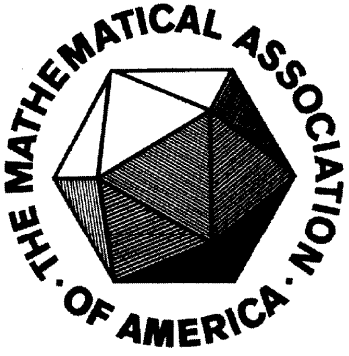
NORTHEASTERN SECTION



NEWSLETTER

SPRING 2008

Volume 30 **Number 1**

Web Page: **http:/www.maa.org/northeastern**
Webmaster: **Tommy Ratliff, Wheaton College**

EXECUTIVE COMMITTEE

NEXT SECTION MEETING

May 30-31, 2008 Spring Section Meeting
Saint Michael's College, Colchester, VT
Program Commitee: Joanna Ellis-Monaghan (co-chair),
George Ashline (co-chair),
Amy Adams,
Karl-Dieter Crisman

Local Arrangements: Lloyd Simons (chair),
Zsuzsanna Kadas,
Greta Pangborn

FUTURE SECTION MEETINGS

November 21-22, 2008 Fall Section Meeting
Bentley College, Waltham, MA
May 29-30, 2009 Spring Section Meeting
Fairfield University, Fairfield, CT

OTHER ACTIVITIES

May 30, 2008 Section NExT Meeting
Saint Michael's College

COORDINATORS

Dinner Meetings: Lucy Kimball
lkimball@LNMTA.bentley.edu

NES/MAA Distinguished Teaching Award: Tommy Ratliff, Wheaton
tratliff@wheatonma.edu

Section Project NExT: Karen Stanish, Keene State College
kstanish@keene.edu

New Colleagues Talks: Chris Aubuchon, Johnson State College
aubuchoc @ badger.jsc.vsc.edu
Phil Hotchkiss, Western New England College
PHOTCHKISS@wsc.ma.edu

Undergraduate Papers: Raimundo Kovac, Rhode Island College
rkovac@ric.edu

Contributed Papers: Rob Poodiack, Norwich University
rpoodiac@norwich.edu

Problem Competition: Jason Molitierno, Sacred Heart University
MolitiernoJ@sacredheart.edu
Rob Poodiack, Norwich University
rpoodiac@norwich.edu

Message from the Chair…….Jason Molitierno

Greetings! I hope that everyone's semesters are winding down nicely and that you are all looking forward to a restful summer.

This is my first newsletter message as Chair. I took over as Chair at the end of the Fall Meeting at Framingham State as Tommy Ratliff's term ended. Tommy did a nice job and should be commended. Having been chair for only about four months now, I have come to realize how much hard work it is, but also how rewarding it is. Thank you to all Section officers, past and present, for making this such a thriving Section.

It was great seeing so many of you at the Framingham meeting. Sarah Mabrouk organized a great meeting chairing (actually being) both the Program Committee and Local Arrangements Committee. There were many wonderful invited speakers, student papers, and contributed papers. So many thanks to Sarah.

I would also like to thank Rob Poodiack for organized the second annual Northeastern Section Collegiate Mathematics Competition at the Fall Meeting. The competition was a huge success with undergraduates from schools all over the Section competing.

Section NExT continues to be very successful. About twenty faculty members participated at the Fall Meeting. Also, Lisa Humphreys who founded Section NExT back in 2002 will be stepping down as the coordinator. Many thanks to Lisa for starting such a successful program which has been beneficial to many new faculty (including myself) over the past five years. Karen Stanish will be taking over as coordinator of Section NExT.

In other news, congratulations to David Carhart of Bentley College for winning the 2008 NES/MAA Award for Distinguished College/University Teaching. David will be receiving his award at the Spring Meeting at St. Michael's College and will be invited to give a talk on his home turf at the Fall Meeting at Bentley College.

The upcoming Spring Meeting at St. Michael's College will be held May 30-31. The meeting is a bit earlier than previous spring meetings so note that the registration deadline of May 16 is fast approaching. The Program Committee (Joanna Ellis-Monaghan, George Ashline, Amy Adams, Karl-Dieter Crisman) and Local Arrangement Committee (Lloyd Simons, Zsuzsanna Kadas, Greta Pangborn) have been working hard. It looks to be a very interesting meeting with many wonderful speakers.

The Section has been busy planning for the future. The Program and Local Arrangements Committee are busily planning the Fall Meeting at Bentley College. We have just finished arranging to have next year's Spring Meeting held at Fairfield University. More details of these meetings will follow as the time gets closer. The Executive Committee has also been considering the possibility of an on-line registration for Section meetings. Any suggestions concerning this will be greatly appreciated.

I look forward to serving as your chair for the next year-and-a-half. If anyone has any ideas for what you like to see the Section offer, I would be happy to hear them. I hope to

see many of you at St. Michael's!

Message from the Governor..... Ockle Johnson

In January the Joint Mathematics Meetings were held in San Diego. On a cool and rainy day before the meetings, the Board of Governors met. I would like to share some of the highlights.

Joe Gallian, the MAA President, related some fundraising successes. $300,000 was raised to match a $300,000 challenge donation from Virginia Halmos, who has now offered another $200,000 matching grant. An NSF grant for $500,000 was obtained to support students attending the Joint Mathematics Meetings and Mathfest. The Treasurer, John Kenelly, reported that our finances are in good order and our investments have done relatively well. There has been some preliminary investigation of "green' mutual funds. The budget committee offered a less rosy report, as the budget for 2007 was not met due to multiple factors. We voted not to increase membership dues for 2009. Membership continues to be a concern, with renewals down. Dave Mazur and I are on the Membership Committee and will be considering many suggestions from the Working Group on Membership, the Budget Committee and Bob Anastasio, Director of Marketing and Membership.

