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Metro Math

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Newsletter

Metropolitan New York Section of
The Mathematical Association of America

February 2005



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ANNUAL MEETING

Saturday, 7 May 2005
9:00 AM – 5:00 PM

York College (CUNY)
Jamaica, New York

(Inquire Within for More Information)

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Section Web Page – www.maa.org/metrony

Contact Ray Greenwell at matrng@hofstra.edu if you wish to add some interesting or useful information to the section web site. The section gratefully thanks Ray for maintaining the site over the past few years!

National Web Page – www.maa.org (both sites are linked to each other)

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MESSAGE FROM THE SECTION CHAIR

Welcome to another issue of *MetroMath*!!! Let me begin my message by highlighting a couple of actions our Section undertook since last year's May meeting. First, as part of our efforts to serve mathematics at the secondary level in our Section, we sought to sponsor junior and senior high school students for the AMC's (American Mathematics Competitions). We agreed, at the Delegate Assembly Meeting in October of last year, to sponsor 10 schools – for up to \$100 each – that have never participated or have not participated within the last 5 years. We sent out letters inviting over 700 such schools to respond to our offer (I want to thank the MAA for providing us with that list)! Unfortunately, only 4 schools responded (less than a 1% return ☺)!!! Any ideas you may have to attract more interest will be greatly appreciated! Next was *Metro NExT*, which is metropolitan New York's local version of the MAA's *Project NExT* (New Experiences in Teaching). In November, we assembled a panel for *Getting Tenure: Advice from Members of Tenure Committees* at LaGuardia Community College. I want to thank the following individuals who helped make the event a success: Ray Greenwell (Hofstra University), Dan King (Sarah Lawrence College), Talitha Washington (The College of New Rochelle), Amy H. Lin (US Military Academy), and a special thanks to George McCormack for organizing the event at his institution! Please see page 16 for a summary report from George. As always, we are very receptive to input! Thus, if you have an ideas for a *Metro NExT* activity, please let us know (preferably by our next Delegate Assembly Meeting in September)! Now, on to our annual meeting...

If you have never attended one of our Section meetings, I urge you to make every effort to attend this year! Our meeting will be held on Saturday, May 7, at York College (CUNY) – the preliminary schedule is on page 7. I believe our program has something of interest for everyone in mathematics, from teaching remediation through advanced courses, doing research, preparing for mathematics competitions, or promoting public awareness! Our invited speakers are Maria Chudnovsky and Melanie Wood, both from Princeton University. Dr. Chudnovsky will present *The Structure of Clawfree Graphs*, while Melanie Wood will discuss *Experiences in Math Competition Training: Student and Teacher*. Please see page 8 for brief bios and descriptions of these talks. We also have scheduled two panel discussions, *Promoting Mathematical Awareness: Reports from the Front Line* and *What you Can Do to Help the Cause*, and *Making the Connection with the Developmental Math Student*. Please turn to pages 8 and 9 for information about these panels and the panelists. Something new this year, as suggested by one of the attendees of our meeting last May, is in addition to our contributed paper session we will have a poster session. Please consider presenting a paper or poster, and encourage interested students to do so. See page 7 for the *Call for Abstracts*.

I am very much looking forward to our May meeting, both as chair of the section and as an attendee! I am also hopeful of seeing many new faces as well as familiar ones!

Abe Mantell

BTW: Please visit our Section web-page (www.maa.org/metrony) and take a look at the updated pictures from last year's meeting!

MESSAGE FROM THE SECTION CHAIR-ELECT

Dear members, can I get something off my chest?

On occasion and to the great surprise of those who know me, I manage to get myself invited to a cocktail party, dinner gathering, or reception of one sort or another. And during the course of the evening, speaking with my newest acquaintance in a room filled with non-mathematicians, I can sense it coming, that dreadful yet inevitable question: “So what do you do for a living?”

I learned a long time ago that the simplest and most honest response – “I’m a mathematician.” – would be met with looks of disbelief, disapproval, and sometimes even disgust. These disconcerting looks are typically followed by an avalanche of awkward inquiries (“Are you the most hated teacher on campus?” or “Can you help me balance my checkbook?”) and painful mathematical confessions (“I never understood Geometry!” or “My sophomore algebra teacher, Mrs. Sorrento, hated me”). On occasion a fellow party-goer has even taken the opportunity to discuss his or her entire dreadful mathematical history, from kindergarten to freshmen calculus. Do sociologists or art historians get this same treatment? Are linguists made to suffer so? I don’t think so. Yet this is a standard occupational hazard for mathematicians.

There was a time that I wouldn’t offer so much detail in my response. “I’m a teacher.” is all I’d say or, if pressed further, “I’m a college professor.” And only the most persistent would get the ‘M’ word out of me. This avoidance of the full truth often helped me avoid these math-hating, emotionally-draining, and buzz-killing conversations, but placing myself in the mathematical closet during parties disturbed me.

Why don’t most people see the inherent beauty of mathematics? Why don’t more people view mathematics in the spirit of fun and games, a spirit that in my opinion truly characterizes mathematics? Why don’t more people acknowledge the historic importance and continued relevance of mathematics in our lives? Despite our best efforts in the classroom, it appears we are losing the public relations battle. Perhaps we need to project the message beyond the classroom and aim our bullhorns on the general public.

At this year’s Spring meeting we are pleased to feature the panel discussion, “Promoting Mathematical Awareness: Reports from the Front Line and What you Can Do to Help the Cause.” Panelists, including Mike Breen of the AMS Public Awareness Office, will be on hand to share their experiences promoting mathematics in the greater (non-academic) community and to make recommendations to those of us wishing to become more active in this important area.

Complete information regarding meeting location and registration is included in this newsletter. Join us for what promises to be a very provocative and informative panel discussion. And get those bullhorns ready. Party attendees beware!

Dan King

MESSAGE FROM THE SECTION GOVERNOR

This was going to be my last report as governor, due to the expiration of my term at midnight on June 30, 2005. But because I've enjoyed being governor so much, I am seizing power and appointing myself governor for life. In the event, however, that my plan does not succeed, you have been mailed a ballot to vote for a new governor. I suggest that you choose carefully, because the governor has many important duties, such as going around and saying, "Hey, I'm the governor of the Metropolitan New York Section."

The most important duty is attending the governors meetings that occur twice a year, the day before the winter and summer meeting of the MAA. At those meetings, we listen to and vote on one report after another involving such issues as the budget, dues, winners of awards, changes in by-laws, and whatever else comes up. Many of these reports are not terribly exciting; the rest not exciting at all, except for those moments when we realize there is actually disagreement in the room, or maybe a point has been raised that no one has thought of before, and for a brief moment we come to life and passionately discuss a plan of action that could affect mathematicians and students for years, months, days, or even hours to come.

In the process of attending these meetings, I've learned far more than I ever wanted to about the MAA. For example, in last year's Message from the Governor (you should dig out your old copy and read it right now), I raised the question about why the MAA's ratio of staff to members is so much smaller than that of the AMS, given that dues for the organization are comparable. Now I know why: the AMS has connections with Halliburton. No, seriously, the AMS makes a lot of money from publications, particularly Mathematical Reviews. Every research institution must subscribe, so the demand is fairly insensitive to price. The MAA is much more dependent on members' dues. So pay your dues, or you will no longer have the privilege of reading these exciting governor's reports.

I also learned at the recent governors meeting that progress is being made on writing descriptions of what all the MAA committees do. Those of you who have been waiting for these descriptions before volunteering for a committee will have to wait a little longer. The rest of you can volunteer right now; just look at the list of committees at <http://maa.org/Aboutmaa/commlist.html> (you can finish reading this governor's message first) and then send me an e-mail at matrng@hofstra.edu.

