

# FOCUS

Volume 7, Number 3

THE NEWSLETTER OF THE MATHEMATICAL ASSOCIATION OF AMERICA

May-June 1987

## Mathematics Awareness Week: a Nationwide Success in 1987

Kathleen Holmay

Mathematics Awareness Week 1987 demonstrated that many mathematicians possess an impressive amount of public relations know-how and an interest in communicating the value of mathematics to university audiences as well as to the general public.

Prompted by a commitment to increase public visibility for mathematics, the Joint Policy Board for Mathematics has sponsored Mathematics Awareness Week during the second week in April for the past two years. The 1986 focus was largely national with a presidential proclamation, a national TV spot, and consciousness-raising events held on Capitol Hill and elsewhere in Washington.

The year 1987, according to plan, took an entirely different focus and called for the inception of local events. Two mailings to Department Chairs, MAA Governors and PIO's, legislative volunteers and the JPBM Public Information Resource Committee yielded a flood of calls.

A Mathematics Awareness Week Information Kit (the same one that was sent to reporters) was also mailed to every mathematician who expressed interest in increasing local visibility and awareness about mathematics.

The results were astounding! Members of the mathematics community came forward with a significant array of activities and accomplishments. The following list summarizes a few local efforts.

**CALIFORNIA** A Mathematics Festival held at Sonoma State University included an exhibit, awards ceremony, public reception, a colloquium, and an alumni reception. The Sonoma County Board of Supervisors also issued a proclamation.

**TENNESSEE** David Williams of Knoxville printed and distributed Mathematics Awareness Week bumper stickers to schools in his area.

**NEW YORK** A public lecture on "How Can We Reach Our Math and Science Students" was presented at Vassar by Hassler Whitney from the Institute for Advanced Study.

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## Contributed Paper Sessions for the Atlanta Meeting

This early preliminary announcement of the seventy-first Annual Meeting of the Mathematical Association of America is made in order to encourage broader participation and, by giving a longer lead-time, to help strengthen the contributed paper sessions. The meeting will be held January 6-9 (Wednesday through Saturday) in Atlanta, Georgia. There will be invited hour addresses, including the Retiring Presidential Address by Lynn A. Steen, minicourses, and various panel discussions.

Contributed paper sessions on selected topics will include the following subjects listed with their organizers:

**Teaching Mathematical Modeling**, Jeanne Agnew of Oklahoma State University

Of special interest are problems or situations that have provided students a successful modeling experience and techniques that have been devised for using them.

**History of contemporary mathematics**, Florence D. Fasanelli of Sidwell Friends School, Washington, DC, Victor J. Katz of University of District of Columbia, and V. Frederick Rickey, Bowling Green State University

This will be a session for papers dealing with the history of concepts in contemporary mathematics, particularly those that appear in the undergraduate curriculum. Papers showing the relevance of history to teaching will be particularly welcome.

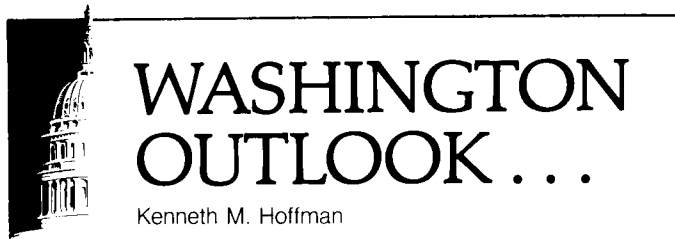
**Strategies for teaching geometry**, Doris Schattschneider of Moravian College

A broad range of papers is solicited including, but not limited to: college geometry, geometry for liberal arts students, and the emphasis of geometrical ideas in other courses.

**Writing as part of the mathematics curriculum**, Andrew Sterrett of Denison College

Descriptions of individual, departmental, or college-wide efforts are welcome. *(continued on page 5)*

**Center Section: MAA Annual Report  
Calculus Conference, page 4**



## Passages: Thoughts about Science and the Public

The relationship between science and the public is in a period of rapid change—full of bumps, bruises, misunderstandings, and rigidities; and simultaneously full of signs of growth, health, and renewed mutual commitment. The maze of seemingly contradictory facts, feelings and perceptions is reminiscent of the changes which accompany one of life's "passages" or, perhaps more appropriately for this case, the sorting out that accompanies the mid-course maturation process in a marriage. We in the mathematics community are having to do our share of sorting out in our relations with government and the public, and may possibly gain some insight by looking at the issues we face from a phases-of-life perspective.

Few would dispute that the post World War II relationship between science and the public began as a love affair. Science was awesome, having "won the war"; and pushing forward what Vannevar Bush called its "endless frontier" seemed a fitting national mission—surely science would somehow help protect us from the Soviet Union and keep the economy booming. On the other side, the public was immensely attractive, in part because it worshipped science, but primarily because the scientific community had developed a profound love of country in the war effort, and because the public cared for science, with both its tax dollars and the very best of its youth.

A traditional marriage began. Vows were sealed with the creation of the Office of Naval Research in 1946 and the National Science Foundation in 1950. There was thoughtful discussion during the engagement, but the ardor was intense enough to gloss over signs of future trouble which lay in the facts that the public wasn't really able to understand what science was doing all day long, that there was much guilt in the scientific community over its final and decisive contribution to winning the war, and that science held too many truths about its importance to society to be self-evident, never clearly articulating, for example, how it would keep the economy booming.

The great United States university research-education system was built, further fueled in the late 1950's and early 1960's by the Sputnik-inspired space race, and highly trained scientists and engineers were produced in droves. Events moved quickly then: Science went to the moon; the Vietnam War came to tear at the fiber of the public, and by the late 1960's to early 1970's Congress markedly reduced federal fellowships to slow the production of scientists and passed the one-year Mansfield Amendment that seriously questioned what the Department of Defense was doing in the basic research business. These actions, reactions, and overreactions generated turmoil in the science-public relationship, and each of the partners underwent changes. Neither got its newly formed attitudes or its complaints articulated very well—which is another way of saying there was no effective federal science policy. The underlying sense of mutual commit-

ment remained, but its emotional basis lay largely in wishing that things could be the way they used to be.