We received reports from the Cycle II Working Groups on Governance and Students. Recommendations from the Governance Working Group included a realignment of Committees and Councils, strengthening the Council structure and some proposed bylaws changes such as adding Council chairs to the Board of Governors and reducing the number of editors of journals on the Board. We voted to extend committee terms to three years and one month with an overlap at the Joint Meetings, to create sunset dates for all task forces, to ensure all committees have charges that are displayed on the web, and to establish a Committee on Assessment. Recommendations from the Student Working Group included offering complementary memberships for graduate students, linking Student Chapter membership to bulk subscriptions to Horizons, more resources and outreach for Student Chapters, and increased activities for graduate students at section and national meetings. The Working Groups on Membership is working on its report. Work continues on the Cycle III topics: Meetings, Sections and STEM.

Book sales continue to do well including the recent Euler Series. The documentary on the Math Olympiad, Hard Problems, premiered at the Meetings. The website is attracting more hits. If you haven't checked it out recently you should do so. Highlights include interesting "found math" pictures, math in the news, and the columns of Ivars Peterson, Keith Devlin and Ed Sandifer. There's still time to sign up for many of the PREP workshops.

One final note: if you have young faculty member who is an excellent teacher consider nominating her or him for the Alder Award. The MAA would like to see more nominations.

I hope to see many of you at the upcoming Northeastern Section meeting at Saint Michael's College in Vermont or at one of our upcoming dinner meetings. This summer Mathfest will be in Madison, Wisconsin. If anyone has any issues or concerns they would like me to share at the August Board of Governors meeting, please let me know.

Message from the Secretary-Treasurer ..... Ann Kizanis

In the Fall newsletter, I reported a balance of $22,015.54. Since that time, the expenses from the *Men at Work: Careers in the Mathematical Sciences Student Conference* at Bentley College were $5,937.71, while the revenue from registrations was $4,212.60. We had $3,980.25 in food expenses from the successful Fall meeting at Framingham State College. We also spent $481.24 on travel reimbursements and $225.00 for Student Awards at that meeting. The total expenses for the Fall meeting were $4,686.49, while the revenue from meeting registrations was $6,057.05. The expenses for the printing and postage of the Fall newsletter totaled $1,536.75. Moreover, we earned $330.20 in interest since the last newsletter. The 13-month CD that I opened in the amount of $12,000 in the summer with APY 4.75% will mature on July 7, 2008. Our present balance is $20,454.44.

The total expenses for our Fall meeting were $1,348.34 more than our Spring meeting expenses, while the registrations from the Fall meeting were $2,272.05 more than the Spring meeting registrations. The expenses for the postage and printing of our newsletter have increased from last spring. We spent $929.72 for the printing and postage of the Spring 2007 newsletter and $1,536.75 for the printing and postage of the Fall 2007 newsletter.

In January, I wrote and submitted our Section's 2007 end of year Financial Report, and at the beginning of the summer, I shall be writing our section's Annual Report.

That is my update for now! We are all looking forward to the Spring MAA meeting at Saint Michael's College on May 30-31, where I will update you further on our finances. I wish you all a very enjoyable spring semester!

Two-year College Representative's Report ..... Lois Martin

The 33rd annual AMATYC conference will be held in Minneapolis from November 1-4. Phil Mahler (Middlesex CC) and Lois Martin (Massasoit CC) will be accepting awards for their math teams that tied for the Northeast Region championship, topping a field of sixteen community colleges in New York and

New England. This is the 3rd time in four years that the Massasoit team has taken top honors.

In Spring 2007, NEMATYC made its first Student Math League Recognition Awards. This award program was established to foster extracurricular mathematics learning opportunities for students through participation in the AMATYC Student Mathematics League. The top-scoring student from each NEMATYC primary service area school received a $100 Recognition Award. The top student in the Northeast region for the second consecutive year, Nathan Gilbert (Middlesex Community College), will receive additional recognition at the AMATYC conference in November.

NEMATYC hosted its second successful Fall Dinner Meeting on October 12 in Worcester. Andrew Chen PhD, EduTron Corporation and MIT spoke on the topic " Cross-cultural Lore ... and Don't Shoot the Messenger!"

MATYCONN's Fall 2007 meeting will be held on October 26 at Naugatuck Valley Community College. Dr. Michael Nabel, Quinnipiac University, will speak on "Using Magic to Motivate Learning of Mathematics".

NEMATYC 2008, "Keeping it Real in 08", will be held on April 11-12 at Springfield Technical Community College. See the web site www.NEMATYC.org for a Call for Presenters.

Several area community college faculty have participated in Project ACCCESS. Marsha Pease, North Shore Community College is the newest fellow, joining Amy Adams and James Giumarra (Benjamin Franklin Institute of Technology), Marianne Rosato (Massasoit Community College), Curtis Mitchell (Greenfield Community College), and Anne O'Shea (North Shore Community College).

Glenn Pavlicek (Bridgewater State College) and Lois Martin (Massasoit Community College) were invited to address the Commonwealth Transfer Advisory Group regarding the work done by the CONNECT Mathematics group relative to facilitating transfer of mathematics courses in Southeastern Massachusetts.

From the Newsletter Editor ..... Frank Ford

With this issue, we begin our thirtieth year of Northeastern Newsletters. For most of those years, the Newsletter was the way the membership learned about meetings and other happenings in our Section. But now, the full newsletter is mailed to about one and a half percent of our members. The "Lite" version brings news of the next Section meeting and other important events such as

elections. Our web site is always there and contains a history of the Section, a record of invited talks, contributed talks, and other papers from all but one of our meetings since 1992. These are only some of the parts of the web site. From that site, you can get to my site with the last 11 newsletters still on it.

I wonder if anybody has all the back issues of the Newsletter. If you do, let me know. Maybe we can scan them all onto our web site.

