NORTHEASTERN SECTION

NEWSLETTER

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FUTURE SECTION MEETINGS

November 5-6, 1993: Westfield State College
See this *Newsletter* for details

June 3-4, 1994: Salve Regina University
Local Arrangements: William Stout
Program Chair: C. Edward Sandifer, Western Connecticut State University

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

CHAIRPERSON'S MESSAGE

The excitement stemming from the recent work related to Fermat's Last Theorem includes several lessons for us all, including the reminder to re-look at the familiar from new perspectives and to realize once again that milestone results are not always produced in visibly major strides. This inspiring atmosphere provides a good time to come together with our colleagues at one or more of the upcoming Northeastern Section activities. There are several varied and interesting events planned and I hope that you will bring some colleagues and/or students with you to share the excitement and opportunities.

Our Student Career Conference, *Mathematics Opens Doors to the World,* will be held on Saturday, October 30 at Bentley College. At this program, undergraduate mathematics majors will learn about various careers in the mathematical sciences, high school students will be encouraged to pursue a mathematics major when they attend college, and faculty will learn accurate career information to share with their students. If you haven't already sent in your pre-registration form be sure that you do so soon. See page 20 for more information.

For several years we have been announcing an upcoming early fall meeting and the year has finally arrived. Our Section Fall Meeting will be held at Westfield State College on November 5-6. This change from our usual fall meeting dates will enable our section members to attend the national AMATYC Meeting in Boston on November 18-21. Miguel Garcia and Rick Porter have worked hard to prepare an excellent program for the Westfield meeting and Maureen Bardwell and Dianne Haber are anxious to extend the hospitality of Westfield State College. Details of the program are available in this *Newsletter.*

Congratulations to Thomas Moore of Bridgewater State College, the winner of the 1993 Northeastern Section Award for Distinguished College or University Teaching of Mathematics. One special feature of the Westfield Meeting will be his presentation of *Baring the Beauty of Euclid's Algorithm.* See page 11 for additional information on the teaching award.

Our annual minicourse for 1994, *Teaching the Introductory Statistics Course,* will be held at The College of the Holy Cross on April 9. With the increased interest in statistics generated in part by the NCTM *Standards* as well as by new approaches and materials available, this should prove to be a timely and worthwhile presentation. See page 24 for more information.

Plans are well underway for the third annual series of NES Regional Dinner Meetings. Volunteers from the Rhode Island, Eastern Connecticut, Vermont, Eastern and Western Massachusetts and New Hampshire Regions have already agreed to host these events. If you would like to volunteer to host or assist in hosting a dinner meeting contact Judith Carter, Regional Dinner Meetings Coordinator, Department of Mathematics, North Shore Community College, Danvers MA 01923, 508-762-4000 X 6664.

Many thanks are extended to Ron Tannenwald and all of the other contributors for the exceptionally fine program last June at UMass-Dartmouth. The Section is grateful also to Betsey Whitman of Framingham State College who served as Publisher's Liaison, to Ed Sandifer of Western Connecticut State University who served as Contributed Papers Coordinator, to Joseph Witkowski and Ned Wolf of Keene State College who helped with the Student Papers, and to Karen Schroeder of Bentley College who served as

Student Chapter Program Coordinator. Also, many thanks to Clayton Dodge and Don Small for another great UMaine/NES short course.

As my term as Section Chairperson comes to a close, I would like to express my appreciation to all those who have volunteered to help with NES programs and activities. While particular thanks are extended to Frank Battles, J. J. Tattersall and Karen Schroeder, there are so many who have assisted over the years that I cannot include all of your names here. Please know that I am grateful to each of you for your generosity, inspiration, hard work and enthusiasm. I have been richly rewarded by having had this opportunity to work with each one of you. In addition, I would like to thank all of you for your continued and growing support of the Northeastern section by your attendance at our varied activities. Leadership of the section will be left in the capable hands of Donna Beers of Simmons College who is already eagerly working hard to continue and expand the section activities. As always, we are pleased to accept your input of ideas for new programs, suggestions for improvements, and offers of assistance. I look forward to seeing you at the upcoming NES activities.

Laura L. Kelleher
Massachusetts Maritime Academy
Chairperson NES/MAA

GOVERNOR'S MESSAGE

The Board of Governors met for its semi-annual all day meeting prior to the MAA-AMS Summer Meeting at the University of British Columbia in the spectacular city of Vancouver. A great port, cultural centre, tourist mecca, and Canada's doorway to the Orient, Vancouver is the crown jewel of western Canada. The city is lavishly dotted with greenery and beautiful parks, posed against the rugged peaks of perpetually blue Coast Range and ringed with sparkling Pacific waters. The downtown area occupies a tiny peninsula jutting into the Burrard inlet in the Strait of Georgia, with the magnificent harbor to the east and English Bay to the west. English Bay is lined with broad beaches, and behind the beaches rise pastel apartment buildings and fine old houses. Towering bridges link the downtown area with the city and the suburbs. One of the more beautifully located universities in North America is the University of British Columbia; from a forested campus, its Gothic-style buildings overlook the Strait of Georgia while the North Shore Mountains form a distant backdrop. Needless to say, I thoroughly enjoyed UBC and the city of Vancouver.

The Board of Governors Meeting, scheduled from 8:30 a.m. to 4:30 p.m., had its usual long agenda, as detailed in the 125 plus pages of reports and motions. As usual, I will not attempt to comment on all of the items here, but I will highlight a few, as well as offer my thoughts on a related issue.

Compared to the San Antonio Board of Governors Meeting, centered around the Denver Resolution, this one was quite routine. We heard from Marcia Sward about the aftermath of the Denver Resolution: 37 letters/eMail messages of support, 17 letters/eMail messages of complaint, and 16 letters of resignation. It truly was a "no win" situation for the Board of Governors. Continuing the political theme, the Governor of the North Central Section formally asked the Board:

Can a section adopt a motion that lets the actions of another organization, like the AAUP, control where that section will or will not meet?

He did this since in the Spring North Central Section meeting a motion was passed that forbids the section to hold meetings at institutions that are under AAUP censure. Evidently, this has been a dividing issue of the section for over ten years, and he was hoping for some finality on the issue. The best the Board would do was to indicate that their passed motion was not in conflict with the National Bylaws of the MAA. Except from hearing committee reports and voting on routine business items, much of the meeting time was spent discussing an Initiative from the new President of the MAA, Donald L. Kreider. A centerpiece of the Initiative would be the launching of an electronic database that will facilitate the dissemination of information to the members of the MAA. Since this is in the infancy stage I will comment further on it at a later date.