For some years now, it has been evident that things cannot be the way they used to be. This has to be faced. Science and the public each need to stand back and take a long, hard look at the person they married, then describe their mutual commitment in terms that make sense today. Judging by this winter's events in Washington, we have a way to go, but we're getting there, if we will but see the progress and not lose our nerve.

Two of the current symptoms of trouble on the science side are the intense reactions to emphasis on engineering and interdisciplinary research centers in the FY 1988 budget of the National Science Foundation and expressed fears that the 6 billion dollar Superconducting Super Collider to be funded at the Department of Energy will significantly detract from resources available for the rest of basic science. These amplify serious concerns which have been and will be with us for some time: The issue of "small" versus "big" science; the apparent growth of goal-oriented research; inadequate federal investment in civilian-sector basic research, especially when compared with the huge amounts of money poured into the "D" side of military R&D; and, pervading all of the above, an inadequate flow of brainpower into science and engineering. As happens in rocky relationships, some of the verbalized concern is long on emotion and short on facts and perspective.

The current symptoms of trouble on the public side are best wrapped up in the word "deficit," and in two perceptions prevalent in many parts of Congress: Science has not done an effective job of educating the public (members of Congress) about what it does and how this directly benefits society; that is, why science should continue to be adored, and science has failed to articulate clearly the plans that go with its unquenchable lust for life and learning, plans against which to measure its dollar needs and its direct contributions to curing society's major ills.

Into the midst of all this has come Erich Bloch, Director of the National Science Foundation, with a forcefully presented plan. He has persuaded the President and the Office of Management and Budget to recommend a doubling of the NSF budget in the period 1988-92. He hopes that, with the active support and involvement of the scientific community, he can persuade Congress to go along, by authorizing a four-year budget for the years 1989-92. (They will still need to appropriate funds year by year.) The first year of his five year plan (1988) has more emphasis on interdisciplinary centers than many people in the science community find palatable, since it temporarily slows the growth of funding in their fields. (Mathematics funding remains a high priority, although its growth from FY 1987 to FY 1988 is targeted at about 13%, somewhat less than we have been experiencing in recent years.) The budget may also have more emphasis on education than some scientists will find comfortable, when they already feel squeezed in their own specialties.

What seems important to realize and react to here is not this or that detail about continued feelings of apprehension—X went up N% and Y only (N - 2)%—but the fact that there is for the first time in many years a plan. In the metaphor of this column—may Erich Bloch forgive me—the NSF Director is playing the role of marriage counselor. He is describing to science and the public a basic plan for putting their relationship on a new footing, one appropriate for the stage of life they have reached together. It asks science to bend a little, to drop some of its near-arrogance and to begin to describe what it does in ways which are more understandable to the public, and to encourage the development

of NSF programs which show more clearly how science-technology transfer comes about and how scientists are going to work directly on the major educational problems the country faces. The development of these programs is to take place side by side with the growth of fundamental science programs of more traditional sorts, not in place of them. But, of course, there will be skewing in the direction of the "new" efforts during the first year. Who would believe the plan was serious otherwise? The plan also asks the public to bend a little, to recommit itself to science as redescribed, and to support a congressional ramping up of the NSF budget to a level roughly 2 billion dollars more per year than it is now. In these tight budgetary times, this will test the public's commitment.

The plan is not primarily monetary. It is conceptual, based on identification and description of the two critical long-term problems which science and the public must work on together, work with greatly increased commitment: The competitive economic position of the United States internationally and the scientific literacy of the public; that is, the development of the human resources necessary not only to maintain the vitality of science and engineering but to significantly raise the capability of the nation's broader work force.

In mathematics we must continue to debate how the evolving details of these and related plans affect the health of our enterprise. We are the quintessential "small" science; we are heavily dependent for research support on the Department of Defense as well as the NSF; we are only 30% of the way toward reaching the goals of the David Report; we still feel the pinch of the small number of researchers supported in our field; we have staggering problems to deal with at the collegiate teaching level; we must help reform the vast enterprise of school mathematics.

But we must not lose our nerve and begin to think narrowly after the progress we have made over the last five years. Assuming the President's budget is approved, we have increased NSF support for mathematics by 95% in those five years and increased DOD support by the same percentage. We have educated many people about our problems and made a good start at educating people about our potential and our role in society. We have set up several major new mechanisms to promote understanding of mathematics and to help lead efforts to strengthen research and education nationally: The Joint Policy Board for Mathematics, the Board on Mathematical Sciences, and the Mathematical Sciences Education Board.

We must help push forward the basic plan Mr. Bloch has devised and then work within its framework to see to it that the persistent and continuing issues that concern us are discussed and dealt with. More importantly, we are almost perfectly positioned to benefit from the growth which the general plan will bring. We are almost perfectly positioned to contribute to its development, implementation, and success:

- We have done as good a job as any scientific discipline at articulating our research needs.
- We have demonstrated that we can set priorities and stick by them, even when it hurts.
- We are the only scientific discipline to formulate and launch a complete review of its collegiate enterprise.
- We are the only scientific discipline to mount a full-scale assault on the problems of education at the school level in our broad area.

And, if it is true as Mr. Bloch says, that basic research is the key to economic competitiveness, then it is true that mathematics is the foundation of economic competitiveness.

That's powerful stuff, if we have the sophistication and the stamina to use it well.