Undergraduate Student Papers Presented at the NES/MAA Fall 2007 Meeting

The St. Petersburg Paradox – A Mirror of Modern-Day Risk Aversion
Richard Andrews, Western Connecticut State University
Simulation of Pigs for the Ancestors
William Eller, Keene State College
Exploring the Logistic Map using a MATLAB GUI
Chris Bresten, UMass-Dartmouth
Mathematics to the rescue: The Incredible Adventures of Keplwr
Amanda Egan and Jaclyn Haskings, Framingham State College
George David Stokes
Ruth Hibbard, Framingham State College
One Burger with Fries, Hold the Gibbs
Daniel Higgs, UMass-Dartmouth
The Harvard College Mathematics Review
Scott D. Kominers, Harvard University
A Topological Presentation on the Classification of Surfaces
Nathan MacKay, Keene State College
A Model of the Drosophila Heart
Pamela Reitsma, University of Maine
Oscillators Coupled by Piecewise Linear Functions
Joseph Salisbury, Rhode Island College
Two Versions of the Traveling Salesman Problem
Rahul Shah, Williams College
Cheap Ways to Fence your Backyard on Double Tori, Annuli, and Bands
Matthew D. Simonson, Williams College

Graduate Student Papers Presented at the NES/MAA Fall 2007 Meeting

A Group Analogue of Carmichael's Conjecture
Jonathan Bayless, Dartmouth College
Post's Problem for Strong Reducibilities
Marcia Groszek, Dartmouth College
Mathematical Models of Sleep, Neurobehavioral Performance and Alertness
Melissa A. St. Hilaire, Worcester Polytechnic Institute

Multiple Solutions for Asymmetric Nonlinear Value Problem
Lisa Termine, University of Connecticut

New Colleagues Papers at the NES/MAA Fall 2007 Meeting

Vector Dependence
Shannon R. Lockard, Bridgewater State College
A visually Intuitive Derivation of Faulhaber's Formula
Patrick Lorenz, Maine Maritime Academy
A function Field Trip
Rebecca Metcalf, Bridgewater State College
The Negative Pell's Equation's Evolution
Peter Nordberg, Worcester State College
Using Algebraic Geometry with Error-Correcting Codes
Caleb Shor, Bates College
Collaborative Assessment & Youth Achievement in Mathematics
Karen Terrell, UMass-Boston
Cardano's Contributions to Cryptography
Marina Vulis, Univesity of New Haven
Don't Give Up Any Responsibility!
Christine von Renasse, Westfield State College
Rational Curves on Calabi-Yau 3-folds
Bin Wang, Rhode Island College

Contributed Papers Presented at the NES/MAA Fall 2007 Meeting

A Potpourri of Iterated Function Systems
Len Brin, Southern Connecticut State University
Mathematical Problems from the Maine Farmer's Almanack
Bruce S. Burdick, Roger Williams College
Epidemiological Impact of ART in Burkina Faso, South Africa, and Uganda
Emmanuel Drabo, Bates College
An Assessment Procedure for a First Semester Calculus Course
Eric Johnson and Ernest Manfred, United States Coast Guard Academy
Worksheet Activities in Calculus and Precalculus
Brian Kelly, Bryant University, and Annela Kelly, Roger Williams University
Mathematics Exams in the CLEP Program: How to Make the Exams Relevant to the College Curriculum
Robin O'Callaghan, Senior Director, Mathematics Test Development, The College Board, and Marc Singer, Associate Director, CLEP, The College Board, Ney York
Arithmetical Rules for Rising the Chromatic and Diatonic Scales, the Musical Circle of the Fifths, and for Rotation in the Basic Chords
Krassimir Tarkalanov, The TJX Companies Inc.

David Carhart wins the NES Teaching Award **Jason Molitierno**

The Section is delighted to announce that David Carhart of Bentley College is the winner of the 2008 Northeastern Section Award for Distinguished College or University Teaching. His students and colleagues give him the highest of compliments on his energy and innovation:

"His innate positive energy and curiosity was infectious among the students for which the entire class benefited. Dave has the special ability to relate to students in a one-on-one situation, he built relationships with students based in respect and dignity for others. He became a mentor to many, I am proud to say that I am one."

"Dave usually arrives at work shortly after six in the morning, often six days a week, and can be found in the department office of Xerox room finalizing [brand new] handouts for his classes. In fact, Dave prepares handouts for almost every meeting of every course."

"David's work encourages me to be a better teacher… His expectations for his colleagues are similarly high and we are, as a department, grateful for the resulting push to do better!"

(From the Editor: I went to Professor Carhart's site at Bentley and I've reproduced below, with permission, some of the information there although I have reformatted it.)

David H. Carhart

Professor of Mathematical Sciences
Wilder Teaching Professor of Mathematical Sciences
DBA, George Washington University, 1983
Research Interests:
- Multi-Disciplinary Calculus Projects
- Case Studies in Mathematics
- Classroom Management
- Pedagogical Techniques
- Curriculum Development

Practice/Consulting Interests:
- Mathematical Modeling
- Statistics
- Curriculum Development

Teaching Interests:
- Mathematical Modeling
- Statistics
- Calculus

Concepts of Good Teaching

Biography:

Current teaching and research efforts are concentrated on the applications of mathematical models in management; notably, linear programming models. Other research interests include catastrophe theory, the use of discontinuous models in the social sciences and multi-disciplinary projects for honors calculus. Recent consulting experience with the U.S. Small Business Administration and the Commonwealth of Massachusetts.

Selected Publications and Presentations:

Schroeder, Karen J, Carhart, David H. "From Chernobyl to Boston's Big Dig: Interdisciplinary Projects for Freshman Mathematics," in *New England Section of the Mathematics Association of America*, June 2004.