As a member of the MAA Committee on the Undergraduate Program in Mathematics (CUPM), I heard the initial report of the Quantitative Literacy Subcommittee on "Quantitative Literacy Requirements." From its inception, the MAA has sought to improve education in the mathematical sciences at the collegiate level. At least since the issuance of the Carnegie Foundation's "Missions of the College Curriculum" report (December, 1977), CUPM has been concerned with general education in mathematics for all or most college graduates. In April, 1983, in response to that concern, CUPM issued the thoughtful report "Minimal Mathematical Competencies for College Graduates" in the AMERICAN MATHEMATICAL MONTHLY. This report was the culmination of four years of work of a CUPM Panel. A reprint of that report appears in the 1989 MAA Notes Volume #13 entitled "Reshaping College Mathematics." In the introduction of the 1982 report, the panel indicates:

Too many people know too little mathematics. Even those who are well informed in other ways often cannot appreciate, much less participate in, some major currents of modern life because of their ideas and feeling about mathematics. In a relatively severe but all too common form, ignorance of mathematics amounts to a form of functional illiteracy.

Does this sound familiar? Not much has changed over the past eleven years! The panel went on to identify a list of recommendations that refer to a bare minimum of mathematical competencies for all college graduates, with the hope that individual institutions would go as far beyond these recommendations as local conditions allow. The recommendations were:

A. All college graduates, with rare exceptions, should be expected to have demonstrated reasonable proficiency in the mathematical sciences. Every college or university should therefore formulate, with adequate concreteness, what this "reasonable proficiency" should mean for its students.

B. Whether or not stipulated proficiency is tested by examination, courses should be available in which it may be acquired.

C. In particular, one or more courses of a remedial nature should be available where there is a need.

D. While almost all undergraduate courses in mathematics should give attention to applications, and to historical and philosophical aspects of the subject, there should be one or more courses that concentrate on these aspects while remaining accessible to students with little mathematical background.

E. Individual interests often lead students to take a considerable amount of post-secondary mathematics in conventional courses.

These students should also be able to take a course of the kind described in D, but presupposing more mathematical background.

Where does your college stand with regard to these 1982 recommendations? I suspect there are a number of mathematical sciences departments that are unaware that this report was even issued! But because these recommendations are truly "bare minimum," I suspect, as a whole, the mathematical community is positioned well.

Well here we are again, at the brink of another CUPM report with a similar objective but a different title - "Quantitative Literacy Requirements for College Graduates." It is no secret that too many educated people have a great deficiency in mathematical knowledge and the ability to use it - they are quantitatively illiterate! In the last ten years, national report after national report has confirmed this fact.

Mathematics has been described as an "invisible culture," one that exercises profound influence on all aspects of society -- from engineering to economics, from strategic planning to political polls. Yet it is shunned by many adults, avoided even on campuses, where students, faculty, and administrators will expend great energies arguing about multiculturalism and politically correct curricula while ignoring the less glamorous yet equally important educational policy issues surrounding the university's mathematics curriculum. - Lynn Arthur Steen

There seems to be wide agreement that a well educated citizen should have some significant proficiency in mathematical thinking and in the most useful elementary techniques that go with it.

Mathematics is the key to opportunity. No longer just the language of science, mathematics now contributes in direct and fundamental ways to business, finance, health, and defense. For students, it opens doors to careers. For citizens, it enables informed decisions. For nations, it provides knowledge to compete in a technological society. More than ever before, Americans need to think for a living; more than ever before, they need to think mathematically. - Everybody Counts, A Report to the Nation on the Future of Mathematics Education.

This statement, and many others like it, add up to an interesting challenge, especially since about half of American colleges and universities have no core requirement in mathematics for graduation. "Quantitative Literacy" is not an entirely fortunate term. For one thing, much of modern mathematics, even at elementary levels, is not distinctively quantitative; for another, "literacy" suggests both facility with letters and a possibly very low level of accomplishment. I hope that the final report of the CUPM Subcommittee will identify a more appropriate term, or possibly a program, to achieve its goal. What I believe is important is mathematical growth through continuing individual mathematical experiences.

No college course can make up for years of neglect or misdirection in earlier mathematics education. If the "NCTM Curriculum and Evaluation Standards for School Mathematics" are widely adopted and pursued relentlessly, eventually there will be no need to try. Until they are, however, remediation will be a necessary component of quantitative literacy efforts at most colleges and universities. A college remedial course should not be a mere rehash, and certainly not an accelerated one, of the traditional secondary course. Courses that cover the same old ground in much the same old way

tend to be just as uninspiring and unintelligible for students as the originals, and therefore even less likely to succeed. These courses must be presented "subversively." Make it look fresh, different, interesting, and significant. Present mathematical ideas and techniques within compelling applied contexts as natural, powerful tools for understanding and description.

Once a student has been deemed quantitatively literate based on the NCTM Standards, either through secondary school preparation or remediation at the post-secondary level, what goals do we expect to be achieved prior to the receipt of their baccalaureate degree? The initial report of the CUPM Subcommittee states: *In short, every college graduate should be able to apply simple mathematical methods to the solution of real-world problems. A quantitatively literate college graduate should be able to:*

1. *Interpret mathematical models such as formulas, graphs, tables, and schematics, and draw inferences from them.*
2. *Represent mathematical information symbolically, visually, numerically, and verbally.*
3. *Use arithmetic, algebraic, geometric, and statistical methods to solve problems.*
4. *Estimate and check answers to mathematical problems in order to determine reasonableness, identify alternatives, and select optimal results.*
5. *Recognize the limitations of mathematical and statistical methods.*

The report continues with a list of 31 topics, which *if laced with good applications*, addresses all five objectives. I am hopeful that the Subcommittee's final report will not include such a list, for fear that too many departments may try to create a course(s) dependent on the list. As they indicate, *there is no 'magic' course which every mathematics department could teach and use to transform its students through their success in that course to merit the stamp 'Q.L.' on their transcript.* American colleges and universities are so diverse that it is impossible to describe an approximately standard practice. A set of competencies that might be woefully inadequate for specialized or selective universities can be a hopeless ideal for others. Further, a set of competencies that might serve specific academic major areas of study well could be unattainable for other areas of study. The idea that all college graduates should be expected to have acquired a specific level of "quantitative literacy" rests in part on the well-founded belief that it is necessary for effective functioning in contemporary life, and more important for life in those spheres college graduates are most likely to enter. Consequently, in my opinion, a quantitative literacy program has to be compatible with the local environment, and be flexible enough to accommodate students pursuing a wide range of programs.

Quantitative literacy for college students is not something gained by taking a specific mathematics course required by their area of study, nor by fulfilling the core requirement in mathematics at their institution, nor by learning some specific mathematical content, nor by developing a particular level of computational facility.