## Canadian Aces AHSME Maryland School has Best Team AIME Scores Down

Stephen B. Maurer

On March 3, Philip Jong of Earl Haig Secondary School in North York, Ontario, became the 26th student to obtain a perfect 150 in 38 years of the American High School Mathematics Examination (AHSME). Jong, in grade 11, is the first Canadian to obtain a perfect score. He is a 1983 immigrant to Canada from Hong Kong. He reads math books in Chinese, plays the oboe, and for relaxation watches cartoons on TV. He plans to become a medical researcher.

The Charles T. Salkind silver cup for the highest team score (top 3 students) goes to Winston Churchill High School in Potomac, Maryland, with a score of 402.

By scoring 100 or more, about 4000 of the 360,000 participants qualified for the American Invitational Mathematics Examination (AIME), given March 24. This is an all-time high. Last year about 2900 qualified, and in 1985 (with a different scoring system and a harder test) only about 950.

On the other hand, AIME scores are down. The high score was 14 (out of 15), by Jordan Ellenberg, a 10th grader at Winston Churchill. Last year 153 students scored 10 points or more; this year the number is just over 50. Last year the modal score was 5, this year (influenced by more papers) 3. Stay tuned for complete AIME, USAMO and IMO results in the September FOCUS. For a copy of the AHSME/AIME/USAMO Summary of Results and Awards, send \$5 in June to Professor Walter E. Mientka, 917 Oldfather Hall, University of Nebraska, Lincoln, NE 68588-0322.

## Harvard Cleans up on Putnam

Stephen B. Maurer

With four of the six Putnam Fellows (top scorers) wearing crimson, including its three predetermined team members, Harvard was a resounding first on the 1986 William Lowell Putnam Competition, given last December 6. The Harvard team was Douglas Jungreis, Bjorn Poonen and David Zuckerman. The other Putnam Fellows were David Grabiner (Princeton), Waldemar Horwat (MIT) and David Moews (Harvard). Harvard also had two more students in positions seven through ten. The "also ran" schools were: second, Washington University (St. Louis); third, University of California, Berkeley; fourth, Yale and fifth, MIT.

Schools have been required to pick their teams in advance since the first Putnam in 1938. Because individual performance at the high end of this difficult exam is so variable, it was felt that such a system would keep leading institutions from dominating the

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team results. This is the first time in memory that a school has picked its team so well—attesting to the effectiveness of the system. (Last year Harvard was also first, with 4 students in the top 10, but only one of these was on its team.)

The easy problems this year were easier (deliberately) and the hard harder (not deliberately). There are twelve problems worth ten points each. The median score was about twenty, much higher than in past years. The high score was ninety, down from one hundred and eight last year.

Of the ten top individuals this year, seven had been winners of the USA Mathematical Olympiad while in high school.

Invitations for the 1987 Putnam will be mailed next fall by the Director, Professor Leonard Klosinski, University of Santa Clara.

## The 1987 Mathematical Competition in Modeling

Bernard A. Fusaro

The third Mathematical Competition in Modeling (MCM) was held the weekend of February 6. Solution papers were submitted by 156 teams, representing 118 colleges and universities. This is approximately a 30% increase over last year. Each team selected one of two problems, and the solutions were graded as two separate exams.

The first problem dealt with the storage of salt in circular domes in the Midwest. It has been the practice to use front-end loaders to pile salt 25-30 feet high. Recently, a panel determined that this practice is unsafe because the salt might shift and tip the loader. It suggested a maximum height of 15 feet. The problem was to arrive at and justify a limitation on the height.

The second problem posed the challenge of designing the parking layout for a 100 foot by 200 foot corner parking lot that would safely accommodate a maximum number of cars.

Teams were free to use libraries, computers, or any other aid except for consultants. Approximately one-fifth of the teams (31) chose the salt pile problem, the more analytical of the two.

Thirty-nine (39) teams were classed as Meritorious, four of which were deemed Outstanding. These four solution papers along with a full MCM report will be published this fall in an issue of MATHEMATICAL MODELING. Outstanding solutions from the salt pile problem came from Moorhead State University, Minnesota, and the University of Colorado, Denver. The Outstanding solutions from the parking lot problem came from Calvin College, Michigan, and Bensselaer Polytechnic Institute, New York.

The MCM, now in the third and final year of funding by the U.S. Department of Education (FIPSE), was established to promote the study of applied mathematics by offering teams a chance to enter a contest that requires the solution of realistic problems. Funding for future contests is being solicited.

MCM is administered by the Consortium for Mathematics and Its Applications (COMAP).

*Bernard A. Fusaro is Professor of Mathematical Sciences at Salisbury State College, Maryland, and is MCM Project Director. Telephone (301) 543-6470, -6471.*

## Symposium on the Future of Calculus

A major meeting on the future of calculus with broad participation from the mathematical, scientific, and engineering communities is being planned by the Mathematical Association of America and the National Research Council for late October. Those wishing to receive information or to participate should write to: Peter L. Renz, Associate Director, the Mathematical Association of America, 1529 Eighteenth Street, Washington, DC 20036.

## Committee on MAA Periodicals Solicits Suggestions

Outgoing President Lynn Steen has appointed an ad hoc Committee to Review MAA Periodicals. Overall management of The MONTHLY, MATHEMATICS MAGAZINE, and FOCUS is the responsibility of the Committee on Publications, while this new committee will serve as part of an ongoing effort to subject important operations of the Association to supplemental scrutiny from time to time.

If you have suggestions or comments about the MAA's periodicals please contact a member of this committee. The Committee consists of Sylvan Burgstahler (Chair), Lester Lange, Robert McDowell, Ralph Raimi, and T. Christine Stevens.

While the Committee welcomes general expressions of approval or disapproval, it particularly invites thoughtful comments suggesting specific changes that might make the MAA's periodicals more useful to members of the Association.