Through my involvement as governor, I've become impressed with the impact that Project NExT is having on the MAA. If you are a graduate student or untenured faculty member, visit the web page for our local version of Project NExT at <http://www.maa.org/metronext>. If you are already tenured, you can still visit the page and weep about the lack of such a program when you were young and clear-headed. At our section's delegate assembly this past October, we voted to sponsor a Project NExT fellow this year, following in the footsteps of the Maryland-DC-Virginia Section, who have muddy footsteps that are easy to follow.

I hope to see all of you at our annual section meeting on Saturday, May 7, at York College, so I can find out how many of you are supporting my coup attempt.

Raymond N. Greenwell

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TREASURER'S REPORT

(as of 1/13/05)

Business Checking	\$ 8,600.87
Business Money Market	\$ 8,849.89
6-Month Business CD	\$28,728.19
Total	\$46,178.95

All accounts are with J.P. Morgan Chase Bank. Further details will be provided at the annual meeting.

Dean Nataro

2005 SPRING MEETING PROGRAM (Preliminary)

8:30	–	9:20 AM	Registration, Refreshments, Book Exhibits
9:20	–	9:40 AM	Welcoming Remarks
9:40	–	10:30 AM	Presentation: <i>Experiences in Math Competition Training: Student and Teacher</i> ¹ by Melanie Wood, Princeton University
10:30	–	10:50 AM	Break
10:50	–	12:20 PM	Panel: <i>Promoting Mathematical Awareness: Reports from the Front Line and What you Can Do to Help the Cause</i> ³ Panelists: Mike Breen, AMS Public Awareness Office Solomon Garfunkel, COMAP Melanie Wood, Princeton University Moderator: Dan King, Sarah Lawrence College
10:50	–	12:20 PM	Panel: <i>Making the Connection with the Developmental Math Student</i> ³ Panelists: Bill Jordan, Seminole Community College (FL) John Tobey, North Shore Community College (MA) Sylvia Svitak, Queensborough Community College (CUNY) John Earnest, Nassau Community College (SUNY) Moderator: Laurie Delitsky, Nassau Community College (SUNY)
12:20	–	1:25 PM	Lunch (with time to visit exhibits)
1:30	–	2:00 PM	Business Meeting
2:10	–	3:00 PM	Presentation: <i>The Structure of Clawfree Graphs</i> ² by Maria Chudnovsky, Princeton University
3:10	–	5:00 PM	Contributed Paper and Poster Sessions (see final program)

¹ See page 8 for Abstract and brief Bio of Melanie Wood

² See page 8 for Abstract and brief Bio of Maria Chudnovsky

³ See pages 8 and 9 for a brief description of the panels

Call For Abstracts: General Contributed Paper and Poster Sessions

The Metropolitan New York Section of the MAA is soliciting abstracts for the *Contributed Paper and Poster Sessions* of its 2005 Spring Meeting to be held on Saturday, May 7 at York College. All interested professionals and students are encouraged to submit an abstract. Once again this year the Contributed Paper Sessions will feature presentations on mathematical research as well as mathematics education. We will also have a *Poster Session*, something new for our meeting!

As always, high school and college students are especially encouraged to submit an abstract discussing their experience with mathematical research. To further encourage student participation at the Spring Meeting, the Metropolitan New York Section is pleased to waive the meeting registration fee and lunch fee and to provide a gratis 2005 MAA membership (including a journal subscription) for all student presenters! Teachers, please encourage your students to present!

Paper presentations will be of fifteen minutes in duration followed by a five minute question and answer period. All presenters will be recognized in the final program of the Spring Meeting.

In addition to the abstract (not to exceed 300 words), all proposals should include the name of the author(s) and presenter(s), postal address, e-mail address, phone number, and title of the proposed presentation. Please indicate any special equipment needs. High school and college student presenters should also submit the name and telephone number of their mathematics teacher or advisor.

Please submit proposals electronically to mantell@ncc.edu by Friday, April 1 for full consideration. All abstracts will be examined by a committee of reviewers. The outcome of their deliberations will be announced by mid-April. Please be certain to clearly indicate your preference regarding presentation, i.e. if you are only interested in presenting a paper (15 minute lecture), or only wish to present a poster, or if you have no preference and would be willing to do either.

For additional information regarding the *Contributed Paper and Poster Sessions* of the 2005 Spring Meeting, please contact Abe Mantell (mantell@ncc.edu).

Experiences in Math Competition Training: Student and Teacher

Melanie Wood, Princeton University

What goes into training for mathematical competitions? Is it more like training for a sport or doing traditional mathematics? I will discuss these questions based on experiences as a student and/or teacher in numerous competition settings, including *Mathcounts*, many different high school competitions, the *USA Math Olympiad Summer Program*, the *British Olympiad* training program, and *Putnam* classes at Duke and Princeton. I will also discuss how competitions and competition training enhance and detract from classroom mathematics and research mathematics – for both students and teachers.

Brief Bio of Melanie Wood

Melanie Wood has been involved in mathematics competitions from just about every angle. As a student, she served on the U.S. International Math Olympiad team twice and was a Putnam Fellow. Recently, she has trained math competitors, including teaching at the US and British Olympiad Training programs and teaching a Putnam preparation seminar at Princeton. Melanie is currently a graduate student at Princeton doing research in algebraic number theory. In 2004, she won the Morgan Prize for undergraduate mathematics research.

The Structure of Clawfree Graphs

Maria Chudnovsky, Princeton University

A graph is said to be clawfree if it has no induced subgraph isomorphic to $K_{1,3}$. Line graphs are one well-known class of clawfree graphs, but there others, such as circular arc graphs and subgraphs of the Schläfli graph. It has been an open question to describe the structure of all clawfree graphs. Recently, in joint work with Paul Seymour, we were able to prove that all clawfree graphs can be constructed from basic pieces (which include the graphs mentioned above, as well as a few other ones) by gluing them together in prescribed ways. In this talk we will survey some ideas of the proof, and present examples of clawfree graphs that turned out to be of importance in the description of the general structure. We will also some describe new properties of clawfree graphs that we learned while working on the subject.

Brief Bio of Maria Chudnovsky

Maria Chudnovsky received her PhD from Princeton University in 2003, and is currently a Clay Mathematics Institute research fellow and a Veblen research instructor at Princeton and the IAS. Her research interests are in discrete mathematics and in particular graph theory. In 2002 she was a part of the team of four researchers that proved the Strong Perfect Graph Theorem, a forty year old open problem, that had been, arguably, the central open question in graph theory. For this work, in 2004, she was awarded the Ostrowski foundation research stipend. Most recently, Dr. Chudnovsky was named by *Popular Science* as one of the top “10 scientists to watch” in their *Annual Brilliant 10* of 2004.

Promoting Mathematical Awareness:

Reports from the Front Line and What you Can Do to Help the Cause

This panel discussion will explore ways that individuals, academic departments, and organizations can get involved in promoting mathematical awareness in the larger (non-academic) community. Our panelists will share their experiences and provide suggestions for how to get involved in this important area.

Making the Connection with the Developmental Math Student

Bill Jordan spent the last 30 years teaching at Seminole Community College in Sanford, Florida. During that time, he had been recognized several times on the local, state and national levels for teaching excellence. He has coauthored four mathematics textbooks and is currently a full-time writer and part-time instructor. He will present his approach of building a bridge between what the developmental student knows and what he is going to teach them by creating a mutual atmosphere of trust and respect.

