

ROCKY MOUNTAIN SECTION
NEWSLETTER

Edited by: David Ballew
SDSM&T

SECOND CALL FOR PAPERS

This is the Second Call for Papers for the Annual Meeting of the Rocky Mountain Section which will be held at Casper College on March 15, 16, 1985. The deadline for submission of papers is February 15, 1985 and they should be sent to:

Dr. Allan Skillman
Program Chairman
Casper College
Casper, WY 82601

Because this meeting date is earlier than normal, all Section Members should mark their calendars now and prepare papers for submission a little sooner than in the past.

When you submit your paper, include an estimate of the time and include all audio-visual requirements that you will need.

STUDENT PAPERS --

We will continue our tradition of having student papers presented at the Annual Meeting. Everyone that has been involved with these students will testify that it has been a very valuable experience for the students and the advisors. Because the meeting is earlier this year, it is important that you identify prospective students now. You will have to encourage them and explain that this activity is important for their professional life, whether that professional life is academic or industrial. Student talks can be on research projects, problems they have solved, reports they have written or even summer employment; usually the student papers are as good or better than some of the professional papers. The students papers are always enjoyable. Make your institution look good; sponsor a student!!

SUMMER MEETING OF MAA --

The 1985 Summer Meeting of the MAA/AMS will be in Laramie from August 12 to August 15. This will be a great opportunity to easily attend the National Meeting.

PUTNAM LIST --

Congratulations to Goeffrey Harris of Colorado State who placed in the top 101 of the most recent Putnam Exam.

TOURNAMENTS AND CONTESTS --

There seems to be more mathematics competition than ever before. Over 400,000 junior high school students participated in the first annual MathCounts competition last year, with 200+ taking part in the finals in Washington in May.

The American High School Mathematics Exam (AHSME) was given to 393,000 students in February; 624 of these were invited to participate in the American Invitational Mathematics Exam (AIME). Then 90 of these participated in the USA Mathematical Olympiad on May 1. The eight winners and sixteen other high scorers took part in a three-week training camp at the Naval Academy. Finally, the International Mathematical Olympiad team of six was chosen. This team finished fourth in the IMO in Prague in July. The American IMO coach and USAMO chairman is Murray Klamkin of the University of Alberta. (Whose column, "The Olympiad Corner" appears in CRUX MATHEMATICORUM).

MATHEMATICS AT WORK IN SOCIETY --

Mathematics at Work in Society (MAWIS) is a set of four video cassettes titled "An Actuary - What is That?", "Mathematics: The Language of Research", "Mathematics in Space", and "Mathematics: Where Will I Ever Use It?" produced by MAA and available to members of the Kentucky Section without cost. These cassettes were prepared by the MAA for use with pre-college students to show the importance of mathematics today. In addition, there is a MAWIS project book "Opening Career Doors". If you are interested in using these cassettes, contact Ms. Kay Lamont, The Mathematical Association of America, 1529 Eighteenth Street, N.W., Washington, D.C. 20036.

GOVERNORS REPORT -- Gary Grefsrud

The Board of Governors of the MAA met on Wednesday, August 14, 1984 in Eugene, Oregon. In addition to routine business, the Board took the following actions:

- (1) Elected Kenneth Ross, University of Oregon, as Secretary of the MAA for the five year term 1985-1990. Professor Ross is currently serving in this capacity until January, 1985, replacing David Roselle, who resigned earlier when he was appointed as Provost at Virginia Tech.
- (2) Approved University of Wyoming, Laramie, WY, as the site for the joint 1985 Summer meetings (Aug. 12-15, 1985). There will be no summer meetings in 1986 because of the International Congress in Berkeley. The MAA has requested that the AMS make a decision with respect to 1987 Summer meetings this Fall (apparently the AMS Council has approved having Summer 1987 meetings). If the AMS decides not to have summer meetings in the future, the MAA will plan for its own summer meetings.