## In Memoriam

**Julian H. Blau**, Antioch College, died March 10, 1987 at the age of 69. He was an MAA member for 24 years.

**Alfred E. Crofts**, Pan American University, died February 26, 1987 at the age of 55. He was an MAA member for 29 years.

**Francis H. S. Hall**, The Pennsylvania State University, died in November 1986 at the age of 64. He was an MAA member for 14 years.

**Peter Henrici**, Swiss Federal Institute of Technology (E.T.H.), died in March 1987 at the age of 63. He was an MAA member for 33 years.

**Robert Landis Long**, University of Florida, died March 8, 1987 at the age of 46. He was an MAA member for 1 year.

**Eliezer Naddor**, Johns Hopkins University, died April 17, 1987 at the age of 66. He was an MAA member for 29 years.

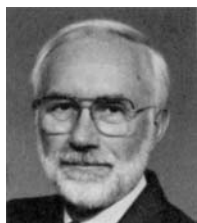
**Torrence D. Parsons**, Cal. State University, Chico, died April 3, 1987 at the age of 46. He was an MAA member for 20 years.

Word has also been received on the deaths of the following MAA members:

**John Chellevoid**, Professor Emeritus, Wartburg College;  
**Edmund Pribitkin**, Millersville University.

# FOCUS

# 1986 MAA ANNUAL REPORT



## Into the 1990's

**Alfred B. Willcox**  
**Executive Director**

Nineteen eighty six was the pivotal year of the 80's, the year the MAA emerged from the 70's and entered the 90's. A bit of hyperbole?

An unfair slur against the 80's, a decade that deserves better than to be partitioned and divided between the 70's and the 90's? Perhaps, but a review of the events of 1986 convinces me that this analysis will stand the test of time.

There was no spectacular watershed in 1986, no wrenching change of course, no fireworks, no great clash of cymbals. Rather, the Association experienced a number of small course changes, some planned and some imposed by external forces. Like passengers and crew on a ship, we may have been aware of these small movements during the voyage but were surprised to learn, upon checking the compass, that we are steaming in a new direction.

Here are a few of the course changes of 86:

**LONG RANGE PLANNING** 1986 saw the completion, after two years of inquiry and study, of a Long Range Plan that painted a clear picture of the MAA our members and leaders envision for the future. It is an MAA with continuing commitment to its traditional goals but with increased emphasis on mathematical exposition, discovery and cultivation of mathematical talent, and enhancing public awareness of mathematics.

**MEMBERSHIP GROWTH** 1986 witnessed explosive membership growth, from 19,500 in 1984, to 21,500 in 1985, to 26,000 in 1986, a result of a vigorous campaign to bring our mission and services to the attention of a large mathematical community. Such planned growth represents a significant investment in the future, in terms of the impact of the MAA and of the resources that sustain our work. It is an investment of money as well as energy, and we are gratified that the campaign was financially successful, paying its own way in 1986 and promising substantial positive contributions in the future. Growth is a challenge as well as an asset. Nearly 50% larger and stronger, we are also a different association. We must get to know our new members, hear their thoughts about collegiate mathematics, and learn their needs and desires.

**PUBLICATIONS** 1986 brought dramatic evidence that a large and vigorous publications enterprise requires management of a higher order of sophistication and control than did the more relaxed publications program of our recent past. In a decade, the MAA catalog has grown from about 30 to 111 titles and our annual sales from 8,000 to 40,000 copies. Our publication and distribution facilities kept pace with this growth, but our ability to control the flow of new titles and package and market them effectively lagged. In 1986 we turned a corner by streamlining

our publications management system, beginning a program of publications redesign, and by putting a professional in charge. The person is Peter Renz, who joined the MAA staff in June as Associate Director for Publications, bringing over ten years experience as an editor for W. H. Freeman. These changes will soon be evident to the members and to the mathematical community.

**BUDGET CONTROL** 1986 also brought several financial surprises. As activities and membership have grown the MAA budget has become increasingly difficult to control. What were minor perturbations in the 1960's and 1970's have become major budget swings in the 1980's. In 1986, several of these "minor perturbations," mostly on the income side, combined in a negative direction to produce a fairly serious operating deficit. Fortunately, other perturbations—generous contributions to the new Beckenbach and Bing Funds and an unexpectedly strong yield from invested reserves—combined to offset the operating deficit, but the handwriting on the wall was clear. Reacting quickly, the Board of Governors and the MAA staff are instituting a number of procedural changes that will allow us to budget more accurately, monitor changes more closely, and act quickly when departures from plan occur. While not generally evident to the membership, these changes will make major contributions to a *lean and lively MAA* in the future.

**PUBLIC AWARENESS** 1986 was a year of increased commitment to public awareness of mathematics by the MAA. In partnership with AMS and SIAM, we have reaffirmed and increased our joint support for an Office of Government and Public Affairs (OGPA), now housed in MAA's headquarters. In 1986, the first National Mathematics Awareness Week (which, among other things received television coverage across the nation), continued major increases in federal support of mathematics research, and a dramatic increase in newspaper and magazine articles about mathematics and mathematicians reflect the intense efforts of Kenneth M. Hoffman, the director of OGPA, and our Public Relations Director. OGPA represents a major turning point for MAA and the mathematical community.

**UNDERGRADUATE CURRICULUM** 1986 will be remembered as the year the nation discovered the undergraduate curriculum. There is more hyperbole here, I know, but I believe that this statement, too, will stand the test of time. A number of national reports have called attention to serious weaknesses in academe at all levels. Mathematics is not immune to the malaise. The 1986 Tulane Conference on College Calculus issued a ringing appeal for reform, a "leaner and livelier calculus". (See MAA Notes, Number 6.) A major report on Discrete Mathematics in the First Two Years (college) was published by the MAA in 1986. CUPM and CTUM continued their preparation of forthcoming reports on mathematics as a service course, evaluation of mathematics teaching, uses and training of teaching assistants and part-time instructors, articulation between high-school and college mathematics, and continuing education of teachers. The MAA and

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the National Research Council will shortly announce a joint project to assess current efforts in calculus reform and identify aspects of the college calculus course in greatest need of change. The MAA/NRC project is designed to lend coordination and cohesion to the mathematical community's response to the anticipated NSF college calculus funding program. Expect the

MAA to be a continuing major player in the campaign to prepare collegiate mathematics for the twenty-first century.