Dr. John Tobey from North Shore Community College in Massachusetts is a past recipient of the NISOD award for excellence in teaching. He is the lead author of the successful Tobey/Slater developmental math textbook series. He will present his building block approach that emphasizes repetition, reinforcement and immediate feedback.

Dr. Sylvia Svitak, a professor of mathematics at Queensborough Community College (CUNY), is one of the authors in the *Consortium for Foundation Mathematics* that wrote the developmental textbooks, *Mathematics in Action*. To make connections with the developmental student, Sylvia uses a groundbreaking unified approach to teaching proportional reasoning and percent, two fundamental (yet frequently misunderstood) components of basic quantitative literacy and critical thinking.

John Earnest from Nassau Community College (SUNY) earned a Masters Degree in Developmental Education for higher Education and is creator of the Nassau Community College Math Anxiety Program (MAP). He is continually researching the interaction of learning mathematics and the emotions which promote or hinder that learning and he will present this holistic learning approach.

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Directions to:

YORK COLLEGE Performing Arts Center - Little Theater (Building 2) Guy R. Brewer Blvd. Jamaica, NY 11451

BY SUBWAY

E, **J** or **Z** to Jamaica Center – Parsons/Archer.
A or **C** to Broadway-East N.Y.; transfer to **J** or **Z** to Jamaica Center – Parsons/Archer. Walk EAST 2 BLOCKS. Turn RIGHT on GUY R. BREWER BLVD. The PERFORMING ARTS CENTER is on your LEFT.

BY BUS

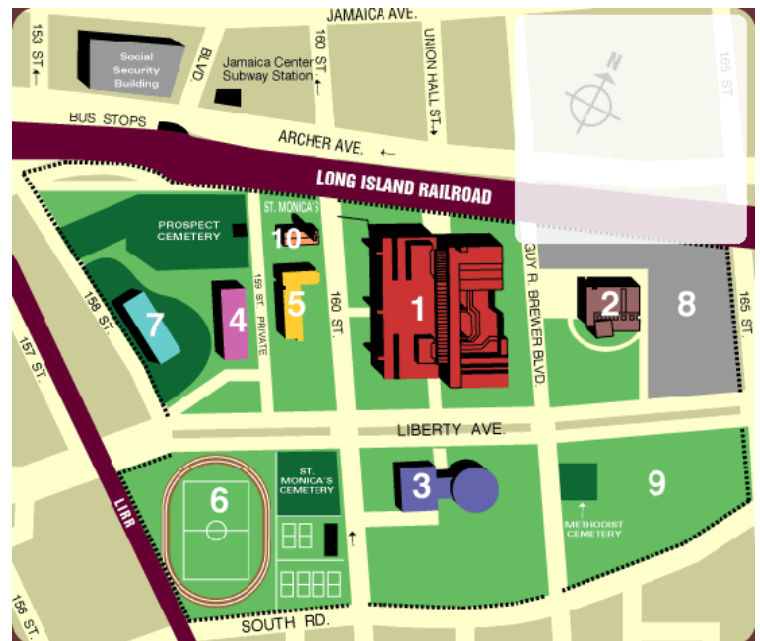
Q4, Q5, Q42, Q83, Q84 or **Q85** to Archer Ave. and Parsons Blvd.
Q6 or **Q8** to Archer Avenue and Guy R. Brewer Boulevard.
Q9, Q41, Q44, Q54 or **Q56** to Guy R. Brewer Boulevard and Jamaica Avenue
Q17, Q30 or **Q31** to Merrick Boulevard and Archer Avenue.
Q24/34 or **Q65** to Parsons Boulevard and Jamaica Avenue.
Q43 to Hillside Avenue and Parsons Boulevard.
Q111 or **Q113** to Guy R. Brewer Boulevard and Liberty Avenue.
Q112 to 160th Street and Archer Avenue.

BY TRAIN

LIRR To JAMAICA — JAMAICA STATION & ARCHER AVE.
Walk EAST 6 BLOCKS on ARCHER AVE. Turn RIGHT on GUY R. BREWER BLVD. The PERFORMING ARTS CENTER is on your LEFT.

BY CAR

1. Take LONG ISLAND EXWY/I-495.
2. Take VAN WYCK EXWY/I-678 SOUTH toward KENNEDY AIRPORT.
3. Take EXIT 4 toward LIBERTY AVE.
4. Turn LEFT onto LIBERTY AVE.
5. Drive 1.09 miles on LIBERTY AVE.
6. Turn LEFT onto GUY R BREWER BLVD.
7. The EAST PARKING LOT (8 on the map) and PERFORMING ARTS CENTER are on your RIGHT.



2005 SECTION MEETING REGISTRATION FORM

First Name: _____ M.I.: _____ Last Name: _____

Badge Name or Nickname: _____ Affiliation: _____

Address: _____

City: _____ State: _____ Zip+4: _____ - _____

Phone Numbers: Day: _____ Eve: _____ Fax: _____

Internet address: E-mail: _____

Web-Page URL: _____

→ Special diet: (circle one) Yes / No. Please specify: _____

→ Automobile parking (circle one) Yes / No

Registration Fee: On/Before 15 April \$ 5.00 _____

After 15 April \$10.00 _____

Student Registration * \$ 3.00 _____

Luncheon: Number ____ @ \$15.00 _____

TOTAL: _____

* Registration and lunch fee waived for students presenting papers.

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Copy this form and make payment with **check** made payable to The MAA. Do not send cash. **Mail** completed form with payment to:

Dean Nataro
Department of Mathematics
Nassau Community College
Garden City, NY 11530-6793

FEATURED ARTICLES

Mathematicians Launch Nonprofit Organization to Improve Math Education in U.S.

Dawn Techow, Assistant Director, Math for America

Many studies of U.S schools have shown that the quality of a student's teacher is a leader predictor of student achievement. Attracting high-quality teacher candidates is a challenge in many disciplines, particularly mathematics. Attracting them to teach in urban school districts is even harder.

There are a number of efforts underway to attract well qualified teachers in high-demand disciplines to urban schools. Typically, they are funded by governmental moneys (city, states, U.S. Department of Education), sometimes supplemented by private foundations. An exciting new initiative in this area called Math for America (MfA), was launched last year by a group of New York City area mathematicians, including Dr. James Simons, President of Renaissance Technologies and recipient of the American Mathematical Society Veblen Prize in Geometry in 1975; Dr. Irwin Kra, former Chairman of Mathematics at Stony Brook University; and Dr. Neil Chriss, Managing Director at SAC Capital and former Director of the Program in Mathematics in Finance at New York University.

MfA's first effort, the Newton Fellows Program, was launched in 2004. The Newton Fellowship Program recruits individuals with strong mathematics backgrounds and provides them with the educational training and mentoring to become an outstanding teacher. Fellows receive a full tuition scholarship for a Master's level teacher preparation program at an MfA Partner University (currently, Queens College or NYU) and an aggregate stipend of \$90,000 over five years. After the first year in full time training, Fellows become high school math teachers in the New York City public schools where MfA supports them through mentoring and professional development. In addition, as a cohort, Fellows enjoy camaraderie and assistance from their peers.

MfA believes that with the appropriate incentives, mathematically-talented individuals, who face an array of career options, will enter the field of teaching. The program targets (i) math and science graduating seniors who are undecided about a career path and (ii) mid-career professionals looking for a change. According to one study, most college graduates, in the course of choosing their career paths, consider teaching. MfA hopes to encourage more people to move from thinking to being.

