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From the Chair:

John Koelzer, Rockhurst College

Rockhurst College is looking forward to hosting the Missouri Section Meeting of the MAA on Friday and Saturday, **April 9 and 10, 1999 in Kansas City, Missouri**. We have a wide variety of talks and presentations on both Friday and Saturday, including a number of student presentations. All sessions will be held in the Richardson Science Center.

Professor **Richard Delaware** of the University of Missouri - Kansas City will present the invited address on Friday afternoon. His talk is entitled, "The year 1000: What Mathematics Was Being Done at the *Last* Turn of the Millennium?"

Starting what we hope will be a continuing tradition, the 1998 recipient of the MAA Missouri Section Distinguished Teacher Award, Professor **Robert Kennedy** of Central Missouri State University, will be the banquet speaker on Friday evening.

Professor **Thomas Banchoff** of Brown University and current President of MAA will deliver the MAA invited address at 10:00 on Saturday morning. His talk is entitled, "Interactive Geometry and Linear Algebra Using the Internet: A Contemporary Approach."

We look forward to your participation at the Section Meeting in April and we anticipate that it will be a rewarding experience. You will find a preregistration form in the center fold of this newsletter. Please visit www.mapquest.com/ to locate directions from your house to Kansas City.

COLLEGIATE MATHEMATICS COMPETITION

The fourth Missouri MAA Collegiate Mathematics Competition will be held Thursday, April 8, 1999 and Friday, April 9, 1999 on the campus of Rockhurst College in Kansas City, Missouri. Any college or university in the state of Missouri can send up to two official teams of 1-3 undergraduates each to compete in the competition. Unofficial teams will be allowed to compete, depending on the number of available spaces, but will not be eligible for awards. They will also be charged the normal registration fee. A one-person team will only be allowed in the competition if this person is his or her college's only representative in the competition. A completed registration form for each team must be sent one week before the competition begins. Late registration will be accepted only if there is room for the team in the competition. No calculators or computers or reference material can be used during the competition. The contest will consist of challenging mathematical problems, comparable but not quite as difficult as the

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Putnam Exam. The Putnam Exam is a national exam sponsored by the MAA and given to outstanding college mathematics students. Previous Putnam Exams can be found in past October issues of the American Mathematical Monthly.

The first session will begin on Thursday, April 8 at 7:30 pm and last until 10 pm and will consist of 5 problems for each team to solve. The second session will begin on Friday, April 9 at 8:30 am and will end at 11 am. It will also contain an additional 5 problems. Each problem will be worth 10 points and will be scored by a committee of the MAA Missouri section. The committee consists of the following members: Mangho Ahuja (SEMSU), Jim Bruening (SEMSU), Hang Chen (CMSU), Curtis Cooper (CMSU), Joseph B. Dence (UMSL), Leon Hall (UMR), and Alvin Tinsley (CMSU). Some partial credit may be earned for substantially correct work toward a solution to the problem.

There will be a registration fee of \$25 per team. A complementary continental breakfast will precede the Friday morning competition. Each team member and the faculty sponsor are invited to a Friday luncheon at 12 noon. Each team member is also invited to be a guest at the MAA Missouri Section Banquet on Friday night. At that time, the results of the competition will be announced. A traveling trophy will be awarded to the first place team. In addition, each member of the first place team will receive a plaque. Certificates will also be given to each participant in the competition.

Any questions about the competition can be sent to Curtis Cooper, Department of Mathematics and Computer Science, Central Missouri State University, Warrensburg, MO 64093-5045, (660) 543-8851, fax: (660) 543-8006, email: cnc8851@cmsu2.cmsu.edu

From the Governor:

Al Tinsley CMSU

Board of Governors Meeting
San Antonio, Texas
January 12, 1999

Jim Tattersall, Associate Secretary, reminded the governors and guests that the summer 1999 meeting will be held in Providence, Rhode Island July 31 through August 2, and upon his recommendation, the Board voted unanimously to hold Mathfest 2000 on the campus of the University of California, Los Angeles. Jim stated further that he is working toward a mid-west site for the 2001 meeting, and mentioned the Universities of Michigan and Wisconsin as possibilities. Tom Banchoff, President Elect, added that the MAA is working to bridge the gap between the AMS and MAA meetings in 2000. Gerald Porter, Treasurer, reported that the 1998 audit was incomplete, but the committee hopes for a balanced budget or a surplus. He added that the Atlanta meeting broke even and that the Toronto meeting will probably show a \$50,000 deficit, an amount which had been budgeted for the meeting.

