculus sectioning, together with any comments that you think would be useful, we would very appreciative. His address is **ward@bowdoin.edu**

Frank Battles of **Mass. Maritime Academy** tells us that Chris O'Donnell was promoted to Associate Professor with tenure in the fall of 1997. He has taught mathematics at the Academy since coming there from UCONN in March of 1993 and is co-author with Eugene Spiegel of "Incidence Algebras" (Marcel Dekker, 1997). In the fall of 1998 he was elected president of the Massachusetts Maritime Academy Chapter of the Massachusetts State College Association (MSCA). Also, he, **Frank Battles,** will be on sabbatical leave in the Fall of 1999 and **Laura Kelleher** will be on sabbatical leave in the spring of 2000.

George Seligman of **Yale** informs us that **Serge Lang** was awarded the Steele Prize for exposition by the AMS at San Antonio, and **Laszlo Lovasz** (whose appointment is joint in Math. and C.S., contrary to the impression given on p.8 of March FOCUS) will be awarded a Wolf Prize in Jerusalem on May 2, 1999.

Fernando Gouvea of **Colby** reports that last year, the top five graduates of the College were all female Mathematics majors! Great!

Jim Hurley of **UConn(Storrs)** tells us of a plan to change the way calculus is taught. All sections of first-year calculus will be taught by faculty some of whom will be post-docs. No TA's will teach calculus. The Department has been enriched by the addition of **Richard Bass**, formerly of the University of Washington, who is an expert on probability and statistics. **Yung-Sze Choi** has been promoted to professor and has a $4 million grant from the NSF for a cell-modeling project. **Charles Vinsonhaler** has won the MAA Distinguished Teaching Award in the Northeastern section and **Manny Lerman** received the AAUP Award for Excellence in Research. The University's Actuarial Science Program celebrated its twentieth anniversary and has added a graduate internship program at Aetna. In comings and goings, **Walter Lowrie** retired and **Ed Taylor** (geometry) from the University of Michigan and **Chengfeng**

Gui (partial differential equations) of the University of British Columbia will join the faculty next year. Finally, **Jim Hurley** is one of the recipients of a Campus Information Technology Award.

Ed Sandifer of **Western Connecticut State University(WCSU)** sends us news from Connecticut. **WCSU** and **Southern Connecticut State University (SCSU)** organized the first round of judging for this year's Mathematics Contest in Modeling. The contest is organized annually by COMAP, and the MAA is now one of the Sponsoring Organizations. m on the MAA **Terri Bennett**, last year's Program Co-Chair, married fellow SCSU Mathematician **Marty Hartzog** last August. He, **Ed Sandifer**, is on CUPM now because he is chairing the committee to revise the Basic Library List and to get it on line. He is going back to the Institute for the History of Mathematics and Its Uses in Teaching at Catholic University in DC this summer. Other NES folks who have been there include **Dan Carter** of **Keene State, Fernando Gouvea** of **Colby, Dick Jardine** of **West Point, Freda Bennett** of **Mass College**,and **Roger Rosenkranz** of **Dartmouth**.

Finally, past-chair **Rick Cleary** is marrying **Ann Trenk**. Congratulations to both.

HIGHLIGHTS OF THE FALL '98 MEETING NES-MAA

Another successful fall meeting was held on at Western Connecticut State University's westside campus on November 20, 21, 1998. 144 people attended including 46 students. There were also 3 publishers represented, Wiley & Sons, Prentice Hall, and Brooks/Cole. We do appreciate them for exhibiting and providing a look at books and some snacks! Thanks.

At this meeting, Ed Sandifer (Western Connecticut State University) was elected Vice-Chair, Betsey Whitman (Framingham State College) was elected Secretary-Treasurer, and Kathleen Bavelas (Manchester Technical Community College) was elected Two-Year College Representative. Congratulations!