The idea had been brewing in the mind of the founder of Math for America, Dr. Simons, for quite a while. Forty-five years ago, in the wake of Sputnik and the threat of Soviet hegemony in the space/arms race, President Dwight Eisenhower signed the National Defense Education Act of 1958. An important part of this extensive program awarded several thousand fellowships to graduate students in math and science. Dr. Simons, who received his PhD in mathematics from the University of California at Berkeley in 1961, was one of the first to complete his studies under the auspices of the program.

"I was given a very generous fellowship, more generous than other fellowships that were available. I remember feeling quite flush," Dr. Simons said. Over the past decade, he has thought more and more about how to bring to life the idea of a Fellowship Program to encourage the best math students to go into teaching. And while he harbors no illusions that the Newton Fellowship program alone is the solution to all the ills of math education in the United States, he does see it as a pilot and prototype of a program the federal government can undertake on a national basis. He hopes that the Newton program's success in New York and other locales, coupled with a vigorous lobbying effort by MfA, can inspire something comparable to the extremely effective N.D.E.A of 45 years ago.

The founding group of Math for America have not only contributed the funds needed to launch the program, they have committed their time, expertise and energy to build a successful nonprofit organization and ensure that the programs achieve the desired outcomes. In addition, the initial group recruited a group of eminent mathematicians and educators to serve on its Board of Directors. They include Dr. David Eisenbud, Director of the Mathematical Sciences Research Institute and current

President of the American Mathematical Society, Dr. Philip Griffiths, former Director of the Institute for Advanced Study, and Dr. Charles Vest, President of M.I.T. Dr. Alan Tucker, Distinguished Teaching Professor at Stony Brook University and Dr. Shelly Weinig, former Vice Chairman of Engineering and Manufacturing at SONY, serve as co-chairs of the 2004 Newton Fellowship Selection Committee.

MfA's first thirteen Newton Fellows went through a competitive selection process in spring 2004 to find the right combination of mathematical ability and, as Dr. Weinig put it, "the fire-in-the-belly to teach." The applicants' mathematical preparations ranged from a Ph.D. in mathematics down to a B.S. in economics with a mathematics minor.

These first Fellows are enthusiastic about their educational futures – both as students, and, eventually, as teachers of mathematics in the New York City public high schools.

"I've wanted to teach for as long as I've been willing to admit I'd eventually grow up," said Carolyn (Carrie) Staples, a self-proclaimed "true Southern Californian girl."

"My advisors in college all pushed me to enter a Ph.D. program, but I'm not really sure that's for me," Staples said. "When I heard about MfA I was thrilled because I saw it as an opportunity to expose myself to graduate work in a combination of teaching and math that seemed like it would be a much better fit for me, especially at this point in my life."

Staples' undergraduate experience showcases her diverse talents and aptitudes. In May she earned B.A. degrees in both Mathematics and Literature from Claremont McKenna College. She was a coauthor of an article entitled, "Chaotic Orbits of a Pendulum with Variable Length," published in the Electronic Journal of Differential Equations, Vol. 2004.

Juleiga Regal graduated from the University of Cape Town in South Africa with a B.S. degree in Chemical Engineering in 1998, and earned a Masters in Chemical and Bio-molecular engineering from the University of Pennsylvania in 2003.

"Having a global perspective on educational systems, I've been able to compare them and I realized that education seems to be a privilege in the States, and not a right, and I want to play a role in reversing that. Also, many students are intimidated by math, and I think that I have the ability to instruct a class in a manner that would make math less daunting. As an engineer, I've had many opportunities to implement math on a very practical level. If I can bring those experiences into the classroom, it could make things exciting and enjoyable, and hence eliminate the scary factor."

John Massari graduated from Duke University with a B.S. in economics and a minor in mathematics in 2001. Afterwards he worked on Wall Street in the foreign exchange market. For the past two years he has taught and tutored students preparing for standardized tests, such as the SAT, GRE, and MCAT at the Princeton Review.

Massari said, "I was inspired to become a Newton Fellow by my experiences teaching test prep courses to high school students and my desire to make a greater difference in my students' lives. I hope to make math both enjoyable and comprehensible to all my students."

MfA is now recruiting candidates for the 2005 Newton Fellowship Program. Approximately 40 Fellows will be chosen this year. Complete information on the program, biographies of all 13 Newton Fellows, the application process and requirements is available at www.mathforamerica.org.

The History of Undergraduate Programs in Mathematics

Joe Malkevitch (CUNY – York College), Walter Meyer (Adelphi University), Jack Winn (SUNY – Farmingdale)

Did you know that:

- “The sixth annual meeting of the Metropolitan New York Section of the Mathematical Association of America was held at Pratt Institute, Brooklyn, N.Y., on Saturday, April 19, 1947” and Dr. Lloyd Henry Beck, Department of Psychology, Yale University, spoke on “*Mathematics in Psychology*”.
- At the April 1, 1950 Metro NY MAA meeting, Professor H.F. Fehr, Teachers College, Columbia University spoke on “*What mathematics should a high school teacher know?*”
- At the eleventh annual meeting of the Metro NY Section of the MAA, held May 3, 1952, at Hofstra College, A.W. Tucker, Princeton University, spoke on “*The Theory of games?*”

This information can now be found on the Section’s web page (<http://www.maa.org/metrony>) by clicking on <history page>. You will find a collection of the meeting reports of the Section meetings circa the 1950’s. The reports were found by browsing through past copies of *The American Mathematical Monthly* using JSTOR which one may subscribe to through the MAA. We found these reports while working on an on-going project on the history of undergraduate mathematics programs in the second-half of the twentieth-century. This work has lead us down some interesting paths.

If one peruses the old reports of section meetings, it is interesting to note the attendance numbers. For example, in 1952 one hundred fifty-one persons attended the Spring meeting (eighty-four attendees were members of the MAA). In comparison, five hundred and sixty persons (including two hundred and seventy-two MAA members) attended the thirty-fifth annual national meeting of the MAA in 1951 (held at Brown University). These numbers appear to be typical for the era. Perhaps the popular advent of air travel in later years had an influence on attendance patterns at local and national meetings.

Based on the meeting reports, Metropolitan NY Section meetings in the 1950’s were structured along the lines of a business meeting together with four or five talks. Interestingly, the names of all the attendees were published in the report. It was nice to see that some of our current colleagues attended MAA meetings in the early 1950’s as young undergraduates. Unfortunately, the practice of publishing Section meeting reports no longer exists and the record of what transpires at our meetings and who attended may not be available to future mathematics educators.

Coming across historical Section meeting reports was actually ancillary to our history of undergraduate mathematics programs project goals. One of our goals is to obtain a clear understanding of why and how teaching undergraduate mathematics evolved the way it did over an approximately fifty-year period. During the second-half of the twentieth-century a number of spectacular developments occurred within undergraduate mathematics. Within the domain of Mathematics per se we saw an incredible flowering of all of the major parts of mathematics: analysis, algebra, and geometry. Without question one of the major driving forces of this flowering was the computer revolution which not only changed and broadened the mathematical questions being researched but also had vast educational consequences. We saw the emergence of “the New Mathematics”; AP Calculus; the disappearance of courses in Theory of Equations, Analytical Geometry, Solid Geometry and Solid Analytic Geometry; the creation of courses in Linear Algebra, Graph Theory, Combinatorics, Mathematical Modeling and Dynamical Systems. We have an interest in not only understanding how and why these changes came about but also in the people who were instrumental in having these changes occur. However, Mathematics Curriculum History is also concerned with the issue of whether or not the period from 1950 to 2000 was a singularity in some sense or whether other fifty-year periods saw changes as spectacular as these.