Barbara Faires of the Budget Committee stated that 1998 dues show a \$30,000 reduction and that as a result of adjustments necessitated by the Toronto meeting, the 1999 budget is currently balanced with a \$50,000 contingency and \$2,000 surplus. David Sanchez, speaking for the Budget Committee, recommended a 4% increase in the dues matrix, and the Board gave its approval.

Caroline Hearn Fuchs, Director of Marketing and Membership, reported that the current membership stands at 26,638, and she outlined initiatives taken by her office in the areas of recruitment and retention. Such efforts include redesigned materials and offers, greater involvement by the liaisons, a push to get more institutions to take membership, consideration of joint membership with AMS, a mailing to nonmember MAA book buyers, and advertisement in foreign journals. She noted that 1200 members

have chosen the recently initiated two year membership from which both the member and the MAA realize a savings.

Tom Banchoff urged the governors to start thinking seriously about membership issues. He stated that sections should be concerned about both individual and institutional memberships, and he asked why MAA is not attracting more SIAM and AMS members and twoyear college mathematicians to its membership.

Anita Solow, First VicePresident, presented a summary detailing the levels of achievement of the goals set forth in the 1994 Strategic Plan, and she recommended that the Board support the recommendation of the Executive & Finance Committees to inaugurate the process for planning a new agenda.

The Board approved a charge to the ad hoc Committee on Planning A New Agenda which provides that the team prepare a list of prioritized goals for the Association. Included in the charge is a time line requiring that a Member Needs Assessment Study be completed in early March followed by a retreat in late March or early April and a report to the Executive and Finance Committees in time for consideration at their May meeting.

The governors were instructed to discuss during the luncheon a document entitled A New Agenda for the 21st Century: Questions for MAA Board and Committees and to informally report their conclusions at the beginning of the afternoon session. The governors were encouraged to solicit input from the membership by publishing the questions in the newsletters and on the webpages of their sections and to encourage discussions during section meetings.

In her Executive Director's Report to the Board of Governors, Marcia Sward stated that the Joint Policy Board for Mathematics will contract with LewisBurke & Associates for legislative services. She added that the layers of paint had been stripped from the 1529 headquarters building returning it to its turnofthecentury brownstone appearance. The paint in addition to being costly to apply was retaining moisture which was causing deterioration of the brownstone and concealing leaks to the interior. She concluded her report by stating that she welcomes the opportunity to work with the person selected to succeed her as executive director so that the transition may be smooth.

Bill Hawkins who volunteers his time as SUMMA Director reported that SUMMA is assisting the Benjamin Banneker Association in making reconditioned Texas districts, and professional development projects serving minority and/or economically disadvantaged students. He mentioned the development of the Archival Record which will include information about minority mathematicians who are American citizens with Ph.D.s in mathematics or mathematics education, and he reported that the summer ENACT workshop for tribal college faculty and enhancement project for American Indian teacher aides at reservation schools was successful. Support for ENACT is provided by the EXXON Education Foundation.

Walter Mientka, former director of AMC and new Director of IMO 2001, Inc., proposed the introduction of a new examination directed to students in grades 9 and 10. The new examination, called AHSME I, would be offered for the first time on Tuesday, February 8, 2000, would be administered simultaneously with the current examination to be called AHSME II, and would be 60 minutes in duration. The time allotted for AHSME II would correspondingly be reduced to 60 minutes. The hope is that the new exam would encourage many more 9th and 10th graders to participate in the competitions. Currently, large numbers of students participate in the American Junior High School Mathematics Examination and large numbers of juniors and seniors participate in the AHSME, but the number of 9th and 10th grade students who take the AHSME is low. The Board gave its approval for the new exam.

Dick Gibbs, Chair of the CAMC, reported that registrations for the 1999 AHSME were ahead of last year and that School Science and Mathematics has become the twelfth sponsor of the American Mathematics Competitions.

Walter Mientka added that the Illinois section had made a \$500 contribution to IMO 2001, Inc. and that the site for the 2001 IMO would be in the Washington, D.C. area.

Christine Stevens of Project NeXT reported that the Jim Leitzel Lecture fund has reached \$40,000 and that contributions are still welcomed.