... we may do well to conceive mathematics education less as an instructional process (in the traditional sense of teaching specific, well-defined skills or items of knowledge), than as a socialization process ... If we want students to treat mathematics as an ill-structured discipline - making sense of it, arguing about it, and creating it, rather than merely doing it according to prescribed rules - we will have to socialize them as much as to instruct them ... we

must seek the kind of long - term engagement in mathematical thinking that the concept of socialization implies. - Lauren Resnick

A student becomes quantitatively literate through a PROGRAM aimed at developing capabilities in thought, analysis, and perspective - through a program aimed at developing at least the five goals, expressed earlier, in such a manner that the student will have formed attitudes and habits of thought which provide certain "long-term patterns of mathematical interaction and engagement." In order to attain this socialization, mathematics must permeate undergraduate academics the same way it permeates modern society: MATHEMATICS ACROSS THE CURRICULUM!

Many years ago, when my college formally approved "Writing Across the Curriculum," I recall mentioning to a number of my colleagues in various disciplines how there should be an equivalent for mathematics. As you can imagine, smiles and laughter were usually part of their response. I must admit, that at the time my comment was only half serious. I now know that my lack of seriousness was a mistake. Just as the complexity of the writing task is so great that the English department should not be expected to assume responsibility for the entire job of its development for the students, so also the complexity of the task of a student's becoming quantitatively literate requires the commitment of more than the department of mathematics. Instructors in other fields must show students how to apply quantitative reasoning to gain disciplinary knowledge and understanding. While colleges and universities should strive to ensure that every baccalaureate recipient has achieved quantitative literacy, departments of mathematics must accept responsibility for providing leadership in establishing a "local" Quantitative Literacy Program (Mathematics Across the Curriculum) within their institutions and seeing that it is maintained in a suitable manner. This is no small task!

First, each college and university should view quantitative literacy as a legitimate and necessary goal for all baccalaureate graduates. With the recent waves of national report after national report about mathematics education and quantitative literacy, this should not be a major hurdle to overstride. Second, each college and university must create a Quantitative Literacy Program for administrative/faculty consideration. I view that such a program must have means within it for students to secure a "foundation" in their quest for quantitative literacy. Until the NCTM Standards are widely adopted and pursued, remediation will be necessary, as discussed earlier, prior to the foundation experience. This experience will vary from institution to institution, based on the selectivity of the institution, and from student to student, based on the major area of study. Many areas of study mandate what core of mathematics is essential. Now we as mathematics educators should instruct these courses in a manner that reflects at least the five major goals of a quantitatively literate college graduate. For those major areas of study that do not require a specific core of mathematics, a two-semester "mathematics appreciation" sequence (such as For All Practical Purposes/A Mathematical Journey/ Excursions in Modern Mathematics), with an eye on the five goals, seems to me to be an excellent foundation experience. Whatever the foundation experience may be, it should be focused on developing the student's capability to do quantitative reasoning - not just see it done. Please don't misunderstand me! Although the mathematical topics discussed in the foundation experiences may be the same as content in existing courses, the goals should necessarily cause the instruction of these topics to be quite different. Among methods for teaching mathematical

courses aimed at quantitative literacy goals, the following are advocated: establishing collaborative learning situations, utilizing a variety of writing assignments, studying significant mathematical models, conducting explorations using calculators and/or computers, and employing team projects. If students are to become confident in their ability to analyze, discuss, and use quantitative information, they must encounter continual practice and success in using quantitative information. Consequently, beyond the foundation, the program must require ample opportunity to carry out projects using quantitative reasoning in courses outside the mathematics and science departments - Mathematics Across the Curriculum. Also, since quantitative literacy can be expected to be more strongly developed if it is encountered in settings students consider relevant, the curricula for all major programs should include the experience of quantitative reasoning in courses at the junior and senior level. Thus, throughout their undergraduate careers, students should be faced with reinforcement and strengthening of the type of thinking encountered in their foundation experiences. Third and last, in order to be effective, the quantitative literacy program must be "bought into" by the faculty in a college/university as a whole and the curriculum must reflect the belief that quantitative reasoning belongs in courses outside departments of mathematics.

It will be interesting to read the final report of the CUPM Subcommittee, and I hope by that time many of us in the mathematical community will have already provided leadership at our institutions creating change in this regard.

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

MINUTES OF THE LAST MEETING

The Spring Meeting of the Northeastern Section was held on June 11-12, 1993 at UMass-Dartmouth. There were approximately 130 registrants.

Invited Papers

The Dynamics of the Complex Exponential Function-Pictures and Proofs by Marilyn Durkin, Bentley College.
Can We See the Mandelbrot Set? by John Ewing, Indiana University and Editor of the *American Mathematical Monthly*.
Coxeter Groups and Their Supergroups by Norman W. Johnson, Wheaton College.
Symmetrical Combinations of 3 or 4 Hollow Triangles by H. S. M. Coxeter, University of Toronto.
The Shape of Space by Jeffrey R. Weeks, University of Minnesota.
Interactive Electronics Books for the Calculus of Surfaces by Thomas F. Banchoff, Brown University.

Workshops

An Invitation to Explore Calculus with TEMATH by Bob Kowalczyk and Adam Hausknecht, UMass-Dartmouth.
What's New For Matlab by Cleve Moler, The MathWorks.

Student Chapter Presentation

From Caesar Ciphers to Public-Key Cryptosystems by Dennis M. Luciano, Western New England College.

Contributed Paper Session

Calculus Reform: What About the Proofs? by Robert Gray, Computervision Corporation.
Interactive Growth Models and Liberal Arts by Richard Watnick, UConn-Stamford.
The Taylor Polynomials for e^z: Where are the Zeros? by Ned Wolf, Keene State College.
Participating in George Lenchner's Invention: MOES by Ken Preskenis, Framingham State College.
A Library Research Project for a Mathematical Statistics Course by Anne D. Sevin, Framingham State College.
Problem Solving with Future Elementary Teachers by Erica Dakin Voolich, Wheelock College.

Student Paper Session

Clouds of Points by David Anderson, Western Connecticut State College.
Domain Representability Theory in Toposes by Maria Gargova, Clark University.
An Algorithm for Elliptical Clustering of Like-Sign Pions by Alexey Koloydenko, Vermont College of Norwich University .
The Natural Behavior of the Quadratic Function by Qi Wang, Colby College.
Equivalence Moves Which Preserve the Toroidally Alternating Quality of Toroidal Projections of Knots by Kathryn Ann Kollett, Williams College.

At the business meeting various items were discussed which are covered elsewhere in this *Newsletter*.