(continued on the next page)

Our project activities to date have included surveying authors of historically significant text books, a survey of long term mathematics educators (who are 50 year MAA members), studying past college catalogs, interviewing major mathematics personalities who were active in the 1950's, organizing MAA/AMS Joint Winter Meeting panels on *The history of applications in teaching undergraduate mathematics, 1950-2000* (panelists: P.Lax, C. Davis, A. Gleason, D. Maki) and *The history of curricular change: Linear Algebra 1950-2000* (panelists: P.Davis, C. Cowen, H. Edwards, G. Strang), and organizing the Session, *History of Undergraduate Mathematics in America, 1900-2000*.

Our goals include studying the evolution of the teaching of Linear Algebra and Finite Mathematics among other areas, documenting major curriculum reforms, tracing enrollment trends in the major, determining the external and internal influences on the mathematics curriculum, studying the impact of professional societies and the National Science Foundation on undergraduate mathematics programs, investigating the impact of social change (e.g. the ferment of the 1960's, Sputnik, the changing job market, etc.) on the curriculum, and finding out what past teaching methods succeeded (and why) and which failed (and why). Some particular unanswered questions and areas for investigation are:

- What was it that detached linear algebra from abstract algebra and made them separate courses, rather than having linear algebra as part of abstract algebra (as in Birkhoff and Mac Lane for example) ?
- Why did applications become more popular throughout the undergraduate curriculum starting around 1970?
- How and why do students choose to (or not to) major in mathematics? How important are the following factors in a student's decision to major in mathematics: job prospects, perceived quality of the instruction at the student's mathematics department, intellectual appeal of the subject matter, prospects for getting good grades, etc.?
- Have changes in what we teach had positive (or negative) effects on enrollments? If so, what was the nature of these effects?
- Have changes in how we teach had positive (or negative) effects on enrollments? If so, what was the nature of these effects?
- What made the 1980's the right time for the explosive spread of Discrete Mathematics courses? How much did the following factors influence the spread of Discrete Mathematics: pressure from computer science departments, opportunities to enroll computer science students in a Discrete Mathematics course, pressure from mathematics faculty who were personally interested in Discrete Mathematics, other?
- When did the "mathematical sciences" majors with names such as Operations Research, Actuarial Science, Joint Mathematics and Computer Science, arise and when did they start to flourish? What were the forces that propelled the evolution of such programs? To what extent are non-mathematicians involved in instruction and administration of these degree programs?

As you can see, creating a comprehensive history of the undergraduate mathematics program is a very ambitious multi-faceted project. If you find these questions to be of interest, we invite you to join our project and help us develop the history of undergraduate mathematics programs into vibrant and robust scholarly discipline.

Using Stories in the Mathematics Classroom

Jerry G. Ianni, LaGuardia Community College

The Summer 2004 issue of *American Educator* includes a fascinating article on the pedagogical value of stories (see [1]) by Daniel T. Willingham, Professor of Cognitive Psychology and Neuroscience at the University of Virginia. In a nutshell, research findings from the last 30 years reveal several important cognitive consequences of the story format. Teachers of all disciplines can consider using stories, or their elements, to present material and to organize lesson plans.

Willingham begins with a discussion of the story genre. Professional storytellers generally agree that every fully developed story will display “*The Four C’s*”: **Causality**, **Conflict**, **Complications**, and **Character**. A story features events that are linked to one another by causal relationships. The presence of intriguing characters makes a story relevant. Conflict emerges when the fulfillment of a goal by one or more of the characters is blocked in some way. A story broadens when complications result from the attempts to resolve conflicts.

He then describes several research studies and presents their results. Here is a summary of the findings:

- Stories are easier to understand than other forms of text.
- Regardless of the topic, material presented in story format is more engaging than expository text.
- Causal connections make stories easier to remember and are often inserted by the reader.
- A story is both more interesting and more memorable if the reader needs to make medium-level inferences.

Willingham concludes with a pedagogical discussion on general ways to incorporate stories and/or elements of the story format into lesson plans.

In the remainder of this article, I will offer a few comments on how to adapt some of Willingham’s suggestions to the mathematics classroom. In the process, I will also give specific examples by describing how I present certain topics.

The most obvious strategy is to tell more stories in class. Willingham comments that a story can provide “an ideal introduction to a new unit” since it is easy to understand and to remember. If it is well chosen, the story can become a springboard to better enable the students to enter more deeply into the material. I find this device to be useful in my linear algebra classes when I begin to discuss the coordinates of a vector in a subspace of \mathbb{R}^n with respect to an arbitrary basis. I will create a fictional context wherein an ant crawls along a tabletop. The “conflict” will be to properly describe the location of the ant. Should we use its own perspective, or should we use the perspective of a human observer? The answer, of course, depends on the fictional context! The story context translates to a two-dimensional subspace of \mathbb{R}^3 . However, as I present the technical aspects for this case and for more general subspaces of \mathbb{R}^n , I am able to refer back to the travels of the ant to help the students to remember the concept and to properly distinguish the vector space dimensions.

Another strategy that Willingham advocates is to have students read stories outside of class. These are often very motivational, and they can help clarify the reasons why certain subjects develop the way that they do. In my own mathematics teaching practice, I usually do not require outside reading of these types of resources because of the need to assign a sufficient amount of technical homework. But I try to make sure that I can direct interested students to a book such as *Flatland* by Edwin A. Abbott to give them more fictional illustrations of life and movement in other dimensions.

Willingham also discusses some methods of screenwriters that can be applied even when a story is not directly used. For example, the key to creating interesting characters is to present them in action. In addition, the main conflict of a movie is generally not introduced at the beginning. Instead, depending on the overall running time of the film, it is revealed after about 20 minutes. Accordingly,

he offers an appropriate teaching strategy: use the first few minutes of class time to build up interest in a problem (i.e., “conflict”) and then develop its solution (i.e., the formal lesson) over the remainder of the period. How does one “build up interest” in a problem? Give students the opportunity to “see” the problem in action before formally stating it, and keep in mind the research finding that interest is generated when one needs to make medium-level inferences. However, be careful! Willingham notes that puzzles are enjoyed only when moderately difficult. If too easy, they become tedious; if too hard, they become frustrating.

As an example, I will describe how I present the topic “Order of Operations” in my basic skills classes. To present the material actively, I will first invite the students to evaluate a relatively easy expression such as $5 + 3 \cdot 6$. Most likely, both 23 and 48 will be given as answers. If only one of these responses is given, then I will suggest the other possibility and ask them how I got it (a medium-level inference). At this point, the students readily perceive the need for an established order of operations. I will then remind the students that multiplication groups repeated addition. So, $3 \cdot 6$ means $6 + 6 + 6$. This grouping of addition becomes the causal link for the priority of multiplication. In like fashion, I will introduce the higher priority of exponentiation because it groups repeated multiplication; e.g., 5^4 means $5 \cdot 5 \cdot 5 \cdot 5$. At the highest level of priority would be the “arbitrary” groupings.

Along the way, I will order the inverse operations such as subtraction, division, and extraction of roots appropriately, and I will declare the requirement to evaluate from left-to-right. The key to this approach is the establishment of causality based on groupings. To emphasize it, I might even go back to $5 + 3 \cdot 6$ and rewrite it as $5 + (6 + 6 + 6)$.

I have had lots of fun and effective results using the story structure in my mathematics classes. I hope that many of the readers will also have successful experiences!