- (3) Accepted a generous contribution of \$20,000 from the Vaughn Foundation to help in refurbishing the Carriage House, which is adjacent to the MAA headquarters building in Washington, D.C.
- (4) Elected Gerald Alexanderson (University of Santa Clara) as Editor of the Mathematics Magazine for 1986-1990.
- (5) Approved, in principle, a MAA Statement on the Retraining of Elementary and Secondary School Teachers from other areas as qualified Mathematics teachers. Joint statements from the MAA and NCTM will be forthcoming and will be sent to State Superintendents of Public Instruction, Directors of Certification and others.
- (6) Met Richard M. Witter, newly hired Development Officer of the MAA. Mr. Witter will work on the Greater MAA Fund, and will help develop a planned giving program for the MAA.
- (7) Learned that the U.S. team placed fourth in the International Mathematical Olympiad held in Prague, Czechoslovakia in early July.
- (8) The Board discussed a report from the MAA Committee on Election Procedures, specifically the method of electing the President-elect. At present, a Nominating Committee, which is appointed by the president, submits a list of at least five candidates to the membership of the MAA. The nominating committee then selects the President-elect from among the three candidates receiving the most votes. The Committee on Election Procedures is considering changing the present procedure to make the President-elect a contested position. A straw vote indicated a majority favored a contested position.
- (9) Heard a report on TEAM's (Teaching Experiential Applied Mathematics) year one production (3 of the 6 learning modules now available) and year two plans. (Bill Ramaley was appointed to be our section's liaison to TEAM).

Professor Les Schrader, University of Wyoming, has agreed to be the American High School Mathematics Examination (AHSME) Coordinator for the state of Wyoming beginning this Fall. Bob Vunovich will continue to be the AHSME Coordinator for Colorado.

NEWS OF JEAN FERRIS -- submitted by Ruth Rebekka Struik

Jean Ferris' many friends and admirers will be interested to know that Jean is now officially "retired." This occurred in the Spring of 1984. However, since then she has been teaching in the Fall semester. The class has been Math 107, a course required for business and some social science students. There have been 1,000 students with multiple-choice, machine-graded tests, hardly an ideal situation for someone who is concerned about individual students and would prefer one-to-one interactions.

Jean is of my generation, the generation of the "feminine mystique." She earned her BA at the University of Colorado (CU) in 1941, with a distributed major: history, mathematics and chemistry. In 1956 she was raising a family when a neighbor, William Briggs of the math department, saw her potential and asked her to teach college algebra. It was the "Sputnik Era." Math teachers were in great demand.

From 1956-65 she was a part-time instructor in our department. She took courses and earned her MA in 1965. From 1965-70 she was employed full-time teaching both upper division and elementary courses.

Then she was asked to become Director of Sewall Hall. This was a program intended to give some students a few of the amenities of a small college. The students have at least one small class and there are opportunities to socialize with faculty.

Jean had been Director of Sewall Hall for two years, when Dean Briggs asked her to become Assistant Dean of Arts and Sciences. There she was until 1979 when she returned to full-time teaching in our department.

In 1972 she received tenure; she was the last person without a Ph.D. to receive tenure in our department. In 1982 she was promoted to Assistant Professor.

Her excellent teaching has been recognized at least twice, in 1967 when she received a distinguished teaching award and in 1974 when she received a teacher recognition award.

How was the department different in the Fifties from what it is today? The department was much smaller then, and there were four "housewives" who taught elementary courses on a part-time basis. As the graduate program grew, these part-time instructors were replaced by graduate students.

The University keeps calling Jean. This Spring (1984) when Rita Weiss was ill, Jean was asked to work in the Dean's Office until Prof. Weiss could return. So for several months Jean has been listening to students entrapped in the University's red tape (or their own immaturity) and doing what she can to help them.

When she is not bailing out the math department by teaching large classes or the Dean's Office when deans become ill, she is enjoying her retirement at her home in Estes Park, a beautiful part of Colorado. Five grandchildren are nearby. In addition to being active in her church, she has taken several trips: in Colorado to Durango and Granby, in Kansas to Manhattan, in Wyoming to Laramie, and to the West Coast.

For those who would like to keep in touch with Jean, her address is:

P.O. Box 1933
Estes Park, CO 80517

FIVE MYTHS OF MATHEMATICS -- Shirley Hill, UMKC

This article is a summary of a talk given at the Twelfth Annual Mathematics Conference at Miami University September 28-29, 1984. The talk was shortened to four myths by a time constraint.