Carhart, David H, Schroeder, Karen J. "Boston's BIG DIG: Getting Down and Dirty with Volume Calculations," in *AMS/MAA Joint Meeting*, January 2003.

Schroeder, Karen J, Carhart, David H. "Chernobyl is Still Hot: Would You Eat the Mushrooms?," in *AMS/MAA Joint Meeting*, January 2003.

Schroeder, Karen J, Carhart, David H. "The Haves and Have-Nots: Using Gini's Index of Inequality," in *AMS/MAA Joint Meeting*, January 2003.

Carhart, David H, Schroeder, Karen J. "Limits and Olympic Data: Forecasting the 2002 Winning Times," in *AMS/MAA Joint Meeting*, January 2002.

Carhart, David J, Schroeder, Karen J. "Was Malthus Correct? The Problem of Rice in India," in *AMS/MAA Joint Meeting*, January 2002.

Professional Memberships:

Mathematical Association of America

Honors and Awards:

2002, Student Government Association Faculty Member of the Year

2001, Student Government Association Faculty Member of the Year

1992, Gregory H. Adamian Award for Teaching Excellence

Tribute to Ernest Schlesinger **Perry Susskind**

(Jason Molitierno informed me of the death of a previous Chair of our Section – Ernest Schlesinger. I asked his Chair at Connecticut College, Perry Susskind, to share his tribute to Schlesinger with us.)

Memorial Minute for Ernest C. Schlesinger
Read at Faculty Meeting, Connecticut College, 4/2/08
by Perry Susskind, Professor and Chair,
Department of Mathematics and Computer Science

Ernest Carl Schlesinger was born on November 25, 1925 in Hildesheim, Germany. On November 9th, 1938, just before Ernie's 13th birthday, the infamous Kristallnacht – the night of broken glass – occurred in which thousands of Jewish homes, businesses, and synagogues were destroyed. Years later, at Connecticut College and elsewhere, at commemorations of this event, Ernie shared firsthand memories of those frightening days.

Ernie and his parents remained in Germany during the precarious days following Kristallnacht until July of 1940, after finally receiving visas to emigrate. As France had already fallen to the Germans, the family, fortunate enough in those dangerous days to have obtained visas to emigrate to America, embarked East by train. After being relieved of most of their valuables at the border, owing to the "J" stamped in their passports, they traveled across Russia to Korea, and then by boat to Japan. From Yokohama, Japan, less than a year and a half before Pearl Harbor, they boarded a ship and sailed to Seattle, arriving on August 3rd, 1940. So ended of a month-long journey to America. Incidentally, their route, which was repeated about 25 times by other refugee groups, was soon closed by the Nazis at the Eastern border.[1]

The family settled in Seattle. After a two-year stint in the U.S. Army from 1943 to 1945, Ernie received his undergraduate degree in Mathematics and Philosophy from University of Washington in 1947. He began his academic career there as an Instructor in Philosophy, and received his masters degree in 1950. Ernie then moved to Cambridge and received his Ph.D. in mathematics from Harvard in 1955. His advisor was the renowned complex analyst Lars Ahlfors, one of the preeminent mathematicians of the twentieth century, and the

[1] Some facts and phrases come from: "A Memorable Journey" by Ernest Stiefel, (Fall 2000). http://www.wsjhs.org/pdf/MemorableJourney.pdf

first recipient of the Fields Medal, the mathematics equivalent of the Nobel prize.

Ernie was an Instructor in Mathematics at Yale from 1955 to 1958, and an Assistant Professor of Mathematics at Wesleyan University from 1958 – 1962. Shortly after beginning at Yale, Ernie was afflicted with Polio and spent a month in an iron lung– it was one of the last polio epidemics in the U.S. He was lucky to have survived with no major problems. In 1962 Ernie finally came to Connecticut College.

In Ernie's college file there is a letter from his famous advisor. After making positive comments about Ernie's research and teaching Ahlfors ends with: "As for personal qualities, you could not find a nicer man." Indeed, Ernie was the most gentle, gracious and kindly individual I have ever met. Because of these qualities, and because he had a keen mind and a knack for conveying ideas, Ernie was an inspiring and beloved teacher and was adored by his students. As an instance, Ed Burger, well known mathematician, author and alumnus, wrote the following inscription to Ernie in his book, *The Heart of Mathematics*: "To my teacher, Ernest C. Schlesinger, whose care, guidance and encouragement not only shaped who I am but set the highest standards for who I want to be."

I recall Ernie's students arranging for him to be serenaded by the Scwhiffs on his birthday. Some of his students, perhaps in the hope that it would provide inspiration and aid them in completing challenging homework assignments, would quietly imitate Ernie's slight German accent while talking about mathematics. The fondness students felt for Ernie was accompanied by great respect. Many of you recall that in the old days, faculty were addressed as Mr. or Ms. rather than with the title, Professor. So it was Mr. Susskind or Ms. Baird, but among the students it was always, Dr. Schlesinger. Somewhat unexpected then was Ernie's impish side. For example, every so often, when he had to erase the blackboard Ernie would hold the eraser to the board, his arms bent at the elbow. With great seriousness and dignity, but without moving his arms, he would erase the board by leaping up and down. Ernie also was a merciless punster. No corner of the English language was safe.

In addition to teaching almost all of the courses in the mathematics curriculum, Ernie also taught introductory computer science at the college for many years, and so was instrumental in developing our fledgling program in computer science. Ernie chaired the mathematics department and served on and chaired innumerable committees including PPBC and the Grievance Committee.

As part of his graciousness Ernie was a strong influence over many years on faculty civility, and even during contentious moments was always the

one who kept his head and sought harmony within the department and the college.