Marilyn Durkin
Bentley College
Secretary-Treasurer NES/MAA

The following text exhibitors displayed their latest offerings at the Spring of 1993 meeting held at UMass-Dartmouth:

Addison-Wesley/Benjamin Cummings Publishing Co.
Anne King
Jacob Way
Reading MA 01867

Macsyma, Inc.
Richard Petti
20 Academy Street
Arlington MA 02174

Texas Instruments
Keelia M. Byrne
132 Amory St. #1
Brookline MA 02146

Wadsworth, Brooks-Cole, PWS and Duxbury Press
Lisa Gebo
76 Blackstone Boulevard
Providence RI 02906

It is very helpful 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 was donated by Venture Publishing, Saunders College Publishing, Harcourt Brace Jovanovitch, Addison-Wesley and Benjamin Cummings. The pre-dinner reception was graciously hosted by Brooks-Cole. 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.

Betsey Whitman
Framingham State College
Publisher's Liaison NES/MAA

REFORM SCHOOL SUCCESSFUL

A diverse group of 25 high school, college, and university teachers of calculus assembled at the University of Maine for the week of June 13-18, 1993, for a calculus reform workshop. In addition to coming from all six New England states, participants, who were required to be teaching calculus during the coming school year, were from Illinois, North Carolina, Missouri, Minnesota, New York, and California. Through an NSF grant received by our own Don Small, this fifteenth annual short course was one of several such calculus reform workshops funded for 1993.

Our workshop was developed and presented by the Ithaca College team of Steve Hilbert, Stan Seltzer, John Maceli, and Diane Schwartz. Emphasizing the unity of the calculus, the Ithaca program has students working in teams on large projects, each project capturing the students' attention for an extended period of time, helping them learn the one or two ideas involved in the project more effectively than they would otherwise do.

In keeping with the spirit of the Ithaca project, workshop participants themselves worked in small groups on problems, presenting their results to the entire company at the end of the week. Such cooperative learning builds students' confidence, teaches teamwork, and encourages students to work harder and better. Participation was the theme of the week, right from the personal introductions Sunday evening through the group reports Friday morning.

The weather cooperated fully this year. The only rain to fall in Orono during the week was a downpour Wednesday afternoon while the participants were enjoying their annual picnic and afternoon out on sunny Mount Desert Island. By the time we returned to Orono for Pat's pizzas, the rain had dried up except for the occasional tell-tale puddle. The usual Thursday evening lobster banquet completed the social activities.

Through a UM maintenance scheduling problem, this year's shortcourse participants were housed in delightful cooperative suites in the new Doris Allen Twitchell Village on campus, instead of the usual dormitory rooms, further encouraging working together.

A theme for next year's short course has not been chosen yet.

Clayton Dodge
University of Maine
Short Course Coordinator

An ill-timed snow storm forced the postponement of the 1993 NEMATYC conference from its originally scheduled date of March 13 to April 17. The conference was held at Middlesex Community Technical College in Middletown, Connecticut and was organized by then Vice-President Steve Krevisky. The program included a keynote address by Professor Jean Smith. A number of the presentations which were originally scheduled had to be canceled or presented via videotape due to the change in date, but nevertheless, many interesting and informative topics were presented.

The TI-81 for Beginners was presented by Alice Burnstein, Tom Koshy discussed **The Pigeon-Hole Principle**, Victor Odafe talked about **Helping the Math Anxious Student**, Eiki Satake discussed **The Bayesian Statistical Point of View** and **The Use of the TI-81 Calculators in Pre-Calculus** was presented by Laura Kelleher and Frank Battles.

NEMATYC officers for the coming year are: Steve Krevisky of Middlesex Community Technical College, President; Susan Blaine of Mount Wachusett Community College, Vice-President; Eiki Satake from Emerson College, Treasurer; and Judy Carter from North Shore Community College, Newsletter Editor.

NEMATYC members are especially excited and busy this fall as we prepare to host the 1993 AMATYC national conference to be held in Boston from November 18 to November 21. See below for more information regarding this upcoming event.

NEMATYC's 1994 conference, titled "Math in Action", will be held at Mount Wachusett Community College on April 9. Anyone wishing to make a presentation may submit a proposal to Vice-President Susan Blaine before December 15. Write to her at Mount Wachusett Community College, Gardner MA 01440. Telephone: 508-632-6000 x373.

The 19th annual conference of the American Mathematical Association of Two Year Colleges will take place on November 18-21, 1993 at the Sheraton Hotel and Towers, Boston MA. Many local individuals have been working for over a year on this national meeting which will include workshops, minicourses and expository presentations on topics covering the first two years of undergraduate mathematics, including statistics, technology, pedagogy, developmental mathematics, calculus and precalculus, assessment and placement, and the NCTM standards. The featured speaker will be Herb Gross of Bunker Hill Community College. Herb is a nationally renowned, entertaining speaker, and was the coconvenor of the first AMATYC national meeting.

If you are not a member of AMATYC but would like a conference announcement and registration form, send a short note stating your request with your name and address to Cheryl Cleaves, AMATYC Conference Information, State Technical Institute at Memphis, 5983 Macon Cove, Memphis TN 38134. (FAX 901-373-2503, EMAIL: Internet-CCLEAVES@ MEMSTVX1.MEMST.EDU Bitnet- CCLEAVES@MEMSTVX1.

The recipient of the 1993 NES/MAA Award for Distinguished College or University Teaching of Mathematics is Professor Thomas Moore of Bridgewater State College. With his wife and four daughters in attendance, Tom was presented with the award by Section Chairperson, Laura Kelleher, at the Spring Meeting held at UMass-Dartmouth. Tom, who has degrees in mathematics from Stonehill College and the University of Notre Dame, has been teaching at Bridgewater since 1968. The letters in support of his nomination from colleagues and students alike attested to his outstanding teaching ability, willingness to work with students outside of the classroom and strong record of scholarship. He has been a regular participant in MAA/NES activities, serving on various program committees and as a speaker at Section meetings. As the recipient of this year's teaching award, he will be a featured speaker at our Fall Meeting at Westfield State College.

The selection committee for the 1994 Award, chaired by Donna Beers, is already hard at work considering the excellent nominations which have been submitted. Contact Laura L. Kelleher (address on inside cover) for information on nominating someone for the 1995 award.