Each of these 1986 MAA initiatives marks a turning point from the 1970's, which lasted well into the 80's, to the 1990's, which are beginning now. The MAA has embarked on a new voyage into the future, *mark my words*.



## President's Message

**Leonard Gillman**  
President

I write as a President in the earliest months of office. It is appropriate that my first annual report be a personal message to the members of the Association, and that it deals with the future rather than the past. The past year is well documented in the report of the Executive Director. I have a stake in the future. Here are two items that I perceive as important immediate concerns. I will discuss others in later reports.

**CLOSER TIES WITH THE RESEARCH COMMUNITY** I would like to see more of the leading research mathematicians join the Association and participate in committee activities and otherwise become involved in MAA affairs. There is ample precedent: four Presidents of The American Mathematical Society—R. H. Bing, Saunders Mac Lane, E. J. McShane, R. L. Wilder—were also Presidents of the MAA. Mathematics is mathematics, and research mathematicians are the ones who best know the important problems, the promising methods, relations and interconnections among fields, and major trends.

It isn't even necessary to join. Nonmembers are welcome as speakers at national and sectional meetings. (To help this along, I have suggested that the Sections hold more of their meetings on major campuses.) The Association accepts books, journal articles, and book reviews on their merits, independently of MAA membership, and its author list includes many outstanding mathematicians; for example, the AMERICAN MATHEMATICAL MONTHLY has published articles by nonmembers Gödel, Dieudonné, and Milnor.

**A VIGOROUS PUBLICATIONS PROGRAM** The Association publishes many distinguished books. They are priced at bargain rates, and at the same time are intended as a good source of income to the Association. But sales are small. We push the books pretty hard to our individual members but do very little toward getting them into libraries. Even if library budgets are tight, we will do better if we try than if we don't. I suggest that members go to their libraries and badger them. Point out the value of the books to your students as well as to faculty. This should be much more persuasive than a letter from the Washington office.

Still, there are limits to what we can do with our existing series. I bet our members want different ones or more attractive ones. Traditionally, we wait for an author to submit a manuscript; at best, we may sometimes try to think up what new books we ought to have. Why not ask the customers themselves? That's you. I hereby do: What kinds of books would you like to see the Association publish—subjects, topics, intended audience, length, style, trim size, cover and binding, price? And who would be good authors? (Yes, I know Don Albers asked for suggestions in the January-February FOCUS. He probably forgot I told him I was planning to do it and had got his OK. Anyhow, it bears repeating.) Send your replies to any of the following people (or, if you have an existing series in mind, to one of those listed in Don's earlier article):

Professor Leonard Gillman, Department of Mathematics, University of Texas at Austin, Austin, TX 78712

Professor Donald J. Albers, Department of Mathematics, Menlo College, Atherton, CA 94025

Dr. Peter L. Renz, The Mathematical Association of America, 1529 Eighteenth Street NW, Washington, DC 20036

## Publications Program

One of the most important activities of The Mathematical Association of America is its publications program. The Association's list of publications currently contains 111 titles, which include books devoted to topics in mathematics, library lists, bibliographies, books on the content and teaching of mathematics, and reports on conferences and mathematical congresses. MAA publications appeal to anyone interested in mathematics, from the high school to the college teacher.

In 1986 the MAA published three new books. These were:

**STUDIES IN MATHEMATICAL ECONOMICS**, MAA Studies in

Mathematics, Vol. 25, Stanley Reiter, Editor.

**INTERNATIONAL MATHEMATICAL OLYMPIADS 1978-1985, AND FORTY SUPPLEMENTARY PROBLEMS**, New Mathematical Library, Vol. #31, Murray Klamkin, compiler.

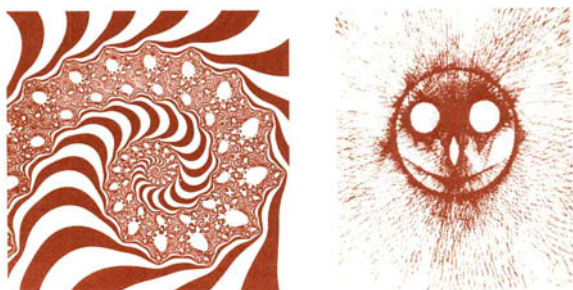
**TOWARD A LEAN AND LIVELY CALCULUS**: Report of The Conference/Workshop to Develop Curriculum and Teaching Methods for Calculus at The College Level, MAA Notes, Number 6, Ronald Douglas, Editor.

The 12-member MAA Committee on Publications is chaired by Donald J. Albers, Menlo College.

## First Mathematics Awareness Week

In response to the recommendation from both Houses of Congress, President Reagan proclaimed April 14-20, 1986 as National Mathematics Awareness Week—the first time ever for such a nation-wide event. MAA members and others within the mathematical community throughout the country responded *en masse* with letters, telegrams, and telephone calls to their elected representatives requesting support for the proclamation.

There were numerous activities held in observance of Mathematics Awareness Week: 1) over 200 TV stations carried a 30-second public service announcement saluting U.S. progress in science and space as achievements built on the foundation of mathematics; 2) Senator Pete Domenici, chairman of the Senate Budget Committee, former mathematics teacher, and chief author of the Congressional resolution, presided at the opening of a small exhibit on the history of mathematics education at the Smithsonian Institution; 3) framed colored fractal prints were presented to several Congressmen at a three-hour reception in the U.S. Capitol Building; 4) mathematics faculty at Texas A&M helped persuade Governor Mark White to issue a proclamation within Texas; and 5) Boston University mounted an exhibit of fractal art.