Reference

Daniel T. Willingham, The Privileged Status of Story, *American Educator*, 28 No. 2 (2004), 43-53.
[Online at http://www.aft.org/pubs-reports/american_educator/issues/summer04/cogsci.htm]

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NEWS FROM OUR SECTION

LaGuardia Community College Hosts *Metro NExT* George McCormack, LaGuardia Community College

On November 10th, LaGuardia Community College was pleased to host the Metropolitan New York Section of the MAA: *Metro NExT*. The colloquium was on *Getting Tenure: Advice from members of a tenure panel*. The event was attended by faculty from West Point, New York University, Nassau Community College, Hofstra University, and LaGuardia CC. Ray Greenwell spoke about tenure at Hofstra and Abe Mantell spoke about tenure at Nassau CC. Abe Mantell discussed an application for tenure and promotion at Nassau County Community College. At Nassau, professors are rated on a 100 point scale that assigns 70 points for teaching effectiveness, 20 points for service to the college, and 10 points for professional development. Teaching effectiveness is based mostly on peer review, and service to the college is based mostly on departmental contributions. Professional development consists of professional writing, speaking, and service to professional organizations. At Hofstra, the mathematics department has developed a sheet of criteria for achieving tenure. The major areas are teaching ability, professional development, and service to the college. Publications must include at least two peer reviewed papers in well regarded journals. One paper can fulfill this requirement,

but it must be a highly significant contribution. Unfortunately, Alan Tucker of SUNY - Stony Brook could not attend because of a severe cough, but he e-mailed what is expected in order to achieve tenure in a major research department. In addition to NSF grants, funding level must achieve about \$100,000 a year in order to support at least two graduate students after their first two years of study. At LaGuardia, our system of tenure and promotion is similar Nassau CC. At LaGuardia, professional development, college wide contributions, departmental contributions, teaching ability, and collegiality are all equally weighted.

Metro Next is a wonderful opportunity for college teaching community to get together and share ideas. Our gatherings are usually organized by e-mail, so if you or any of your colleagues in the MAA have an idea for a colloquium or collaboration with your colleagues on other campuses, don't hesitate to drop us a line. My e-mail address is gmccormack@lagcc.cuny.edu. Who knows where the idea you hear at Metro NEXt will take you.

Dowling College: Undergraduate Math and Computer Science Scholarships

The National Science Foundation Computer Science, Engineering and Mathematics Scholarship Program has granted Dowling College \$292,000 to fund 15-25 scholarships a year for four years (2004-2008). The grant, together with matching Dowling College scholarship funds, provides up to \$6,250 per year for US Citizens, refugee aliens or permanent resident aliens demonstrating financial need. Students must major in math or computer science, maintain full-time status with a GPA of 2.5 or higher out of 4.0. For information contact Dr. Sandra Monteferrante at montefes@dowling.edu. Applications are available online at http://www.dowling.edu/fin_aid/CSMS/

CALL FOR PARTICIPANTS AND INVOLVEMENT

Greater Metropolitan New York Math Fair: Call for Judges

The 37th Greater Metropolitan New York Math Fair will take place on March 13, 2005 and April 3, 2005 at Pace University in Manhattan. The Math Fair was created to encourage high school students in public, private and parochial schools in the New York Metropolitan Area to pursue a phase of mathematics in which they are interested. This pursuit takes the form of researching a topic and writing a paper on the subject. This paper is presented by the student to a panel of judges who have previously been given copies of the papers. During Round 1 (March 13) the judges decide which contestants advance to Round 2 (April 3). Students not advancing receive a personalized Letter of Achievement. All students advancing to Round 2 receive a medal, either bronze, silver, or gold and a personalized Certificate of Merit. During the second round of judging the panel of judges studying a student paper and listening to the student presentation decides upon the medal that the student should receive.

The Fair could not exist without the judges who volunteer their talents to encourage these young people in the study of mathematics. We would appreciate your judging in this year's Fair, either for Round 1, Round 2 or both. You will note that these sessions are both held on Sunday so as not to conflict with your other professional responsibilities. Judging usually starts between 12:30 and 1:00 P.M. but judges usually arrive between 11 A.M. and noon to discuss the papers with other judges on the same panel. Many judges also like to arrive early in order to socialize with other mathematicians who may be judging. For Round 1 there may be up to 100 Mathematicians judging.

A judge application is available via the section web-page. If you would like to judge in this year's Fair fill in the application and return to Peter Shenkin at the address on the application. Feel free to duplicate the application and give copies to colleagues who might be interested in judging. New judges are always welcome.

Please contact Peter Shenkin for further information. E-mail him at pshenkin@jjay.cuny.edu or call him at (212) 237-8925.

Long Island Math Fair: Call for Judges

The Al Kalfus Long Island Math Fair wants you. Treat yourself; let the students lecture. Sit back and listen to papers written and presented by bright and interested high school students from Nassau and Suffolk counties. Judges are needed for the two first rounds and the final round. The Nassau first round will be held on Friday, March 11, 2005 at Hofstra University. The Suffolk first round will be held on Friday, March 18, 2005 at Half Hallow Hills HS (East & West). The final round is Friday, April 8, 2005 at Hofstra University. All rounds begin at 3:00 p.m. For more information, call Joseph Quartararo at (631) 584-2016.

Go Back to School, Join *The Mathematics Speakers Bureau!!!*

The community needs you! Do you have a talk which would be suitable for local area students or their faculty? We are seeking out mathematicians interested in sharing their knowledge, enthusiasm, and love of mathematics. Now in its 45th year, The Mathematics Speakers Bureau (MSB) is composed of dedicated mathematicians who volunteer to speak to students and faculty of regional middle schools, high schools, colleges and universities on topics reaching beyond the traditional mathematics curriculum.

The primary goals of the MSB are to stimulate the interests of local youth in mathematics, to provide opportunities for students to meet active and enthusiastic mathematicians, to motivate students towards careers in the mathematical sciences, and to encourage cooperation between corporate and academic institutions in the mathematical education of area youth. Volunteers provide information about talks they are willing to give and the Bureau, in turn, advertises these talks to the faculty of local area schools. Schools contact speaker volunteers directly to make specific arrangements for a visit. Volunteers determine the number of presentations they give in any given academic year and always maintain the right to refuse a school invitation for any reason. The official Bureau webpage, accessible at www.maa.org/MetroNY/speakers, contains an up-to-date listing of available speakers and their proposed talks. Additional information regarding the goals, history and operation of the Bureau can also be found at this site. If you wish to volunteer with the MSB, please contact Bureau Chair Dan King at dking@slc.edu.

National Initiative to Examine Courses Below Calculus – Headed by CRAFTY

The MAA, in collaboration with AMATYC and NCTM, has initiated a major initiative to refocus the courses below calculus. The first step in this project is to assess how well courses such as college algebra actually meet the needs of the students who take them. Anecdotal evidence abounds that these courses are not particularly effective -- very high DFW rates, very low rates of students going on to calculus, very poor performance in courses in the partner disciplines. But we are aware of only a small number of such studies. As a result, CRAFTY — the Committee on Curriculum Renewal Across the First Two Years — (which is responsible for coordinating the MAA project) seeks some hard data on the student population in these courses:

- Who are the students who take college algebra and related courses and why?
- How many are successful in the courses?
- What subsequent courses do they take? How do these students do in those successor courses?
- What percentage of the students who start (or successfully complete) college algebra or a related course ever actually start Calculus I? applied calculus? How many are successful in calculus?
- Looking back from Calculus I, say, how many students came through "college algebra" courses?