THE MATHEMATICAL ASSOCIATION OF AMERICA

The Northeastern Section

confers upon

Thomas Moore

its

Award for Distinguished College or University

Teaching of Mathematics

in recognition of extraordinarily successful teaching

1993

Section Chair   Section Secretary

NORTHEASTERN SECTION OF THE MAA
FALL MEETING: NOVEMBER 5-6, 1993
WESTFIELD STATE COLLEGE, WESTFIELD MA

Friday, November 5

Time	Event
2:00-6:00	Registration: Main floor of Wilson Hall
2:00-3:00	Executive Committee Meeting
3:00-6:00	**Walk Through Discussion: Students Doing Mathematics**
3:00-4:15	**Introductory TI-85 Workshop** Steven Olson, Hingham High School
3:00-4:15	**An Introduction to the TI-82** Doug Kuhlmann, Phillips Academy
4:15-4:45	Visit the **Walk Through**
4:45-6:00	**Advanced Topics on the TI-82** Doug Kuhlmann, Phillips Academy
4:45-6:00	**Intermediate Level Graphics Calculator Workshop: A Recipe for Excitement in the Classroom** Alice Burstein, Middlesex Community Technical College
6:00-6:45	Reception
6:45-8:00	Dinner
8:10-8:15	**Welcoming Remarks** Dr. William Lopes, Academic Vice-President, Westfield State College
8:15-9:10	**A Fractal Vision of Nature** F. Kenton Musgrave, George Washington University
9:15-	Social

Saturday, November 6

| Time	Event
7:30-10:30	Registration: Main floor of Wilson Hall
7:45-8:55	Student Paper Session
8:30-3:30	**Book Exhibits**
9:00-9:55	**Precalculus Laboratories: Functioning in the Real World** Judy Moran, Trinity College
9:00-10:15	**Student Chapter Workshop: How to Grow Fractal Trees** Michael Frame, Union College
10:00-10:30	Coffee Break and Tour of Book Exhibits
10:35-11:35	**Christie Lecture: The Early History of the Lucasian Chair** James J. Tattersall, Providence College
11:35-11:55	Business Meeting
12:00-1:00	Lunch
1:00-1:55	**NES/MAA Teaching Awardee Presentation: Baring the Beauty of Euclid's Algorithm** Thomas Moore, Bridgewater State College
2:00-2:55	**Engaging Students in Mathematics** (Panel Discussion) Bob Case and Carla Oblas, Northeastern University; Judy Moran, Trinity College; Michael Frame, Union College;
3:00-3:55	Contributed Paper Session

PROGRAM COMMITTEE CO-CHAIRS:

Miguel Garcia, Gateway Community Technical College

Richard Porter, Northeastern University

LOCAL ARRANGEMENT CO-CORDINATORS:

Maureen Bardwell and Dianne Haber,

Westfield State College

WESTFIELD STATE COLLEGE
577 WESTERN AVENUE
WESTFIELD, MASS. 01086
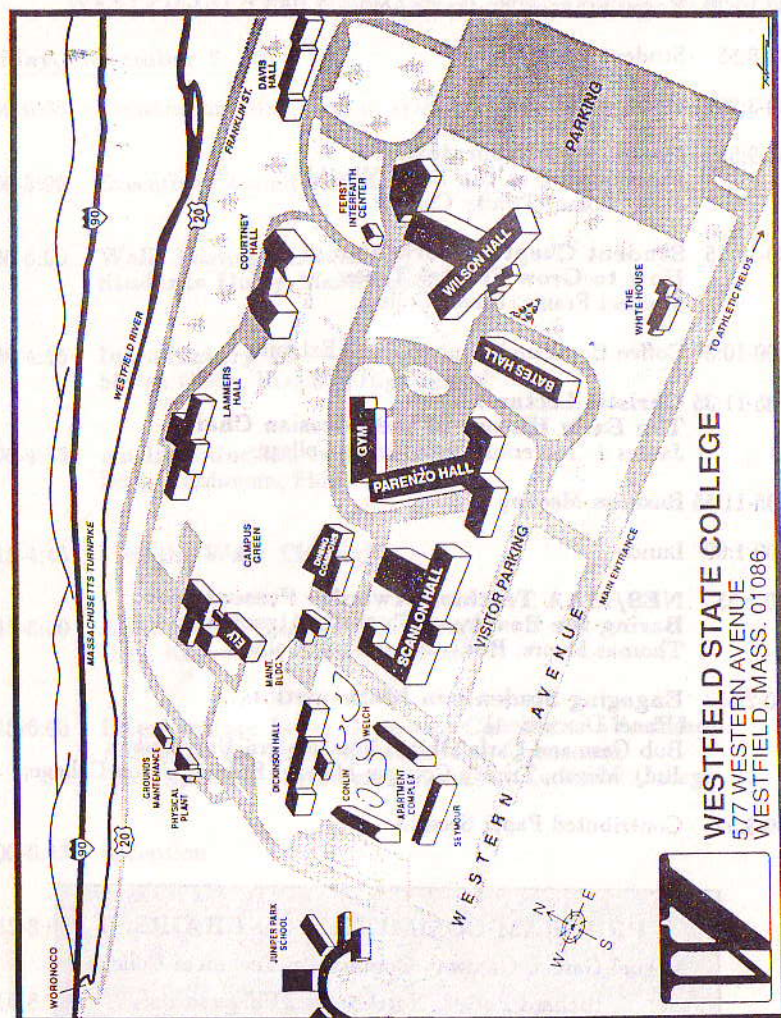
Travel Massachusetts Turnpike to Exit 3 (Westfield).

Bear right (after toll gate)-Route 202.

Continue approximately 2 miles to intersection for Route 20.

Turn right at traffic light and continue on Route 20 West (Franklin Street) until you approach a blinking yellow light. Turn left onto Lloyd's Hill Road.

At top of hill turn right onto Western Avenue.

Westfield State College is located one-half mile on the right.

See campus map on page 14 for further detail.

ACCOMMODATIONS

A block of rooms has been set aside for the evening of November 5 at the **Hampton Inn**, 1011 Riverdale Street, West Springfield MA 01089. Telephone: (413) 732-1300. The rates are $54.00 (single) and $60.00 (double). These rates include a continental breakfast.

Lodging in West Springfield is available at: Econolodge (413-734-8278), Howard Johnson's (413-739-7261), Ramada Hotel (413-781-8750) and Super 8 Motel (413-736-8080) and in Springfield at: Holiday Inn (413-781-0900), Springfield Marriot (413-781-7111) and Sheraton Springfield (413-781-1010).

WESTFIELD STATE COLLEGE

Westfield State College with an enrollment of 3000 undergraduates is one of the Public Institutions of Higher Education of the Commonwealth of Massachusetts. Over 60 undergraduate students are normally enrolled in a program of studies leading to a Bachelor of Arts in Mathematics. Upon graduation they have pursued a myriad of careers, including graduate school, business and industry employment, and teaching careers.

The 10 faculty members of the Mathematics Department reflect an experienced and extensive background in teaching, research and professional activities. They have been actively involved in exploring and making recommendations relative to the proposed reformation of the undergraduate mathematics curriculum. Significant curriculum modifications have already been implemented in the teaching of calculus and the emerging role of discrete mathematics in the curriculum has been recognized. In addition the role of technology, ranging from graphics calculators to the role of multi-media technology in the classroom, is being aggressively investigated.

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 Fall Meeting is October 15 and for the Spring Meeting is May 13.