Though his work at the college led him away from his early research, Ernie was an accomplished mathematician who worked in a difficult and central field. (Indeed, Ernie worked in a very tough league: many Fields medal recipients until five or ten years ago worked in related areas.) His earliest paper, *Conformal invariants and prime ends*, appeared in the venerable, *American Journal of Mathematics*. The results in this 1958 paper, particularly his definition of the mathematical object, "prime end," by way of "extremal length," figured prominently in chapter four of his advisor's classic book, *Conformal invariants: Topics in geometric function theory*. (If you would like to have one, used copies of this book are available at Amazon.com for $2,000.) Ernie's work has retained its relevance, continues to be cited to this day – I've checked – and has become part the standard mathematical landscape for practitioners in the field. Recently, I met a well-known complex analyst at a conference who, having studied Ernie's work and knowing that I taught at Connecticut College, asked me if I thought Ernie would be willing to correspond with him about some mathematical questions he had. I replied that I did not know, but that I thought Ernie would be tickled by the request.

Of course, there is more to say. Ernie along with his wife Gaby have through the years been guided by the principles of *tzedakah* and *tikkun olam* – literally, *righteousness* and *healing the world*. For them this has translated into significant community service, giving to innumerable charitable causes, and seeking social justice. Ernie served on New London's Finance Board for twenty years, was chair for twelve years, and was reputed to be one of very few who ever actually read the entire city budget. He also served on and chaired New London's Appropriations Board and the Sewer Authority, where he negotiated with Waterford in the building of the sewage treatment plant. (As Gaby said on the phone yesterday, "you should think of Ernie every time you flush the toilet.")

Through the years Ernie and Gaby made generous contributions to truly innumerable deserving causes. There were many donations to the college including endowing two funds for the Connecticut College Library: the Elsa Pintus Fund in honor of Gaby's mother, and the Kurt and Edith Munter Fund. Both of these are used to purchase books in Jewish Studies. A special interest of Ernie's was promoting women in mathematics. Indeed, Ernie and Gaby have through the years devoted themselves to many progressive causes.

Ernie was blessed with a loving family: son David, daughter Eva, daughter-in-law Rachel, his loving wife Gabriella, and also, until she died, his mother-in-law Elsa Pintus.

There is an ancient Jewish legend, going back to the time of the prophet Isaiah, of the *Lamed-Vov Tzaddikim* or *thirty-six righteous ones*. In this legend the "world requires a minimum of thirty-six righteous individuals in order to exist." The Lamed-Vov redeem the world "through their capacity to feel the collective suffering of the human race and to respond to the suffering around them." No one knows who they are, including the Lamed-Vov themselves. We can see their work everywhere in the "acts of good people who rise to great acts in difficult circumstances."[2] At Ernie's house two evenings after his funeral, one gentleman suggested that Ernie might have been one of the Lamed-Vov. Perhaps this was hyperbole – though certainly there is no better time for such hyperbole. For those who knew Ernie, however, it is easy to imagine that he might indeed have been one of the 36.

Given such precarious beginnings, Ernie might not have lived past his early teens. As a friend and colleague I am struck by what a marvelous life he had. He was an accomplished mathematician, a beloved and effective educator, was a genial force in faculty governance, made important contributions to progressive causes, both locally and everywhere it was called for, and had a loving and devoted family. Most of all Ernie appreciated his life as the wonderful gift that it was.

Mr. President, I request that these remarks be recorded as part of our faculty minutes.

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[2] Description of the Lamed-Vov, paraphrases and quotes are taken from, "Miracles of the Common Way" by Rev. Henry Ticknor (December 5, 2004) http://www.uushenandoah.org/sermons/041205.htm

Call For Undergraduate Papers
Undergraduate students from the Northeastern Section are invited to present talks at the fall meeting on topics in mathematics, statistics, or computer science. The presentations should be 10 minutes in length, on expository work, research projects, employment experiences, or problems from mathematical periodicals. The registration fee and cost of meals will be waived for one student presenter per paper. Interested students should submit:

- the title of the presentation
- an abstract of no more than 80 words
- full name
- email address
- mailing address
- college/university affiliation
- indication of desire to attend the Friday Banquet and the Saturday lunch, or both
- the name and email address of a faculty sponsor,

to Julie Levandosky, jlevandosky@frc.mass.edu; please use "NES/MAA Undergraduate Student Paper Session - Submission" for the subject line. The deadline for abstract submissions in May 16th.

Call for Graduate Student Papers
Graduate students, full-time and part-time, are invited to present papers on topics in mathematics, statistics, or computer science. Graduate students at any stage of their graduate work are welcome to give a presentation during the session. The presentations, approximately fifteen (15) minutes in length, can be given on expository work, research projects, variations on intriguing proofs, interesting problems in mathematics, work derived from periodicals, employment experiences, summer/independent research experiences, or parts of or work related to Master's or Doctoral research projects. The registration fee and the cost for Saturday lunch will be waived for one graduate student presenter per paper. Interested graduate students should submit:

- the title of the presentation,
- an abstract of no more than 100 words,
- full name,
- college/university affiliation,
- contact information (phone number, fax number, and email address),
- audio-visual/technology needs for the presentation,
- the name of a faculty sponsor,
- full contact information and affiliation for the faculty sponsor.

to Julie Levandosky, jlevandosky@frc.mass.edu; please use "NES/MAA Graduate Student Paper Session - Submission" for the subject line. The deadline for abstract submissions in May 16th.

Call for Contributed Papers

Participants at the Fall and Spring Meetings of the section are invited to submit contributed papers. We are particularly interested in papers which will appeal to a variety of participants. If you are planning to speak about results of your research, keep in mind that the audience most likely will not be familiar with your specialty, so you will want to give some motivation and context for your work. Your presentation should be approximately 15 minutes in length. Please send an abstract and your mailing address together with a list of any special equipment you may need to Rob Poodiack at rpoodiac@norwich.edu. E-mail submissions are preferred, but you may also send a typed submission to

Rob Poodiack
Department of Mathematics
Norwich University
158 Harmon Drive
Northfield, VT 05663.