If you or your department has conducted any detailed studies on any of these issues or would like to investigate these questions now and are willing to share your results with CRAFTY, please contact Shelly Gordon (gordonsp@farmingdale.edu), Bill Haver (wehaver@vcu.edu), or Jack Bookman (bookman@math.duke.edu). Any information that you provide will be kept in the strictest confidence.

Call For Abstracts: General Contributed Paper and Poster Sessions

The Metropolitan New York Section of the MAA is soliciting abstracts for the Contributed Paper and Poster Sessions of its 2005 Spring Meeting to be held on Saturday, May 7 at York College. All interested professionals and students are encouraged to submit an abstract. Once again this year the Contributed Paper Sessions will feature presentations on mathematical research as well as mathematics education. See page 7 for the particulars.

***MetroMATH* Needs You!!!**

Consider submitting a short announcement, commentary, article, study, experience, or other newsworthy item in the next issue of *MetroMath*. Contact the editor, Abe Mantell, via e-mail: mantell@ncc.edu

EVENTS

Greater Metropolitan New York Math Fair 2005

March 13, Sunday, (Round 1) Pace University in Manhattan
April 3, Sunday, (Round 2) Pace University in Manhattan
For more information contact Peter Shenkin at (212) 237-8925 or e-mail at pshenkin@jjay.cuny.edu or check the section web-page for more info and the judging request form.

Al Kalfus Long Island Math Fair 2005

March 11, Friday, (Round 1 – Nassau County) Hofstra University
March 18, Friday, (Round 1 – Suffolk County) Half Hollow Hills HS (East & West)
April 8, Friday, (Final Round) Hofstra University
All rounds begin at 3:00 PM. Grade Levels are 7-12 for math and 10-12 for computers.
For more information, call Joseph Quartararo at (631) 584-2016.

MAA Seaway Section Spring Meeting

April 1-2, 2005, Queens University, Kingston, Ontario, Canada
For more information visit: www.maa.org/seaway

MAA New Jersey Section Spring Meeting

April 2, 2005, Saturday, Middlesex County College, NJ
For more information visit: www.maa.org/newjersey

AMS Eastern Section Spring Meeting

April 2-3, 2005, University of Delaware, Newark, DE
For more info visit: www.ams.org/amsmtgs/2111_program.html

NCTM Annual Meeting and Exposition

April 6-9, 2005, Anaheim, CA
For more info visit: www.nctm.org/meetings/anaheim/

NYSMATYC Annual Conference

April 8-10, 2005, Hotel Utica, Utica, NY
For more information visit: www.nysmatyc.org/conf2005

Hudson River Undergraduate Mathematics Conference XII

April 30, 2005, Williams College, Williamstown, MA
For more information visit: www.skidmore.edu/academics/mcs/hrumc12in.htm

Metropolitan New York Section Meeting

May 7, 2005, York College, Jamaica (Queens), NY
For more information see this newsletter, or visit: www.maa.org/metrony

(continued on the next page)

Cornell Summer School in Probability

July 10-23, 2005, Cornell University, Ithaca, NY

For more information visit: www.math.cornell.edu/~lawler/sum2005.html

2005 SIAM Annual Meeting

July 11-15, Hilton New Orleans, New Orleans, LA

For more info visit: www.siam.org/meetings/an05/index.htm

Bridges: Mathematical Connections in Art, Music, and Science

July 31 – August 3, 2005, The Banff Centre, Banff, Canada

For more info visit: www.sckans.edu/~bridges/

MathFest August 4-6, 2005, Albuquerque, NM

AMS Eastern Section Fall Meeting

October 8-9, 2005, Annandale-on-Hudson, NY

For more information visit: www.ams.org/amsmtgs/2120_program.html

AMATYC Annual Conference

November 10-13, 2005, San Diego, California

For more information visit: www.amatyc.org/SanDiego/index.html

MAA/AMS National Joint Meeting

January 12-15, 2006, San Antonio, TX

For more information visit: www.maa.org/meetings/national_meetings.html

18th Annual ICTCM (International Conference on Technology in Collegiate Mathematics) Meeting

March 16-19, 2006, Orlando, FL

For more information visit: www.aw-bc.com/ictcm/

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NEWS FROM THE MAA

(some selections found at: <http://www.maa.org/news/news.html>)

Colleges Reevaluate AP Credit

It was a while ago, but we have just realized that National Public Radio ran a story on November 8, 2004 discussing the decision of several colleges to modify the way they give credit for AP mathematics courses. The story was in NPR's All Things Considered program and was reported by Robert Frederick. NPR's blurb says that "Colleges are making it more difficult for incoming students to get credit for advanced placement calculus, and some high schools are changing the way they teach calculus as a result." The report can be heard at <http://www.npr.org/templates/story/story.php?storyId=4159468>. Several prominent mathematics educators are interviewed in the piece, which also highlights the conflict between the expectations of leading colleges and the expectations of American colleges as a whole.

MAA Reviews Update

by Fernando Q. Gouvêa

MAA Reviews is the new component of MathDL that will replace (and, we hope, improve on) the Telegraphic Reviews that ran for so many years in the American Mathematical Monthly. It should be coming online Real Soon Now. Meanwhile, we have been busily entering books and reviews into the database. The goal is to have a very large database listing all books we receive from publishers, brief reviews of many of these books, and longer reviews of a smaller portion. The brief reviews will be similar to the ones in our current "Briefly Noted" column (see <http://www.maa.org/reviews/briefly.html>), and therefore longer than the TRs ever were. As we go to press, the database has entries for about

500 books, reviews of about 100 of these. Many of the books that don't yet have reviews will have them eventually.

We are still looking for volunteers to review books, especially in the areas of differential equations, probability, statistics, scientific computing, and operations research. In most cases, we are looking for brief (three to five paragraph) reviews, and expect a turnaround time of about one month between sending you the book and receiving your review. To volunteer, email me at fqgouvea@colby.edu.

Gung-Hu Award Committee Seeks Nominations

The Yueh-Gin Gung and Dr. Charles Y. Hu Award for Distinguished Service to Mathematics, presented to Gerald Alexanderson in 2005, is the most prestigious award made by the MAA. The selection committee is now seeking nominations for the 2006 prize. There is no special form or format for nominations, but they should be sent as soon as possible (and certainly no later than March 31) to the committee chair, Wayne Roberts, at wroberts@macalstr.edu. See <http://www.maa.org/Awards/gunghu.html> for more information on the award, including a list of past recipients.

New Award for Research in Undergraduate Mathematics Education

by Ann Watkins

In November, the MAA Board of Governors approved a new award, the Annie and John Selden Prize for Research in Undergraduate Mathematics Education. Annie and John Selden gave the MAA funds sufficient to support this prize, which will honor a researcher who has established a significant record of published research in undergraduate mathematics education and who has been in the field at most ten years. The prize is meant to be an encouragement to such researchers and one prize of \$500 will be awarded every other year.

Please make a nomination if you know a worthy candidate. The nominee must have a significant record of published research in collegiate mathematics education. The research can be quantitative or qualitative on topics such as cognition, affect, gender, effects of technology, teaching and learning of specific mathematical topics, motivation, writing and reading of mathematics, influence of the social structure of mathematics departments upon teaching and learning, and assessment. The subjects may be post-secondary students, pre-service teachers, teaching assistants, or the faculty who teach them. For more information and nomination forms, go to <http://www.maa.org/Awards/selden.html>.