Mathematics Awareness Week Images: 1987

National Mathematics Awareness Week will now be celebrated every year by the mathematical community. It will be backed up with a sustained program of public information and Congressional liaison. In 1986 the MAA contributed over \$40,000 to activities coordinated by the Director of Federal Relations for the Joint Policy Board for Mathematics, representing the MAA, the American Mathematical Society and the Society for Industrial and Applied Mathematics.

Proclamation 5461 of April 17, 1986

**National Mathematics Awareness Week, 1986**

By the President of the United States of America

**A Proclamation**

Since the time of its beginnings in Egypt and Mesopotamia some 5,000 years ago, progress in mathematical understanding has been a key ingredient of progress in science, commerce, and the arts. We have made astounding strides since from the theorems of Pythagoras to the set theory of Georg Cantor. In the era of the computer, more than ever before, mathematical knowledge and reasoning are essential to our increasingly technological world.

Despite the increasing importance of mathematics to the progress of our economy and society, enrollment in mathematics programs has been declining at all levels of the American educational system. Yet the application of mathematics is indispensable in such diverse fields as medicine, computer sciences, space exploration, the skilled trades, business, defense, and government. To help encourage the study and utilization of mathematics, it is appropriate that all Americans be reminded of the importance of this basic branch of science to our daily lives.

The Congress, by Senate Joint Resolution 281, has designated the week of April 14 through April 20, 1986, as "National Mathematics Awareness Week" and authorized and requested the President to issue a proclamation in observance of this event.

NOW, THEREFORE, I, RONALD REAGAN, President of the United States of America, do hereby proclaim the week of April 14 through April 20, 1986, as National Mathematics Awareness Week, and I urge all Americans to participate in appropriate ceremonies and activities that demonstrate the importance of mathematics and mathematical education to the United States.

IN WITNESS WHEREOF, I have hereunto set my hand this seventeenth day of April, in the year of our Lord nineteen hundred and eighty-six, and of the Independence of the United States of America the two hundred and tenth.

*Ronald Reagan*

Presidential Proclamation: 1986

## Membership Reaches All-Time Record

In 1986 the MAA individual memberships reached an all-time high of 25,963 as of December 31st. This is an increase of 4,259 or 20% over 1985. Membership recruitment has been greatly enhanced during the last few years with the help of Marketing General, Inc. who, by the end of 1986, had supervised eight general membership and two non-member subscriber mailings.

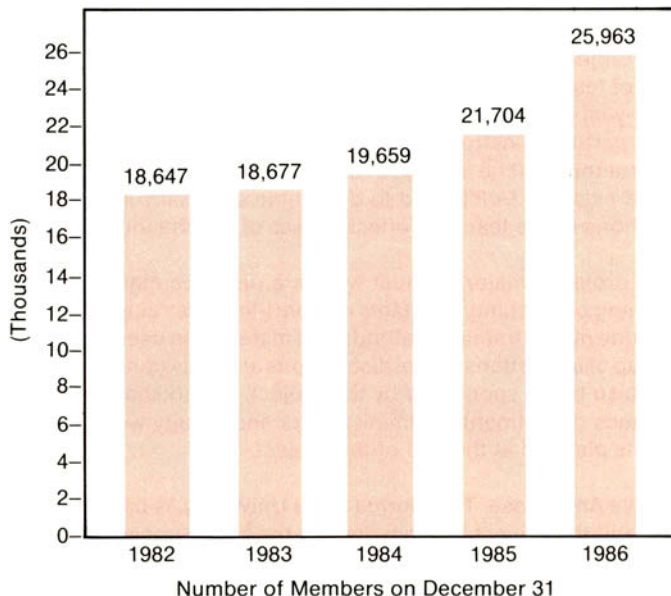
The demographic breakdown of individual memberships as of the end of 1986 was:

Students	3,885
High school teachers	2,664
College, university faculty	12,624
Industry, government	3,418
Retired or unemployed	1,800
Other	<u>1,572</u>
	<b>25,963</b>

In addition, there were 528 institutional members. These included high schools, junior and community colleges, four-year colleges and universities and 17 special Corporate Members. There were also 154 Life Members and an additional 277 members who had applied for Life Membership beginning in 1987.

M.A.A. Membership

1983-1986



## American Mathematics Competitions and the Mathematical Olympiads

The American Mathematics Competitions experienced another very successful year—nearly 370,000 high school students and 140,000 middle school students participated in these special examinations. The high point of the year was the achievement of the U.S. Team at the International Mathematical Olympiad in Warsaw: a first-place tie with the Soviet Union. Details about the results of the various examinations appeared in articles in the MAA newsletter FOCUS in May-June and September 1986 and March-April 1987.

Eight U.S. students earned Olympiad medals in the fifteenth USA Mathematical Olympiad (USAMO) in which 72 students competed in a challenging examination designed to test ingenuity as well as mathematical knowledge. The USAMO competitors were the top performers in the American High School Mathematics Examination (AHSME) and the American Invitational Mathematics Examination (AIME) which were held in high schools throughout the United States and Canada in February and March 1986.

The eight USAMO winners were: Joseph Keane, Pittsburgh, PA; David Grabiner, Claremont, CA; Ravi Vakil, Islington, ON; Darien Lefkowitz, New York, NY; William Cross, Kalamazoo, MI; John Bulten, Tulsa, OK; Eric Wepsic, Boston, MA; Jeremy Kahn, New York, NY. The winners were honored in June in Washington, D.C. in ceremonies at the National Academy of Sciences and the U.S. Department of State.