Proposals offered by the ad hoc Subcommittee of the Coordinating Council on Meetings to Review Mathfests and the Task Force to Review the Structure of the Executive and Finance Committees were approved by the board. The first asked that the Board approve in principle having Mathfests after the year 2000 with the proviso that summer meetings be fiscally sound, and the second recommended that the Executive and Finance Committees be combined and that the Finance Committee be replaced by an Audit Committee.

The Membership Committee asked for Board approval to make Math Horizons an option of membership along with the Monthly, The College Mathematics Journal, and the Mathematics Magazine. The price of the journal would not change. Those who favored the proposal argued that more people would be attracted to membership, and the opposition maintained that Horizons is directed toward students. In the absence of any data to support either position, the motion was referred back to the Membership Committee for further consideration and future action by the Board after research has been conducted to gather data indicating whether such a change would be justified.

The final action of the Board was to make the Subcommittee on MAA/Department Liaisons a standing committee.

Hotels/Motels in the Vicinity of Rockhurst College

Some rooms have been reserved at the following hotels/motels:

Best Western Seville Plaza 4309 Main St. Kansas City, MO 64111 (816) 561-9600 & 1-800-825-0197	1-4 persons, two beds When making reservations mention MAA. Rooms held until March 15.	\$69.00 plus tax
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Holiday Inn Express - Westport 801 Westport Road Kansas City, MO 64111 (816) 753-7400	Single or double When making reservations mention MAA. Rooms held until March 26.	\$82.00 plus tax
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Wyndham Gardens Hotel 45th and Main St. Kansas City, MO 64111 (816) 753-7400	Single or double When making reservations mention MAA. Rooms held until March 19.	\$89.00 plus tax
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No rooms have been reserved at the following hotels/motels but they have excellent accommodations and are near Rockhurst

The Quarterage 560 Westport Road Kansas City, MO 64111 (816) 931-0001 & 1-800-942-4243	Single or double When making reservations ask for Rockhurst rate	\$89.00 plus tax
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Crown Plaza Kansas City 4445 Main St Kansas City, MO 64111 (816) 531-3000	Single or double When making reservations ask for Rockhurst rate	\$92.00 plus tax
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Spring Meeting of the Missouri Section of the MAA

Rockhurst College
Richardson Science Center

Friday, April 9, 1999

11:00 am - 4:00 pm	Registration in Richardson Science Center
11:30 am	Executive Committee Meeting
1:00 pm - 1:10 pm	Welcome by Corey Simmonds, Dean of the College of Arts and Sciences
1:15 pm - 2:00 pm	Invited Address by Richard Delaware, University of Missouri - Kansas City
2:10 pm - 5:00 pm	Concurrent Sessions - See pages 6 and 7 for details
2:10 pm - 5:00 pm	Displays and Exhibits; MAA book sale
6:30 pm - 7:00 pm	Reception
7:00 pm	Banquet will be in Massman Hall. Professor Robert Kennedy of Central Missouri State University, will be the Banquet Speaker

Saturday, April 10, 1999

6:15 am - 7:00 am	5K Run/Walk
7:30 am - 8:30 am	Breakfast meetings of Department Chairs and MAA Liaisons
8:30 am - 10:00 am	Registration - Richardson Science Center
8:30 am - 9:30 am	Missouri Undergraduate Faculty Enhancement Reporting Session
8:30 am - 10:00 am	Displays and Exhibits; MAA book sale
8:40 am - 9:35 am	Concurrent Sessions - See pages 6 and 7 for details
10:00 am - 11:00 am	MAA Invited Address by Thomas Banchoff, Brown University
11:00 am - noon	Business Meeting

MAA sponsored summer workshops for 1999

A short description of each is listed below. For further information, including application procedures, visit the web addresses or get in touch with the contact persons.

CLUME: Cooperative Learning in Undergraduate Mathematics Education

June 6-18, 1999; Georgia State University, Atlanta, GA Application Deadline: February 26, 1999

In this fourth summer workshop presented by MAA Project CLUME, participants will experience cooperative learning first-hand by participating in class activities during which they will learn cooperatively. CLUME Workshop participants will read about the experiences of faculty who have been successful with cooperative learning, look at learning theory which tries to explain why cooperative learning has great potential for success, and discuss studies of effectiveness of cooperative learning. This will be followed by a mentored experience during the 1999-2000 academic year. Sponsored, in part, by a grant from the NSF.