The deadline for abstract submissions in May 16th.

SPRING MEETING OF NES/MAA
SAINT MICHAEL'S COLLEGE, COLCHESTER, VT

Program Commitee:
Joanna Ellis-Monaghan (co-chair),
George Ashline (co-chair),
Amy Adams,
Karl-Dieter Crisman

Local Arrangements:
Lloyd Simons (chair),
Zsuzsanna Kadas,
Greta Pangborn

Friday, May 30, 2008: NES/MAA Project NExT Program (all full-time untenured faculty are welcome)

12:00 – 2:00 p.m.	**Lunch and Presentation**

Friday, May 30, 2008: NES/MAA Spring Meeting

2:00 – 6:00 p.m.	**Registration**
1:00 – 2:30 p.m.	**Executive Committee Meeting**
3:00 – 3:50 p.m.	**Groundwater Contamination: A Mathematical Simulation of Alcohol Assisted Bioremediation** George Pindar, University of Vermont
4:00 – 4:50 p.m.	**An Introduction to Statistical Genetics and Family-Based Associative Tests** Kimberly Pearson, Harvard School of Public Health
5:30 – 5:50 p.m.	**Undergraduate Student Papers**
6:00 – 7:50 p.m.	**Reception and Banquet**
8:00 – 8:50 p.m.	**Battles Lecture:** **Chaos and the Mathematics of Prediction: Hurricane Katrina, Harry Potter, and Happiness** Christopher Danforth, University of Vermont

Saturday, May 31, 2008

8:00 – 11:30 a.m.	**Registration**
8:00 – 9:00 a. m.	**Contributed and Graduate Student Paper Sessions**
9:00 – 9:50 a. m.	**Mathematics, Biomedicine and Nonlinearities: Modeling versus Science Fiction** Daniel Bentil, University of Vermont
10:00 – 10:30 a.m.	**Break**
10:30 – 11:20 a.m.	**Ticks, Mosquitoes, Diseases and Mathematics** Holly Gaff, Old Dominion University
11:30 – Noon	**Business Meeting**
12:00 – 1:00 p.m.	**Lunch**

1:00 – 1:50 p.m.	**Agent-Based Modeling in Teaching and Research** Charles Hadlock, Bentley College
2:00 – 2:50 p.m.	**Workshop: Mathematics and Juggling** Gregory Warrington, Wake Forest University
2:00 – 2:50 p.m.	**Workshop: Clickable Calculus: The Syntax-Free Way in Maple** Robert Lopez, Maplesoft

Abstracts/Biographies

Mathematics, Biomedicine and Nonlinearities: Modeling versus Science Fiction

Abstract: The presentation will give a general overview on some aspects of mathematical modeling in the life sciences and medicine. Examples will be drawn from diverse fields to reinforce the dire need for quantitative reasoning in the aforementioned disciplines, which have been considered within certain circles as "non-mathematical areas" and/or "mathematics has no place here." An attempt will be made to address the need to build realistic, testable models without which modeling results might be nothing more than science fiction. This talk will focus on the art of genuine mathematical modeling with examples drawn from cell, muscle, renal and developmental biology. This interdisciplinary modeling challenge will attempt to present realistic model mechanisms, based upon experiments, which capture some of the key pathophysiological, biochemical and mechanical processes that may be involved in the dynamic processes. The speaker will discuss extensions to some of the models, together with some recent experimental work stimulated by the mathematics.

Biography: Daniel E. Bentil is an Associate Professor of Applied Mathematics, and Molecular Physiology and Biophysics at the University of Vermont. He received his doctoral degree in Applied Mathematics and Mathematical Biology from the University of Oxford, England, in 1991, and two-year NSF Postdoctoral training at the University of Washington in Seattle, WA. Dr. Bentil was a 1987 Commonwealth Scholar and the recipient of a 1995 NSF CAREER award.

His research interest is at the interface of applied mathematics and the biomedical sciences, including designing appropriate mathematics courses for life science majors. He has a well-funded and active research group focusing on broad issues and linkages between quantitative principles of muscle, vocal fold, and lung physiology. His work relates to systems-based approach to the study of physiological structures and processes from microscopic to macroscopic levels. Some of the underlying pathophysiological processes are intrinsically stochastic, and utilize paradigms from statistical mechanics, condensed matter physics,

biophysics, molecular biology, nonlinear systems, signal processing, and applied mathematics. He finds complexity, multiple factors and systems-based approach to modeling biomedical phenomena stimulating, because modeling such systems successfully requires a wide variety of techniques.
Dr. Bentil serves on the Editorial Board of the Journal of Science and Technology and Special Issue of the EURASIP Journal on Advances in Signal Processing. He is currently a member of the National Institutes of Health's Biomedical Research and Training Program Review Group. His avid passion is to expose as many people (US and non-US citizens) as possible to the cultural, educational and historical legacies of Ghana.

Chaos and the Mathematics of Prediction: Hurricane Katrina, Harry Potter, and Happiness

Abstracat: For centuries, scientists have developed increasingly sophisticated mathematical models in an attempt to uncover the rules by which the physical world evolves. Their ultimate goal is not only to understand the nature of the systems they observe, but to predict how they will behave in the future. The modern computer has enabled vast improvements in many (but not all) of the predictions made using mathematical models, and the internet has broadened their scope to include social behavior. In this talk, we discuss the implications and mathematics underlying prediction of the following: longitude while sailing across the Atlantic in the 1600's, how long your flight will be delayed, the path of Hurricane Katrina, the Earth's climate in 2100, the next big entertainment hit, and emotional well being in the instant messaging era.