The eight winners and sixteen other high-scoring students subsequently participated in an intensive four-week training session at the U.S. Naval Academy at Annapolis. The purpose of the training session was to train a U.S. team of six students for the 1986 International Mathematical Olympiad (IMO), held in Warsaw, Poland in July and to prepare promising students for future

IMO's. Students named to the U.S. team were: William Cross, Kalamazoo, MI; David Grabiner, Claremont, CA; Jeremy Kahn, New York, NY; Joseph Keane, Pittsburgh, PA; Darien Lefkowitz, New York, NY; John Overdeck, Columbia, MD.

The U.S. team of six solved their way to a tie with the Russians for first place in the 27th International Mathematical Olympiad. The Americans and Russians each had team scores of 203 out of a possible 252. Joseph Keane was the only participant of the 210 from 37 countries to receive a Special Award for a particularly elegant solution. Keane received a Gold Medal, with a score of 41 out of a possible 42, as did his teammates Grabiner (score 36), and Kahn (35). The other team members all received Silver: Overdeck (32), Lefkowitz (30), and Cross (29).

The Mathematical Olympiad activities are sponsored by seven national associations in the mathematical sciences with administration conducted by the MAA. Financial support is provided by both public and private agencies: IBM, the Army Research Office, the Office of Naval Research, and Hewlett-Packard.



The members of the US and USSR International Mathematical Olympiad teams on the occasion of their first place tie in Warsaw, 1986.

## Training of Teaching Assistants and Part-Time Instructors

The MAA received a grant of \$49,088 from the Comprehensive Program of the Fund for Improvement of Postsecondary Education, U.S. Department of Education, to conduct a project which will develop training materials for teaching assistants and part-time instructors.

The project will allow for the completion of a survey of the current use of teaching assistants and part-time instructors in two- and four-year colleges and universities. Current teaching assistants and part-time instructors, and students being taught by these instructors, will be surveyed to determine what special training need exist for TA/PTI, and to determine especially student perceptions of the teaching effectiveness of international TAs.

The project's major product will be a resource manual on the training of teaching assistants and part-time instructors that will include model training methods and materials in use at a diverse group of institutions. Panel discussions at professional meetings are also being sponsored by the project. A workshop for mathematics departmental administrators and faculty working with TAs is planned at the end of the project.

Bettye Anne Case, The Florida State University, is project director, and the project is sponsored by the MAA Subcommittee on Teaching Assistants and Part-Time Instructors of the Committee on the Teaching of Undergraduate Mathematics.

## Blacks and Mathematics

The Blacks and Mathematics (BAM) program is a visiting lecturer program of Black professionals whose goal is to increase in Black students an awareness of the need to take more mathematics courses in junior and senior high school. In addition to providing positive role models, the speakers inform students of the background in science and mathematics needed to pursue careers that use a significant amount of mathematics.

During the 1985-86 academic year there were ten (10) BAM regions throughout the country. A total of 84 schools were visited; 5900 students heard 81 different professionals. In addition, 194 teachers, counselors, and secondary school administrators attended selected student lectures as well as other special sessions for school personnel.

In the Hartford (CT) region, visits to the schools were augmented by field trips to the work places of speakers. Several regions continued their mathematics contests. A number of regions held special "BAM Days" in the schools.

This program has been funded by the Minority Institutions Science Improvement Program of the U.S. Department of Education. John W. Alexander, Jr., Wentworth Institute of Technology, is BAM director.



## Applications in Mathematics

Applications in Mathematics (AIM) is a new MAA project which is conducted primarily by Oklahoma State University. AIM is funded by a \$742,000 grant from the National Science Foundation and produced by Professors Jeanne Agnew and John Jobe.

The purpose of AIM is to provide curricular materials in applied mathematics to high school students in the United States. The AIM materials are being presented in six Learning Modules, each Module being a coordinated package of video cassette, student/teacher resource book, and computer software.

Each module features a problem that arose in a particular industry and that can be solved using high school mathematics. The industrial mathematician who actually worked with the problem makes the presentation in an on-site video interview, and later gives a solution. The problem is presented in written form in the Student Resource Book. The Teacher Resource Book describes a variety of ways in which an AIM learning module can be used, along with a detailed solution to the problem. Enhancing the video and written parts of the module is a computer diskette that provides a solution and a chance to explore the problem further through "What if . . .?" questions.

Three modules are now available: *A Backwater Curve for the Windsor Locks Canal*; *Pricing Auto Insurance*; and *Testing Surface Antennas*. Three additional modules are being produced: *Routing Telephone Service*; *Capturing a Satellite*; and *Volcano Eruption Fallout*.

Write to the MAA AIM Dissemination Clerk for more information and an order form.

## Women and Mathematics

Women and Mathematics (WAM) is a secondary-school lecture-ship program sponsored by the MAA in which women who are pursuing careers which demand sound preparation in mathematics speak about their work and the role that mathematics plays in it. WAM completed its eleventh year of operation in 1986.

WAM now covers 15 regions of the country:

Baltimore/Washington; Boston; Chicago Area; Connecticut; Greater Philadelphia; Greater Texas; Kansas City; Michigan; New York/New Jersey; North Central Texas; Northern California; Puget Sound Area; South Florida; Southern California; and Utah.

In 1986 over 300 school visits were made. Speakers talked with approximately 19,000 students, 1,400 teachers and 1,400 counselors, parents, and other adults. By conservative estimates, the total participation in WAM in the first eleven years is about 193,000: 173,000 students, and 20,000 teachers, counselors, parents, and other adults, with over 2,000 school visits.

During 1985-86 WAM received grants totaling \$34,000 from the George I. Alden Trust, The Dow Chemical Foundation, GTE, Hewlett-Packard, International Business Machines, Pfizer, and the Tektronix Foundation.

Carole Lacampagne, University of Michigan, Flint, is the National Director of WAM.