1. The Myth of the Neat and Complete

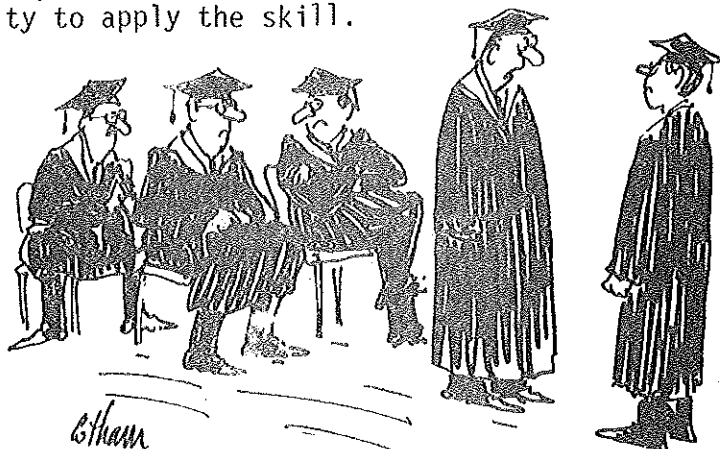
International research suggests that most people perceive mathematics as fixed and complete, exact, one correct answer. Most instruction tends to support this view of mathematics. Does this view attract those who are adventurous and looking for a risk? Where is the pattern; where is the joy of the "aha"; where is the joy?

2. The Myth of the Straight Arrow Solution

This myth is reinforced by the type of instruction which begins and progresses to the end without any branching or false starts. There is no trial and error. Instructors who proceed along the straight and narrow don't need erasers. We need to do some nonlinear thinking and some nonlinear problem solutions so the student gets some feel for what it is like to do mathematics.

3. The Myth of the Great Mathematics Machine

"Oh, Mike is a human computer." Many students are prone to view the instructor as well as the brighter students in the class as some sort of human machine when it comes to mathematics. There pleas often take the form of "Please program me.", "Where do I begin?", "I know there is a formula for this, but I can't remember it.", "Just tell me what to do and I'll do it.", "Is this the answer you wanted?". Mathematics for most is "algorithms and formulas". Mathematics as a series of learned skills is an incomplete characterization of the discipline. "You can't teach kids to think" is short of the real possibilities open to us to improve thinking skills of students. Formulas and algorithms do suffice for many problems, but surely not all. All levels of schooling reinforce this myth. The National Assessment of Skills in Mathematics does not support the premis that knowing the skills assures later ability to apply the skill.



"After considerable consultation with my colleagues, we have agreed that none of us has ever seen you before."

4. The Myth of the Mysterious Magic Show

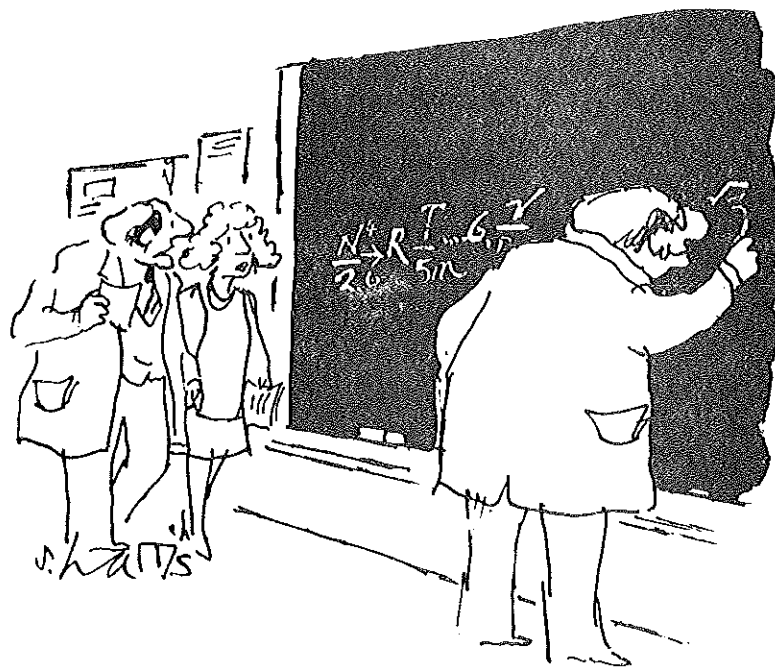
We should teach mathematics for everyone. Too many teachers still say students can't do mathematics and should be doing shop. These people tend to retard the teaching of mathematics to more students and continue to support the selection of students who require less effort to teach. Our approach tends to screen out and discard many capable students. If we stop pulling our solutions out of a hat and begin showing students how we sometimes struggle to find the starting place in a problem, or why we pull out a particular formula, we will be able to reach more students with the concepts we are trying to teach.