Contact: Jakki Gaither, Department of Mathematics & Computer Science, Georgia State University, Atlanta, GA 30303. Tel. (404) 651-0658, Fax. (404) 651-2246; email: jgaither@cs.gsu.edu.
Web address: www.maa.org/pfdev/clume99.html

STATS: Statistical Thinking with Active Teaching Strategies

June 13-19, 1999; Hope College, Holland, MI

Designed for mathematicians who teach courses in introductory statistics but have little formal training in the subject, the goals of the workshop is to help faculty participants to: teach statistical thinking with more data and concepts, less theory and fewer recipes, explore active learning alternatives to the lecture method in their teaching of statistics, make effective use of technology in their statistics courses, use authentic assessment practices in evaluating the work of their statistics students, discover a myriad of print and electronic resources for teaching statistics, engender lasting collegial relationships among mathematicians who teach statistics. Sponsored, in part, by a grant from the NSF.

Contact: Maureen Callanan, MAA, (202) 387-5200, mcallana@maa.org
Web address: <http://www.dickinson.edu/~rossman/STATS/>

EPADEL Section Summer Workshop

J in the Math Classroom: Visualization, Number Theory and Linear Algebra

June 14-18, 1999: Messiah College, Grantham, PA

This workshop is designed for mathematics faculty to explore using J in the mathematics classroom. J is a high-level computer language with a mathematical bent. Professor Cliff Reiter of Lafayette College will give an introduction to the language and offer illustrations from his classroom use of J in teaching mathematical visualization, linear algebra and number theory. Selected topics from those fields could include such things as image processing, fractals, searches for empirical evidence of number theory conjectures, empirical discovery of quadratic reciprocity, implementing error correcting codes and exploring eigenvalues.

Contact: Marvin L. Brubaker, Messiah C., Grantham, PA 17027 (717) 766-2511, mbrubake@messiah.edu

Partnerships: Physics and Mathematics

June 19-26, 1999; Carroll College, Helena, MT

Teams of faculty who are interested in teaching with interdisciplinary materials will build cross-disciplinary partnerships and work together on interdisciplinary materials to use in teaching courses at their home institutions. Teams of 2-4 must include one mathematics and one physics faculty member. Topics will be drawn from all levels of the undergraduate curriculum in mathematics and physics. This is

a workshop of the MAA Partnerships Project in interdisciplinary mathematics and is sponsored by a grant from the NSF.

Contacts: Tina H. Straley, Kennesaw State University; (770) 423-6738; tstraley@ksumail.kennesaw.edu
 Brian J. Winkel, USMA; (914) 938-3200; brian-winkel@usma.edu

Web: <http://science.kennesaw.edu/~mburke/partnerships>

**Allegheny Mountain Section Short Course:
 Teaching Dynamical Systems Across the Curriculum
 June 21-24, 1999: Allegheny College, Meadville, PA Application Deadline: May 15, 1999**

The short course will focus on methods by which ideas from dynamical systems theory may be included in various parts of the undergraduate curriculum. These topics provide an ideal opportunity to give students (particularly lower division students) a glimpse of modern ideas in mathematics in a setting that is germane to the course at hand. Registration Fee: \$150; Room and Board: \$130

Contact: George Bradley, bradley@duq3.cc.duq.edu Duquesne University, Pittsburgh, PA,
 Steve Bowser, sbowser@alleg.edu Allegheny College, Meadville, PA 16336,

Web: <http://webpub.alleg.edu/dept/mathweb/ssc98.html>

**Ohio Section Short Course: The Mathematics of the Perfect Shuffle
 June 23-25, 1999: Miami University, Oxford, OH**

Presented by S. Brent Morris of the National Security Agency, this minicourse will examine the mathematics of the perfect shuffle, a permutation often used by mathematicians, magicians and computer scientists for seemingly different ends. The perfect shuffle has broad appeal because of its interesting mathematics and surprising applications to magic tricks and computer design. The basic shuffle and several generalizations will be introduced, and the group structure generated by the perfect shuffle will be explored. Participants will be taught several card tricks using different properties of the perfect shuffle. The course will conclude with a study of computer circuits. Registration Fee: \$125

Contact: Bob Dieffenbach, Miami U., Middletown, OH 45042, (513)727-3238; diefferm@muohio.edu

Web: <http://miavx3.mid.muohio.edu/~rdieffenbach/shortcourse.htm>

**Partnerships: Business, Economics, Finance and Mathematics
 July 11-16, 1999; Indiana University, Bloomington, IN**

Teams of faculty who are interested in teaching with interdisciplinary materials will build cross-disciplinary partnerships and work together on interdisciplinary materials to use in teaching courses at their home institutions. Teams of 2-5 must include at least one mathematics faculty and one faculty from a business area.