Program highlights included Bob Case's (Northeastern) Teaching Award Presentation entitled "The Crisis in Inner-City Public School Mathematics: What College Math Departments Can Do." As a national award winner, Bob also made a similar presentation at the San Antonio meeting in

January 1999. The annual Christie Lecture, given by Gilbert Strang (MIT) on "Cosine Transforms and Wavelet Transforms and Applications" was very well presented and helped even those unfamiliar with wavelets see how they are used in signal and image processing.

There were 34 other presentations including 4 "new colleague" talks, 10 student papers, and 10 contributed papers that were not listed in the Fall '98 newsletter so they are included here. New colleague presentations included:

David Hahn, (Southern Connecticut State University) "Grobner Bases and Automatic Geometric Theorem Proving: A New Look at an Old Triangle Theorem"
Debra Boutin, (Trinity College) "From Geometry to Groups and Back Again"
Steven C Wang, (Williams College) "A Statistical Model for Computer Handwritten Recognition"
Val Pinciu, (Southern Connecticut State University) "Crossing Numbers and Applications."

The student papers included:

Akuba Dolphyne, (Wellesley College) "Linear Algebra and Volcanoes? A Stochastic Model of Plant Regrowth on Montserrat after Periodic Volcanic Eruptions"
Jennifer Ross, (Wellesley College) "Chaos in the Brain"
Cristian S Dima, (Middlebury College) "The Effects of Imperfect Data on Stereo Algorithms"
Greg Parent, (Middlebury College) "An Undergraduate Study in Robotics"
Stephen Howard, (Bennington College) "Edge-Conserving Contraction Invariants, an Attack on the Isomorphism Problem"
Marcel Blais, (Fairfield University) "Quantum su2 and Knot Invariants"
Jennifer M d'Arcy, (Wellesley College) Semi-Invariant Polynomials of Cyclic Groups"
Dorothy Lam, (Wellesley College) Point-Source Geometric Tomography"
Xiaolong Yu, (Worcester Polytechnic Institute) "Curious Numbers"

Nathan Williams, (Lyndon State College) "How Many Factors Could A Factorial Have If A Factorial Could Have Factors?"

Contributed papers included:

Vincent Ferlini (Keene State College) "There Exist Infinitely Many Primes Numbers: Three Simple Proofs"
Steve Kenton, (Eastern Connecticut State University) "A Natural Proof of the Chain Rule"
Jeff Suzuki, (Boston University) "Introducing Iterative Solutions to Polynomial Equations Using the History of Mathematics"
Sol Neeman, (Johnson and Wales University) "Mathematics and the Arts"
Rona Gurkewitz (Western Connecticut State University) "Designing Modular Origasmi Polyhedra"
Phil Blau, (Boston University) "Centripetal Force"
Ernie Manfred (U.S. Coast Guard Academy) "Iceberg Drift Model"
George Zornetsky, (Western Connecticut State University) "Modeling the Stock Market with Wavelets"
Sarah L Mabrouk, (Boston University) ""What is a function?" - An Essay Assignment"
Joanna A Ellis-Monoghan, St Michael's College "Survival Mathematics in a Terminal Course"

A complete program is available from the editors. Much deserved thanks for the program goes to the Program Committee (Terri Bennett and Ross Gingrich, Co-Chairs, (Southern Connecticut State University) and Miguel Garcia (Gateway Community Technical College), Sandro Magliaro (Sacred Heart University) and Xiadi Wang (Western Connecticut State University). Xiaodi, along with Josephine Hamer, Robert Hoburg, and Ron Kutz all of Western Connectifut also deserve much thanks for the fine job done on the local arrangements.

What happens at the Executive Committee meeting? This time the discussions included: planning for the June 1999 Bradford College and the (expected) Fall 1999 Bridgewater State meetings; ways of ensuring greater cooperation with two-year colleges and their professional associations; the teaching award process which so far is working so well in our section; the need for local help in the summer1999 Providence Mathfest; how to get regular

updates for our web-page; reports from the Governor and Treasurer; whether to have a contest related to the end of the millennium; what to do about the minicourse and short-course; and how to evade being photographed for a picture of the Executive Committee! (We failed to evade the photographer!)