Biography: Dr. Danforth earned a B.S. with honors in Mathematics and Physics from Bates College in 2001. In 2006, he received a Ph.D. in Applied Mathematics and Scientific Computation from the University of Maryland, College Park, where he worked with James Yorke and Eugenia Kalnay of the Chaos group. He is currently on the faculty of the College of Engineering and Mathematical Sciences at the University of Vermont, where his work is on modeling and predictability of a variety of biological, natural, and physical systems.

Ticks, mosquitoes, diseases and mathematics

Abstract: The intersection of mathematics and biology has provided a wealth of new and exciting topics for engaging teaching and research. Infectious diseases affect everyone and provide a conceptually easy area of biology for mathematicians. I will present an introduction to infectious disease modeling with examples from my research into Rift Valley Fever (a mosquito-borne disease in Africa) and Ehrlichiosis (a tick-borne disease of the Southeastern US).

Biography: Dr. Holly Gaff is an Assistant Professor in the School of Community and Environmental Health in the College of Health Sciences at Old Dominion University and is affiliated with the Virginia Modeling, Analysis and

Simulation Center. Dr. Gaff earned her Ph.D. in Mathematics with an emphasis in Mathematical Ecology at the University of Tennessee, Knoxville, in 1999, and her B.S. in Mathematics/Environmental Sciences from Taylor University in 1993. Between graduate school and her current position, she worked as a postdoctoral fellow, a management consultant, a defense contractor and an assistant professor at the University of Maryland, School of Medicine. She is actively involved with the Society for Mathematical Biology and the Association for Women in Mathematics. She is also an avid rugby player, currently playing for the Norfolk Storm Women's Rugby Club.

Agent-Based Modeling in Teaching and Research

Abstract: The ready availability of powerful personal computers has added great impetus to the use of simulation experiments in exploring complex phenomena in many fields. Similar to the way that experimental economics has lent new dimensions to a field that had been constrained by classical theories of equilibrium, agent-based experimental programs allow for the investigation of complex interactions and evolutionary dynamics by a wider group of interested parties from diverse fields and walks of life. This talk will review some recent examples from pedagogical, policy, and research points of view. The subjects will include issues as diverse as the threat of a pandemic flu, the collapse of civilizations, evolutionary game theory, and everybody's favorite (?) topic this year, politics.

Biography: Charlie Hadlock is the Trustee Professor of Technology, Policy, and Decision Making at Bentley College. During an earlier career with the consulting firm of Arthur D. Little, he worked on many landmark environmental cases, and more recently his service-learning students have been working to support environmental policy initiatives in the Massachusetts state government. His three MAA books include Mathematical Modeling in the Environment, Mathematics in Service to the Community, and, just to show he really is a mathematician, Field Theory and Its Classical Problems (a Carus Monograph).

Clickable Calculus: The Syntax-Free Way in Maple

Abstract: "Clickable Calculus" refers to Maple's remarkable set of user-interface features that makes common mathematical operations as easy as 'pointing and clicking'. This 'Point & Click' interface makes Maple easier to use than ever before. It greatly shortens the learning curve for new users. Unique among professional math tools, Maple provides both computational power and a new-generation user interface that allows students and new users to become proficient with Maple without the burden of learning commands and their related syntax. The result is that instructors can spend their time teaching mathematics rather than the tool. Overall, teaching and learning become more efficient and effective.

By solving a spectrum of standard (and not-so-standard) problems drawn from precalculus, and calculus of one and several variables, this session will

demonstrate the potential of “Clickable Calculus” to enrich the mathematical experience. This will be a ‘hands-on’ workshop in a computer lab so participants can directly explore the pedagogical features of the software.
Biography: Emeritus Professor Robert J. Lopez, a classically trained applied mathematician, recently retired from Rose-Hulman Institute of Technology where he pioneered the use of Maple in the classroom. His efforts resulted in the Institute’s awards for excellence in both teaching and scholarship. For thirty months he was on leave from RHIT and was the leading Maple Ambassador, giving numerous seminars, invited addresses, and workshops in the use of Maple in the classroom. Dr. Lopez is a gifted educator and a Maple ‘Fellow’ and presently works full time for Maplesoft, Inc. in Waterloo, Ontario, Canada.

An Introduction to Statistical Genetics and Family-Based Association Tests
Abstract: The recent completion of the Human Genome Project has opened up exciting new resources for the study of the role of hereditary causes of disease, and has resulted in an explosion of interest in the field of statistical genetics. The aim of this presentation is to provide an overview of the field of statistical genetics, describe the main challenges involved in the statistical analysis of genetic data, and discuss some of the innovative approaches used to address these challenges. In particular, the talk will focus on family-based association tests.
Biography: Dr. Kimberly Pearson received her doctoral degree in mathematics from Indiana University in 1995, writing her dissertation in topology under the guidance of Prof. James F. Davis. After ten years as a mathematics professor at Valparaiso University, she moved to the Harvard School of Public Health to pursue the study of biostatistics, earning a master's degree in 2006. She is currently a Research Fellow in the Department of Biostatistics at Harvard, focusing on statistical analysis problems in reproductive health and environmental health.