Annie and John Selden worked in topological semigroups before turning to research in undergraduate mathematics education late in their careers. After long careers at various universities in the U.S. and abroad, they are now Adjunct Professors of Mathematics, New Mexico State University. In 2002, Annie Selden received the Association for Women in Mathematics Louise Hay Award for Contributions to Mathematics Education for being “a visionary for the promotion of research in collegiate mathematics education” and for providing “leadership for the professional community of mathematics educators.” In 2003, she was elected a Fellow of the AAAS. Before turning to research in mathematics education, John Selden directed nine Ph.D.’s in mathematics. For samples of their research in undergraduate mathematics education, read “Validations of Proofs Considered as Texts: Can Undergraduates Tell Whether an Argument Proves a Theorem?” *Journal for Research in Mathematics Education*, 34(1), 2003, 4–36 and “Can Average Calculus Students Solve Nonroutine Problems?” (with A. Mason), *Journal of Mathematical Behavior*, 8, 1989, 45–50.

Effectiveness of Mathematics Curricula

The November 24 issue of *Education Week* reports that a broad review by the government’s What Works Clearinghouse has concluded that most of the mathematics curricula used in American middle schools cannot be proved to be effective. The review considered 44 curricula currently in use and reviewed the record of research on their effectiveness. For only five programs did they feel that there was adequate data on effectiveness: I CAN Learn Mathematics, Cognitive Tutor, Connected Mathematics, The Expert Mathematician, and Saxon Math. (continued on the next page)

The Clearinghouse report focuses less on the quality of the curricula than on the quality of the research done to assess the curricula. To be considered adequate documentation, the studies had to have used randomized research trials so that the test group of students could be compared to a control group. Of 77 studies, the report found that only four fully met these standards, while seven others “meet evidence standards with reservations.” For the full report, visit What Works web site: <http://www.whatworks.ed.gov/Topic.asp?tid=03&ReturnPage=default.asp>.

A “College Readiness Crisis”

In October, the college entrance exam organization ACT released a report entitled Crisis at the Core which argues that “our nation is in a college readiness crisis.” After testing students for what they call “College Readiness Benchmarks,” they found, for example, that only 40% of high school seniors were “ready for their first course in College Algebra.” Things were even worse in Biology, and slightly better in English. Minority students were found to be less likely to be ready for college. ACT argues that the result is a large number of first-year students dropping out of college: one in four at four-year colleges, and one in two at two-year colleges.

The report also argues that their results also apply to students not headed for College. Most graduating high school students are not ready for the workplace, where increasingly the same skill set is becoming necessary.

ACT notes that having taken certain specific courses —Biology, Chemistry, and Algebra II — has a “startling” positive effect on student readiness. Students seem to gain from taking these and other more rigorous courses regardless of how they actually perform in them. Naming these three the “Courses for Success,” ACT recommends that every student, whether heading for college or for the workplace, take these courses. For more information, including the full text of the report, visit <http://www.act.org/path/policy/index.html>.

Another MAA Member in the Brilliant 10

James D. Walker, Staff Scientist at Southwest Research Institute (SwRI), was included among Popular Science magazine’s third annual list of the “Brilliant 10” young scientists. The article appeared in the magazine’s October issue. Walker, who works in the Engineering Dynamics Department of the SwRI, was selected for his work in the field of impact physics. Walker has been a member of the Association since 1989.

Also on the “Brilliant 10” list is Maria Chudnovsky of Princeton University, who is cited in particular for her work on the proof of the perfect graph conjecture. For the full list, see the magazine’s press release at http://www.eurekaalert.org/pub_releases/2004-09/ps-psa091604.php. For the original magazine article, visit <http://www.popsci.com/popsci/science/article/0,20967,703342,00.html>.

Math for America Announces Newton Fellowships

The Math for America Foundation announced that it has created the Newton Fellowship Program to support the training of more high school mathematics teachers. The program currently operates only in New York City, but there are plans to expand it to other cities. The Fellowships include a stipend of \$90,000 spread over five years, a full tuition scholarship for a Master’s program, New York State certification, and a teaching position in the New York City school system. For current teachers, MfA has the Newton Master Teacher Fellowship, which supports professional development. It too, is currently limited to New York City teachers.

Math for America describes itself as “the brainchild of mathematician and investment banker Jim Simons.” Its board of directors includes mathematicians David Eisenbud and Philip A. Griffiths; Irwin Kra is the executive director. For more information, visit their web site at <http://www.mathforamerica.org/>. See page 11 of this issue for more about this!

National High School Calculus Award

The sixth annual National High School Calculus Award, from Calculus.org, will award \$1000 to the winning student. A teacher may nominate any U.S. junior high or high school student for this award. Information about last year's award winner is available at <http://www.math.ucdavis.edu/~calculus/2004prize.html>. Nominations for this year's award are due by February 28, 2005. See <http://www.Calculus.org> for further information.

Search for Mathematics Articles

Looking for articles published in *Mathematics Magazine* or in *The College Mathematics Journal*? Try our searchable database - <http://www.math.hmc.edu/journalsearch/>.

Also, the entire content of volumes 1-106 (1893-1999) of the *American Mathematical Monthly* is now available online at the JSTOR archive - <http://www.jstor.org/>. Each year, one more volume will be added to the archive, so that all but the most recent five years will be available at all times.

The MAA Reviews Are Coming!

As noted in the November issue of FOCUS, the MAA is about to launch MAA Reviews, a new component of the Mathematical Sciences Digital Library (MathDL). The goal of MAA Reviews is to serve as a full-service books database for MAA members. It will take some time before that dream becomes fully realized, but we're working toward it with hope and vigor.

What will the new site contain? First of all, it'll contain a full searchable database of all books that we receive for review. Even if we decide not to review a book, you'll still be able to find the basic bibliographic information. Many books, however, will receive "brief reviews." These will be very much like the ones that now appear in the "Briefly Noted" column. A few books (around nine a month, we hope) will receive the full treatment, with long reviews much like the ones you now find in Read This! Finally, the MAA's committee on the Basic Library List plans to use the MAA Reviews database to present and update their recommendations.

We hope to go live with all of this in February. Meanwhile, we are busily soliciting books, identifying reviewers, and building the database. MAA members who want to join the fun and contribute reviews should contact Fernando Gouvêa (wearing his Secret Master of MAA Reviews hat) at fqgouvea@colby.edu.

MAA Seeks JOMA Editor

The Mathematical Association of America seeks to identify candidates to succeed David Smith as the Editor of JOMA, The Journal of Online Mathematics and Its Applications. The Search Committee plans to make a recommendation during spring 2005 so that the new editor can be approved by the Board of Governors and begin handling all new manuscript submissions by June 2005. The new editor will serve as Editor-elect during the period July 2005-December 2005 and as Editor for the three years 2006-2008.

Questions about the nature of the position and its workload can be addressed to David Smith (das@math.duke.edu); questions about MAA support for the editor's work can be addressed to the MAA's Director of Publications, Don Albers (dalbers@maa.org).

Each applicant should submit a resume, names of references, and a statement of interest containing his or her ideas about the journal. These can be emailed with attachments as Word or plain text TeX documents to the chair of the Search Committee, Daniel Maki (maki@indiana.edu), or mailed to:

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Dr. Lori Zaikowski
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Applications will be reviewed in April, interviews of top candidates will be conducted in May, and award letters will be sent by June 2005.



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S. Loretta McGrann
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* *MetroMath* accepts advertising at \$50 for a half-page ad and \$100 for a full-page.

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Metropolitan New York Section Membership: 1327 as of January 2005

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