Topics come from mathematics pre-requisites and business areas that use mathematics in interesting and significant ways. This is a workshop of the MAA Partnerships Project in interdisciplinary mathematics and is sponsored by a grant from the National Science Foundation.

Contacts: Tina H. Straley, Kennesaw State University; (770) 423-6738; tstraley@ksumail.kennesaw.edu
 Brian J. Winkel, USMA; (914) 938-3200; brian-winkel@usma.edu

Web: <http://science.kennesaw.edu/~mburke/partnerships>

Spring Meeting of the Missouri Section of the MAA

Richardson Science Center

Concurrent Sessions

Friday, April 9, 1999

Times	Session I	Session II	Session III
2:10 - 2:25	Using Computer Exercises To Teach Graphing Susan Callahan, Cottey College	Statistical Independence on the Fractional Age Dependence Assumption Jinhua (Jean) Tao, CMSU	Theorems and Experiments in Calculus, Part A SMSU Calculus I Class Kishor Shah, SMSU
2:30 - 2:45	Goals for Calculus I at a Liberal Arts College Carol Collins, Charles Allen, Drury College	On the Geometry of Locally Nonconical Convex Sets Glenn C. Shell, Lincoln University	Theorems and Experiments in Calculus, Part B SMSU Calculus I Class Kishor Shah, SMSU
2:50 - 3:05	Using PowerPoint for Elementary Statistics Ben Budde, Westminster College	Odd Abundant Numbers (Preliminary Report) Lateef Adelani, John Behle Harris-Stowe State College	Theorems and Experiments in Calculus, Part C SMSU Calculus I Class Kishor Shah, SMSU
3:10 - 3:25	Projectory of a Bullitt: On Target with Math History Charlie Smith, Park College	Modelling Recall Operations at Whiteman Air Force Base Steven Burton, L. Vincent Edmondson CMSU	Recursive Generation of Infinite Sequences and Continued Fractions Jagahnatha P. Senesi, SMSU
3:25 - 3:50		BREAK	

3:50 - 4:05

**Teaching Powers: Graphs
and Models**

Elizabeth Berman Appelbaum
Blue Valley School District

**The Great Internet Mersenne
Prime Search**

Curtis Cooper, CMSU

**Factorial Gaps Between Prime
Numbers**

Eric Hartmann, SMSU

4:10 - 4:25	Amusing Coincidences and Amazing Comparisons Scott Garten, Northwest Missouri State University	The Ring of Functions on \mathbb{Z}_n Phoebe Ho, Monte Davis, CMSU	An Introduction to Elliptic Curves Bryan Chapman, SMSU
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4:30 - 4:45	Some Old and Elegant Techniques of Analytic Geometry Mangho Ahuja, SEMO	Construction of Maximal Right Subgroups of Compact Topological and Convergence Semigroups Shing S. So, CMSU	On Proofs of Sylow's Theorem Lucille Marshall, SMSU
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Saturday, April 10, 1999

Times	Session I	Session II	Session III
8:40 - 8:55	My Experiences in Project NExT Ilene Morgan, UMR	Exact Errors in Numerical Integration Mark Sand, Northwest Missouri State University	Flatland, Quaternions, and Plato's Allegory of the Caves Jim Sly, Hillcrest High School, Springfield, MO (SMSU Student)
9:00 - 9:15	Learning Pell's Equation by Doing James T. Bruening, SEMO	On Chowla's Conjecture in Number Theory Liang-Cheung Zhang, SMSU	The Transcendence of e George Bodurov, SMSU
9:20 - 9:35		The Intersection Lattice of A Discriminantal Arrangement Keith Brandt, Missouri Western State College	On the Motion of Heavenly Bodies Chris Mueller, SMSU

9:35 - 10:00

BREAK

10:00 -11:00

Interactive Geometry and Linear Algebra Using the Internet: A Contemporary Approach
Thomas Banchoff, Brown University.