Frank Ford and Barry Schiller

MATH MEDLEY IS STILL ON THE AIR

Since June 1998 every Saturday there has been a call-in radio show about mathematics at noon on WALE 990AM hosted by Dr. Patricia Kenschaft from Montclair State University. Each week Pat invites a guest to discuss a different topic. This spring, scheduled guests include Deborah Hughes Hallett (a leader in the calculus "reform" movement) on April 17, John Dossey (formerly President of the NCTM) on April 24, Uri Treisman (reknown for showing how study groups really can enhance learning calculus) on May 8, and Carol Lacampagne (the highest ranking mathematician in the US Department of Education) on May 15. If you are in the Providence area tune in to WALE and call in!

Hotel Information For the Colby Section Meeting

A block of rooms is reserved at the Waterville Holiday Inn, 375 Maine Street, Waterville, ME 04901 (207-8730111 or 1-800-785-0111). Rooms are $51 a night. The hotel is next to exit 34 on I-95 but it is *not* within walking distance to the College, except for very energetic walkers who like hills and who don't mind going up and down.

Directions to Colby

Located in the heart of central Maine, the College is easily reached by car, plane, or bus. Colby is 70 miles northeast of Portland and 180 miles northeast of Boston. To drive to Colby, take Interstate 95 to Exit 33 and turn east onto Kennedy Memorial Drive. Take the second left, First Rangeway, at the traffic signal opposite the Inland Hospital. Continue for approximately a mile, then turn left onto Mayflower Hill Drive and up the hill to the campus. Visitor parking is available in most campus parking lots. Greyhound Bus Lines has a terminal in Waterville.

Registration Information

Registration will in Mary Low Hall in the West Central portion of the campus. Parking is available in the lot south of the building. A campus map is available at www.colby.edu/map/.

Colby College

Chartered in 1813 when Maine was still part of Massachusetts, and originally called the Maine Literary and Theological Institution, Colby is one of the oldest colleges in New England. After Maine separated from Massachusetts, the new legislature conferred upon the school the right to grant degrees, and in 1821 the institution was renamed Waterville College. The turmoil of the Civil War severely tested the resources of the College as many students left the all-male campus and the school appeared on the verge of closing. At that point Gardner Colby, a well-to-do Boston merchant and Maine native, stepped in to provide the funding necessary to avert tragedy. The grateful Board of Trustees thanked him for the gift by renaming the school after him.

A few years later another landmark event occurred at the school. Mary Low, who matriculated in 1871, became the Colleges first female student, and Colby gained the distinction of being the first all-male New England college to become coeducational. In 1952 Colby completed the move to a new site, Mayflower Hill, on land that had been made available to the College by the citizens of Waterville.

Pre-Registration Form
Spring Meeting of the Northeastern Section- MAA
Colby College

June 11-12, 1999

Mail this form to :

Barry Schiller
Dept of Mathematics & Computer Science
Rhode Island College
Providence RI 02908
(401)456-9654
e-mail (preferred to phone):bschiller@grog.ric.edu

Check should be made to: **NES/MAA**

Please Pre-register! 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 cannot be guaranteed unless reservations are received by Friday, May 28, 1999. **It may not be possible to buy tickets to the banquet or lunch at the meeting.** Spouses and guests are welcome at all meals.

PRE-REGISTRATION (please type or print):

Name:_____
Institution:_____
Institution Address:_____
Correspondence Address(if Different):_____
_____
Telephone ( )_____
E-mail:_____

Pre-registration Fee:

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

Lodging:

Dormitory room and breakfast($35.00) $____

Meals

Reception and Banquet Friday ($24.00 per person) $____
(choose one: Lobster Chicken Vegetarian)
(price includes wine)
Luncheon Saturday ($7.50) $____

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June 11-12:
COLBY COLLEGE
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