CALL FOR STUDENT PAPERS

Students (and recent graduates) from the Northeastern Section are invited to present papers at the Fall 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 will be waived for **one** student presenter per paper at the Fall 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 Fall Meeting, we urge you to initiate student projects now for presentation at the Spring Meeting.

Interested students should send an abstract and current address, with phone number, by October 22 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

Walk Through Discussion: Students Doing Mathematics

We are looking for examples of ways to engage students in their study of mathematics, statistics, or computer science. The methods can be new or old, technology based or not, and can involve students working together or alone. The purpose of this Walk Through is for students/teachers to share their experience and let us know what is going on at their school.

We hope **you** will contribute to the Walk Through. Create a display and some handouts. Students: If you are involved in the Student Paper Session, then set up a display at the Walk Through. This is a great opportunity to talk informally with teachers and other students about what you are doing and to learn what others are doing. Teachers and Students: Share some of the new developments at your school. The emphasis at the Walk Through is on talking with each other about experiences related to Mathematics with the displays as a catalyst for starting discussions. Let us know you are coming by contacting Rick Porter, Northeastern University, Boston MA 02115 (e-mail: rdp@neu.edu).

Introductory TI-85 Workshop
Steven Olson, Hingham High School

The participants in this workshop will use the TI-85 graphics calculator. The workshop is designed for beginners, and the examples will be drawn from first year calculus.

Steve Olson is a mathematics instructor at Hingham High School and Northeastern University. He is a member of the AP Calculus Committee for the College Board and the TICAP Advisory Board. His students make extensive use of graphics calculators, and he is actively involved in training teachers to make effective use of this technology in their own classes. He regularly conducts graphics calculator workshops for the College Board. For each of the last four years, Steve has received a state level Presidential Award for his teaching and his work in support of teaching.

An Introduction to the TI-82
Doug Kuhlmann, Phillips Academy

An overview of the capabilities of the new TI-82. This demonstration will assume no knowledge of graphics calculators and will cover topics from precalculus and calculus. A limited number of TI-82's will be available for use during the demonstration.

Advanced Topics on the TI-82
Doug Kuhlmann, Phillips Academy

An exploration of topics from calculus and data analysis using the TI-82. Some programming will be demonstrated also. Emphasis will be on those features on the TI-82 that are not available on the TI-81.

Doug Kuhlmann received his Ph.D. in harmonic analysis from Northwestern University in 1978. He has been teaching in private secondary schools for twenty years, the last eleven at Phillips Academy, Andover, where he is presently chair of the Mathematics Department. His interests include the incorporation of graphing technology into the precalculus and calculus curriculum.

Intermediate Level Graphics Calculator Workshop: A Recipe for Excitement in the Classroom
Alice Burstein, Middlesex Community Technical College   *Bursteen*

Bob
4:45–6:00

Recipe:
1. Fill classroom with students.
2. Add graphics calculator
3. Mix Well
4. Season with interesting creative efforts
5. Allow ample time for exploration and discovery.
6. Savor result.

Since her first taste of graphing calculators, Alice Burnstein has been "cooking up a storm" in her classes at Middlesex Community Technical College in Middletown, Connecticut. Her menu also includes involvement in the Connecticut Calculus Consortium, MATYCONN, the Connecticut Basic Skills Council, and the Center for Teaching Excellence, as Chair of the Barnes Seminar on Excellence in Teaching.

A Fractal Vision of Nature
F. Kenton Musgrave, George Washington University

Fractal geometry is a potent new language of shape, particularly for many forms found in nature. Computer graphic "fractal forgeries of nature" can simultaneously represent illustrations of the descriptive computer graphics, and fine art works born of an exceptionally abstract creative process. This talk will illuminate some aspects of these diverse undertakings. In a sort of travelogue of a synthetic universe, we will explore how models of fractal landscapes are evolving into entire synthetic planets which, in years to come, we will be able to explore in an interactive virtual reality setting.

Professor Musgrave recently received his doctorate in computer science at Yale University, where he has worked for the past six years with Professor Benoit Mandelbrot. Musgrave's images are world renowned in the fields of fractal geometry and computer graphics. His peculiar blend of art and computer graphics research has lead Mandelbrot to credit him with being "possibly the first fractal-based artist". Musgrave is now an assistant professor of computer science at George Washington University.

Precalculus Laboratories: Functioning in the Real World
Judy Moran, Trinity College

In the spirit of the calculus reform movement, this workshop will illustrate the use of real-world data in a computer/(graphics calculator) precalculus laboratory. Participants will work in groups on a lab exercise and discuss techniques to encourage exploration and group interaction among their own students. We'll suggest specific strategies for incorporating a lab into your course, including the effective use of teaching assistants, scheduling of assignments, and grading criteria.

Judy Moran has taught at Northern Essex Community College, the University of Massachusetts, Smith College, and is currently at Trinity College. Together with Marsha Davis from Eastern Connecticut State University, and Mary Murphy from Smith College, she has written a precalculus lab manual and is currently writing an accompanying text. Her field is discrete geometry and she attended the NSF Regional Geometry Institute at Smith during the month of July. The Institute brought together high school teachers, college undergraduate and graduate students, college teachers, and world class researchers. Mathematics education at all levels was a major concern for all participants.

Student Chapter Workshop: How to Grow Fractal Trees
Michael Frame, Union College

We begin by discovering geometrical rules to produce simple fractal shapes. Through computer experiments, we see how changing the rule alters the fractal. From these steps we learn to find rules for "approximately" realistic trees. Software will be provided for participants bringing a Macintosh disk.

Trained as a topologist, Michael Frame has been working with fractals and chaos for about ten years and has been teaching courses on them for the past seven at Union College and Yale University. With physicist David Peak, he has written *Order and Chaos, Art and Magic*, an introductory fractals and chaos text for humanities students, to be published by W. H. Freeman in early 1994.

Christie Lecture: The Early History of the Lucasian Chair
James J. Tattersall, Providence College

In 1663, Henry Lucas, the long-time secretary to the Chancellor of the University of Cambridge, made a bequest, which was subsequently granted by Charles II, to endow a chair in mathematics at the University. There were a number of conditions attached to the Chair but the most important required the Lucasian Professor to present to the Vice-Chancellor each fall a written copy of not less than ten lectures that he had delivered in the previous year. Isaac Newton, Charles Babbage, George Stokes, and Paul Dirac were Lucasian Professors. The Chair is currently held by Stephen Hawking. Many of the early Lucasians were diligent in carrying out their Lucasian responsibilities but, as history shows, such was not always the case. We examine the first 150 years of the Lucasian Chair and uncover some untold stories and some interesting mathematics.