Groundwater Contamination: A Mathematical Simulation of Alcohol Assisted Bioremediation
Abstract: Contamination of groundwater by petroleum compounds and other non-aqueous phase liquids (NAPLs) as a result of accidental releases or poor management practices is one of the most troubling subsurface environmental problems of our time. Because typical NAPLs are toxic to humans at very low levels, residual NAPL saturations in the aquifer can cause significant contamination of drinking water for very long periods of time.
Cleanup of groundwater, can be undertaken by a variety of methodologies, either singly or in concert. Two of the more novel strategies are “bioremediation”, the utilization of biological processes to convert environmental contaminants into innocuous substances, and “alcohol flood” which involves injecting alcohol or a surfactant into the ground to increase the solubility and mobility of the NAPL phase thereby assisting in its removal from

the aquifer.
The goal of this presentation is to *introduce these methods of groundwater remediation and show how computer-based mathematical simulation can provide insight into the combined process of enhanced bioremediation and alcohol flood.*
Biography: Dr. George F. Pinder was born and raised in Windsor, Ontario, Canada. He received his Bachelor of Science degree in geology at the University of Western Ontario (London) and his Ph.D. in geology, civil engineering and statistics at the University of Illinois at Urbana. After four years as a research hydrologist with the U.S. Geological Survey in Washington, he joined the Civil Engineering Department at Princeton University as an Associate Professor. He was promoted to full Professor five years later. He served as Chairman of the Department of Civil Engineering and Operations Research from 1980 to 1989. He served as Dean of the College of Engineering and Mathematics at the University of Vermont. from 1989-1996 and is currently head of the Research Center for Groundwater Remediation Design at the University of Vermont.
Dr. Pinder has published more than two hundred papers and reports in the area of quantitative groundwater models. He has also published eight books. The latest `Subsurface Hydrologys' was published in 2006 by John Wiley and Sons. In addition to his responsibilities as Founding Editor of the journals "Advances in Water Resources" and "Numerical Methods for Partial Differential Equations," he is also beem on the Editorial Boards of "Applied Numerical Mathematics" and "Numerical Methods in Fluids."
Dr. Pinder served as Dean of the Division of Engineering, Mathematics and Business Administration at the University of Vermont from 1992-1996; he was named a 1993-1994 University Scholar in recognition of his contributions to research and scholarship. The American Geophysical Union presented their Horton Award to Dr. Pinder in 1969 and in 1993 invited him to become an AGU fellow. In 1975, The Geological Society of America presented him with the O.E. Meinzer Award for an outstanding contribution to the field of hydrology. He received the Hinds medal of the American Society of Civil Engineers in 2002 and was named a Fellow of the Wessex Institute of Great Britain in 2004. In 2005 he was selected as a University of Vermont College Distinguished Professor and in 2007 was elected as a member of Vermont Academy of Science and Engineering (2007). In addition he has served as president, Hydrology Section of American Geophysical Union, president, International Society for Computational Methods in Engineering, chairman, Groundwater Management Committee, American Society of Civil Engineers and chairman, Groundwater Council, Environmental and Water Resources Institute, American Society of Civil Engineers.

Mathematics and Juggling

Abstract: In this workshop we will explore the relationship between mathematics and juggling. Juggling is a good source of concrete examples for concepts such as directed graphs and the cycle structure of a permutation. In turn, mathematics can be used to illuminate juggling in many ways. For example, modular arithmetic offers a simple criterion to determine whether a juggling pattern is valid. There will be juggling demonstrations in addition to the opportunity for the participants to learn (and try) elementary juggling skills.

Biography: Greg Warrington received his Ph.D. from Harvard University in 2001. Prior to his current position of assistant professor at Wake Forest University, he was a visiting assistant professor at the University of Massachusetts, Amherst and an NSF postdoctoral fellow at the University of Pennsylvania. His research is in the field of algebraic combinatorics. He started juggling in fifth grade and can now (briefly!) juggle nine balls.

Hotel Information

Rooms are available in one of the college residence halls. It is "suite-style" housing with 4 single bedrooms per suite, sharing a common area and bathroom. The cost is $58 per person, and includes a continental breakfast in the residence hall. You should preregister by May 16th for on-campus housing.

Participants who would rather stay in a motel or a hotel can open the "Food and Lodging" at the conference web site.. A number of the establishments listed offer discounts to persons attending a Saint Michael's College event. Of particular interest are the Days Inn (right across the street from Saint Michael's College) and the Double Tree Hotel which offers a $99 rate if you indicate that you are attending an event at Saint Michael's (quite nice, just off I-89).

Campus Map

For a campus map, access http://www.smcvt.edu/campusmap/campusmap.asp

Directions

For directions to the college, visit http://www.smcvt.edu/directions/default.asp

Pre-Registration

Please pre-register! On-line registration is NOT available. Please send registration form below so that it **arrives by Friday, May 16**. Checks should be made to: *NES/MAA*. **You must pre-register for the meeting and pay all charges by May 16 to be guaranteed a place at the meals and a room on campus.** If you have questions about registration, send email to lsimons@smcvt.edu. For more information about the conference, visit the conference web site http://academics.smcvt.edu/MAA_NES_Spring2008_Meeting.

Mail this form to:

Lisa McCormick
Box 252
Saint Michael's College
Winooski Park
Colchester, VT 05439

Last Name _____ First Name _____ MI _____
If you prefer other name on badge please indicate here:_____
Institutional Affiliation
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Please check all that apply to you: ☐ MAA member
Faculty member at a college or university with highest mathematics degree offered:
☐ Associate ☐ Bachelors ☐ Masters ☐ Doctorate
☐ Business, industry, government ☐ High school teacher
☐ Undergraduate student ☐ Graduate student
Pre-registration fee: MAA Member $25 ; Non-Member $30 ; Student or unemployed $10 $_____
Friday Banquet: $28 per person (Be sure to include any guests.)
Number:_____
Please indicate any special meal needs or allergies:_____ $_____
Campus Accommodation: $58 per person, per night $_____
Saturday Barbeque: $14 per person (Be sure to include any guests.)
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Please indicate any special meal needs or allergies:_____ $_____
Total Payment (Make checks payable to **NES/MAA**) $_____
Section NExT: All full-time untenured faculty are welcome, and there is no additional fee for Section NExT activities.
Are you attending Section NExT on Friday? _____Yes _____No
Are you attending Section NExT lunch on Friday? _____Yes _____No
If so, please indicate any special meal needs or allergies:

Frank Ford
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