APPLIED MATHEMATICS MULTI-MEDIA -- Modules Now Available from the MAA

The MAA announced the availability of three multi-media learning modules for use in college classrooms. In these modules, which consist of video cassettes, written materials, and microcomputer software, real word industrial problems and their solutions are presented by industrial representatives who have actually encountered these problems in their work.

The modules were produced during the first year of a three-year project called Teaching Experimental Applied Mathematics (TEAM) funded by a grant to the MAA from the Fund for Improvement of Post-Secondary Education (FIPSE). Three additional modules will be developed during the second and third years of the project.

The TEAM learning modules are intended to help college instructors introduce into the undergraduate curriculum a viable component in a two-part video cassette in which the problem and a solution are presented, a Student Resource Book (which contains the problem setting and some related background information), and a Teacher Resource Book (which contains the solution to the problem in complete detail, alternative solutions and suggested teaching strategies). Two of the three completed learning modules also include software for the Apple II.



"I think he's crossed that thin line between science fiction and fantasy."

The three TEAM learning modules which are now available from the MAA from a free loan program are:

* "Hour of Daylight," a junior/senior level problem, presented by Jerry Cline, an applied mathematician from the McDonnell Douglas Corporation of St. Louis. The problem is to find, for a given date, the amount of time a particular location on a planet spends in sunlight. This learning module includes software for the Apple II.

* "Highway Slope Design," a freshman/sophomore level problem, contributed by Jerry Smith, a civil engineer and Director of Public Services of Enid, Oklahoma. The problem is to find the smooth parabolic transition between two straight roads of different grades.

* "Aircraft Sidestep Maneuver," a junior/senior level problem, contributed by Donald Pate, an operations research analyst from the Federal Aviation Administration of Oklahoma City. The problem is to determine the path of an airplane while it is rolling to make the transition from a straight line path to a circular path. This learning module includes software for the Apple II.

In the first part of the video presentations, the industrial representatives discuss their work, philosophy of problem solving, and the problem, and then challenge the students to model and solve the problem. In the second part, they present and address their solutions to the problem. Each part runs approximately 25 minutes.

TEAM learning modules are very flexible educational tools. A module can be given to a small group of students working together as a team, to a single student as an independent study project, or to an entire class. The instructor can direct the students to work out their own solutions before viewing the industrial representative's solution, or can use a learning module merely to show the class an interesting industrial problem and its solution.

Modules can be used in existing mathematics courses such as calculus, differential equations, linear algebra, numerical analysis, or discrete mathematics, or they can be used to create new courses to fit the needs of a particular college or university.

The TEAM materials were produced by John Jobe and Jim Cholke at Oklahoma State University. Jobe is TEAM Project Director and Coordinator of Video Production and Cholke is Coordinator of TEAM Written Materials and Computer Software. Jeanne Agnew and Marvin Keener, also of Oklahoma State University, serve as curriculum consultants for the project.

All TEAM materials are available free from the MAA. Brochures announcing the availability of the TEAM materials are being sent to the mathematics departments at every college and university in the United States. Each MAA Section will have a complete set of TEAM materials and will assist with local dissemination.

Upon request, all three of the TEAM Resource Books and any one of the video cassettes and/or microcomputer diskettes will be sent to users. Users will be asked to copy the cassettes and diskettes promptly and return the originals to the MAA. They may then order materials for another TEAM learning module. Resource Books may be copied in unlimited quantities.

Those who would like information about ordering TEAM materials should write to: Alfred B. Wilcox, Executive Director, Mathematical Association of America, 1529 Eighteenth Street, N.W., Washington, D.C. 20036.



"I won? I didn't even know there was a Nobel booby prize."