James J. Tattersall, Professor of Mathematics at Providence College, received degrees in mathematics from the Universities of Virginia (B. A.), Massachusetts (M. A.), and Oklahoma (Ph. D.). In 1985, he was a Visiting Scholar at the Department of Pure Mathematics and Mathematical Statistics at the University of Cambridge and will be a Visiting Fellow at Wolfson College, Cambridge in the fall of 1994. In 1992, he received the NES/MAA Certificate of Meritorious Service Award. He serves as Historian/Archivist for the NES/MAA and editor of the *Canadian Society for the History and Philosophy of Mathematics*. In the history of mathematics, besides Lucasian Professors, his interests include women and mathematics at Cambridge and Thomas Jefferson's contributions to mathematics.

NES/MAA Teaching Awardee Presentation:
Baring the Beauty of Euclid's Algorithm
Thomas Moore, Bridgewater State College

This ancient algorithm for the greatest common divisor has much more to offer than is commonly found in the standard number theory and discrete mathematics presentations, as you will see.

Tom Moore, Professor of Mathematics at Bridgewater State College (MA) is a 25 year member of the MAA and is the Northeastern Section's second Distinguished Teaching Award winner. His nonmathematical interests include directing a parish choir, playing tennis and finding quality time to spend with his wife Kathleen and their four daughters.

Engaging Students in Mathematics (Panel Discussion)
Bob Case and Carla Oblas, Northeastern University;
Judy Moran, Trinity College; Michael Frame, Union College

This panel discussion will focus on techniques for engaging students in Mathematics. The panelists will describe their techniques. They will share some of their successful experiences and will tell us what they learned from some of their ideas that did not work. After this initial presentation from the panelists, there will be an exchange of questions and comments between the panelists and those in the audience.

Bob Case is Associate Professor of Mathematics at Northeastern University. Across thirty years of college teaching, he has been involved in investigating the way people learn mathematics. His priorities include working to increase the number of minority students who complete the

precollege mathematics sequence in high school. Bob conducts a reform precalculus and college level calculus program for city high school students. The program has a strong support system with undergraduate mentors and associates who are secondary school teachers. It employs learning by discovery, group problem sessions and graphics calculators.

Carla Oblas is coordinator of entry level mathematics courses at Northeastern University and Academic Coordinator of the Balfour Academy which is an academic summer program of enrichment for 150 inner city youth. With over twenty years experience in teaching mathematics and conducting workshops, Carla has developed an expertise in working with students to improve their self-confidence and critical thinking ability using dialogue and group discovery techniques.

STUDENT CHAPTERS

With the assistance of the Exxon Education Foundation, the MAA/NES and Bentley College are co-sponsoring a Student Career Conference, "Mathematics Opens Doors to the World". The conference, which is open to college and high school students and faculty, will take place on Saturday, October 30 at Bentley College in Waltham, Massachusetts. By now, all department chairpersons should have received information about the conference and I hope you will encourage your students and faculty to attend.

Our keynote speaker, Dr. Leon Seitelman, Senior Applied Mathematician at Pratt and Whitney, will focus on industrial problem solving - how mathematics is used to solve problems with engineering or scientific bases. Participants will be able to select three of ten workshops in the areas of: medicine, computers and technology, banking, operations research, teaching, information systems, statistics, telecommunications, environmental sciences and actuarial science. All workshops will be presented by professionals in the field. Representatives of various graduate programs in the Northeast will be available to meet with interested students. The deadline for registration is October 15 and workshops will be assigned on a first-come, first-served basis. If you need additional information on this conference, please contact me at the telephone number or e-mail address below.

Details of the student program for our Fall Section Meeting on November 5-6 may be found elsewhere in this *Newsletter*.

Karen J. Schroeder
(617) 891-2267
e-mail kschroed@bentley.edu

REVISION OF THE SECTION BYLAWS

The proposed Bylaws for the Northeastern Section follow. These will be voted on during the Business Meeting of the Section to be held on Saturday, November 6, 1993 in conjunction with our meeting at Westfield State College. Additions are printed in italics; deletions are indicated by a line through the appropriate text. Should you have any comments prior to this meeting, please notify Dennis Luciano, Chair of the Bylaws Committee and Section Governor, whose address appears on the inside cover. Other members of the Bylaws Committee include J. J. Tattersall of Providence College and Karen Schroeder of Bentley College.

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~~By-Laws~~ *Bylaws* for the Northeastern Section of the

Mathematical Association of America

ARTICLE I

Name and Purpose

1. The name of this Section shall be the Northeastern Section of The Mathematical Association of America, Inc., herein referred to as "Section."
2. The Mathematical Association of America, Inc. shall herein be referred to as "national organization."
3. The purpose of this Section shall be to assist in the improvement of ~~the~~ education in the mathematical sciences at the collegiate level by carrying out the purposes of the national organization within the territory of the six New England States (Maine, New Hampshire, Vermont, ~~Massachusettts~~, *Massachusetts*, Rhode Island, and Connecticut), and the four Canadian Provinces of New Brunswick, Newfoundland, Nova Scotia, and Prince Edward Island.

ARTICLE II

Membership

1. The membership of the Section shall be limited to:

   a) members of the national organization whose mailing address is in the territory defined in Article I, Section 3, unless ~~a member~~ *the national organization* has notified the ~~Secretary~~ *Section* otherwise;
   b) members of the national organization who have become members of this Section by petitioning the Committee on Sections for reassignment, in accordance with Article ~~IV~~ *VI* of the ~~By-Laws~~ *Bylaws* of the national organization;
   c) members of the national organization residing in territory not included in any Section of the organization who notify the ~~Secretary~~ *the national organization* that they wish to be members of this Section.

ARTICLE III

Officers

1. The officers of this Section shall be Chairperson, Vice-Chairperson, and Secretary-Treasurer.
2. The Executive Committee of the Section shall consist of the officers of the Section, *the Section Governor,* the immediate Past-Chairperson, ~~and~~ the Two-Year College Representative, *and the Newsletter Editor.*
3. *The Advisory Council of the Section shall consist of the Chairpersons of all ad-hoc Committees and special appointments made by the Executive Committee.*
3. ~~The Section Governor shall be an ex officio member of the Executive Committee.~~

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4. Each ~~Section Officer~~ *member of the Executive Committee and the Advisory Council* must be a member of the national organization and of this Section.

5. ~~The officers~~ *The election process* shall be ~~elected~~ as follows:

   a. The Vice-Chairperson, Secretary-Treasurer, and Two-Year College Representative shall be elected in even numbered years at the *regular* Fall meeting of the Section and shall assume office upon the adjournment of that meeting;

   b. The ~~Chairperson shall be elected~~ *Vice-Chairperson succeeds to the position of Chairperson* in odd numbered years at the *regular* Fall meeting of the Section and shall assume the office upon adjournment of that meeting;

   c. The Chairperson and Vice-Chairperson shall not succeed themselves, *nor can the Chairperson succeed to Vice-Chairperson,* but the Secretary-Treasurer and Two-Year College Representative shall be eligible for immediate re-election.

6. The nomination procedure for Section officers and Two-Year College Representative shall be as follows:

   a. The Chairperson will appoint a Nominations Committee to recommend a slate of nominees for each position;

   b. Other nominations may be made by any member of the Section at the time of the election.

7. The duties of the Section officers shall be:

   a. The Chairperson shall preside at each *regular* meeting of the Section and at each meeting of the Executive Committee of the Section. The Chairperson shall have general charge and shall execute the affairs of the Section. ~~He or she~~ *The Chairperson* shall appoint committees of the Section and be an ex-officio member of each committee, unless directed otherwise by the membership of the Section at ~~an official~~ *a regular* Section meeting, or unless otherwise indicated in these ~~By-laws~~ *Bylaws*.

   b. *The Vice-Chairperson shall assist the Chairperson in executing the affairs of the Section.* The Vice-Chairperson shall assume all the duties of the Chairperson should such a need arise, and shall be charged with maintaining official relations with other mathematical and related scientific societies.

   c. The Secretary-Treasurer shall keep all the books, accounts and records of the Section, including minutes of ~~official~~ *regular* meetings of members of the Section and of meetings of the Executive Committee and the official correspondence of the Section. ~~He or she~~ *The Secretary-Treasurer* shall receive all monies paid into the Section for membership fees and dues and all other purposes, and shall deposit such monies in a bank to the account of the Section, and shall maintain proper and accurate books of account of the Section monies. The Secretary-Treasurer shall pay all bills of the Section out of the Section funds after these have been approved by the Chairperson.

8. The Executive Committee shall conduct the affairs of the Section between *regular* meetings of the Section membership. It is empowered to fill any vacancy among the members of the Executive Committee of the Section by appointment of a member of the Section to serve until the next *regular* Fall meeting *at which an election takes place*, unless the ~~by-laws~~ *Bylaws* of the national organization provide otherwise *as is true for the Section Governor.*

9. *The Advisory Council will meet with the Executive Committee upon invitation in order to offer advice on areas of mutual concern.*

ARTICLE IV

Meetings

1. The Section shall hold at least one *regular* meeting each year.
2. The time and place of *regular* meetings shall be decided by the Executive Committee.
3. Programs for all *regular* meetings shall be arranged by the Chairperson and an ad-hoc Committee on Arrangements appointed by the Chairperson.
4. The Section may hold special meetings, the time and place of which shall be determined by the Executive Committee.
5. The members present at any regular or special meeting shall constitute a quorum, provided the members of the Section have been notified of such meeting at least fifteen days in advance.

ARTICLE V

Registration Fees

1. A registration fee shall be charged at the *regular* meetings of the Section~~,~~*, and under the discretion of the Executive Committee may be charged at special meetings.*
2. The assets of the Section shall be used exclusively to further the purposes of the Section, and in the event of the dissolution of the Section, the assets remaining will be turned over to the national organization to be used for a purpose consistent with ~~its purposes~~ *the Bylaws of that organization.*

ARTICLE VI

Amendments

1. These ~~By-laws~~ *Bylaws* may be amended by a majority of the votes cast by the members of any *regular* meeting of the Section and are subject to approval by the Board of Governors *and the Committee on Sections* of the national organization.
2. A proposed amendment shall be submitted in writing by the Secretary-Treasurer to all members of the Section at least fifteen days prior to the time of the *regular* meeting at which the voting on the amendment will take place.
3. *A complete revision of these Bylaws will be subject to all of the same procedures required for other amendments to these Bylaws.*

SPRING 1994 MEETING

The Spring Meeting of NES/MAA will be held at Salve Regina University on June 3-4, 1994. Local arrangements are being handled by William Stout. The Program Chair is C. Edward Sandifer of Western Connecticut State University. The theme of this meeting will be *Linear Algebra* and the keynote speaker will be Steve Leon of UMass-Dartmouth. Steve served as Chair of ATLAST, a committee which studied the introductory linear algebra course for undergraduates.

MINICOURSE

The annual NES spring minicourse for 1994 will feature Robin Lock of St Lawrence University presenting *Teaching the Introductory Statistics Course*. David Damiano of The College of the Holy Cross has agreed to coordinate Local Arrangements for this event which is scheduled for April 9. This minicourse was very well received at the national joint MAA/AMS Meetings in San Antonio and we in the Northeastern Section are privileged to have the opportunity to attend one of these national MAA minicourses right here in our own region. Since many new materials and techniques are available to assist in the teaching of statistics and since the subject is now being taught by a broader range of instructors to a very varied audience this will be a timely topic presented in an engaging manner. Watch for additional details which will be mailed early in 1994.

EDITOR'S MESSAGE

Wednesday, March 9, 1994 is the date when all information for the *Spring Newsletter* must be received by the editor. My **new** address and phone number are on the inside cover.

Phil Mahler of Middlesex Community College in Bedford MA and former *Newsletter* editor was selected for the Ninth Annual **Jon G. Butler Memorial Award** this past Spring. This award is in recognition for outstanding service as union chapter president and is given by the Massachusetts Community Council. Congratulations, Phil!

The Spring Meeting of the Seaway Section will be held at SUNY-Albany. Those of you living in Western Massachusetts or Vermont may find this of special interest. For further details contact John Maceli, Department of Mathematics and Computer Science, Ithaca College, Ithaca NY 14850. maceli@ithaca.bitnet.

1993's round of Regional Dinner Meetings was great! The programs ranged from a fresh look at number theory proofs at a Hawaiian feast through reflections on the adventures inherent in producing a mathematical publication held in a campus Presidential manor. In addition, there was a down-to-earth discussion of the state of mathematics education in Vermont and an interdisciplinary approach to the group and graph theoretic, geometric, physical and chemical properties of Fullerenes at an elegant New England Inn. I am certainly looking forward to the next round.

Thanks to all the contributors to this issue for their timely and well written input. A special note of thanks to Laura Kelleher for her assistance in the proof reading and mailing of this issue of the *Newsletter*.

PRE-REGISTRATION FORM

FALL MEETING OF THE NORTHEASTERN SECTION-MAA

NOVEMBER 5-6, 1993   **WESTFIELD STATE COLLEGE**

Mail Registration Form to: Maureen Bardwell
Department of Mathematics
Westfield State College
Westfield MA 01086

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 <u>Friday, October 22, 1993</u>. 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:

Banquet 6:45 p. m. Friday: Number (   ) x $16.00 $_____

Luncheon 12:00 p. m. Saturday: Number (   ) x $11.00 $_____

TOTAL: $_____

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