## MAA Committees

In 1986 an anonymous-member donor gave the MAA funds sufficient to support a \$1,000 prize every other year for a young mathematician author. The prize is named after and honors Merten M. Hasse. The new *Committee on the Merten M. Hasse Prize* is chaired by Joseph D. E. Konhauser, Macalester College.

Two new standing committees were appointed: *Committee on Consultants* (chair: Richard S. Millman, Wright State University); and the *Committee on the Participation of Women* (chair: Patricia C. Kenschaft, Montclair State College). The *Committee on Special Funds* was renamed the *Development Committee*.

A number of joint committees were established. In conjunction with AMATYC (American Mathematical Association of Two-Year Colleges), the MAA is now part of a *Task Force on Remedial Mathematics* (chair: Ernest Ross, St. Petersburg Junior College). A new joint *Task Force on Mathematics Curriculum for Grades 11-13* is sponsored by the MAA and NCTM (National Council of Teachers of Mathematics), chair: Joan P. Leitzel, Ohio State University. The MAA and NCTM also appointed a joint *Committee on Parental Involvement* (chair: Kay Gilliland, University of California, Berkeley).

In conjunction with ACM and the IEEE Computer Society, the MAA appointed a *Task Force on the Teaching of Computer Science* (chair: Zaven A. Karian, Denison University). The American Mathematical Society, Section A of the American Association for the Advancement of Science, and the MAA jointly created the *Committee on Opportunities in Mathematics for Disadvantaged Groups* (chair: Gloria Gilmer, The Math-Tech Connexion, Inc.). The former AMS Committee CEEP (*Committee on Employment and Educational Policy*) is now a joint AMS-MAA committee (chair: Edward A. Connors, University of Massachusetts).

## Section Activities

Approximately 4500 persons attended a section meeting in the 1985-86 academic year; this is a far greater number than the sum of all of those attending a Summer or Winter Joint Meeting. Those 4500 attendees heard more than 165 invited addresses, 560 contributed papers and over 150 student presentations. At least ten sections are now sponsoring summer short courses and twelve sections gave minicourses as part of their Annual Meetings. The number of contributed papers was as high as fifty at a meeting of the Oklahoma/Arkansas Section and the number of student presentations was as high as sixteen (at meetings of the Oklahoma/Arkansas Section and in the Ohio Section).

Section Activities are many and diverse. Several sections sponsor mathematics contests in various forms ranging from the Michigan High School Mathematics Competition to the Indiana Small College Mathematics Contest to the very successful Metropolitan New York Mathematics Fair. Many Sections sponsor Visiting Lectureship Programs for high schools and small colleges. A large number of sections are becoming politically active and influencing areas of concern such as mathematics education, teacher training and curriculum reform. Several other sections are concerned about articulation and transfer and are meeting success in trying to do something about the problem.

## Placement Test Program

Since 1977 the MAA has sponsored a college Placement Test Program (PTP). In 1986, approximately 350 college departments of mathematics subscribed to the program and used all or parts of the program's six college-level tests: Arithmetic and Basic Skills, Basic Algebra, Advanced Algebra, Algebra, Trigonometry, and Calculus Readiness. A High School Series is available and used by some college departments to pre-test their prospective students for precollege counseling purposes.

In 1986, the MAA received the first \$10,500 of a multi-year grant from the Texas Instrument Corporation to assist the PTP program in the construction of a new series of calculator-based placement tests. The calculator-based testing project is under the direction of Professor John Harvey from the University of Wisconsin, Madison.

The MAA through its Committee on Placement Examinations together with The College Board sponsored a symposium on "Calculators in the Standardized Testing of Mathematics" in New York on September 25, 1986. The chairman of the Committee on Placement Examinations, John Kenelly, Clemson University, co-chaired the symposium. The proceedings will be available in the near future.

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## MAA Prizes and Awards

Several mathematicians received special recognition at the New Orleans meeting in January 1986. Arnold E. Ross, Professor Emeritus of Ohio State University, was presented the Award for Distinguished Service to Mathematics in recognition of the many gifted young people whom he identified and encouraged to study mathematics at an early age. Edward W. Packel, Lake Forest College, was awarded the MAA Book Prize for *MATHEMATICS OF GAMES AND GAMBLING*, published in the New Mathematical Library series in 1981. George Miel, Hughes Aircraft Corporation, was presented the Chauvenet Prize for his paper "Of calculations past and present: The Archimedean algorithm," *AMERICAN MATHEMATICAL MONTHLY*, 90 (1983), 17-35. A Certificate of Merit was awarded to Raoul Hailpern who served the MAA for 22 years as Associate Secretary, Associate Director, and Editorial Director.

Since there was no summer meeting in 1986, numerous awards were presented at the meeting in San Antonio in January 1987. Gail Young, University of Wyoming, was presented the Award for Distinguished Service to Mathematics for his outstanding and devoted service to the mathematical community and to mathematics education. James H. Wilkinson (deceased) was awarded the Chauvenet Prize for "The perfidious polynomial," published in *STUDIES IN NUMERICAL ANALYSIS*, MAA Studies in Mathematics, Number 24.

Five authors were recognized for excellence in expository writing. Carl B. Allendoerfer Awards for articles in *MATHEMATICS MAGAZINE*: Bart Braden, Northern Kentucky University, for "Design of an oscillating sprinkler" and Saul Stahl, University of Kansas, for "The other map coloring theorem." Lester R. Ford Awards for articles in *The AMERICAN MATHEMATICAL MONTHLY*: Jeffery C. Lagarias, AT&T Bell Labs, for "The  $3x + 1$  problem and its generalizations" and Michael E. Taylor, SUNY at Stony Brook, for his review of Hormander's *ANALYSIS OF LINEAR*

*PARTIAL DIFFERENTIAL OPERATORS*, Vols. I and II. Philip J. Davis, Brown University, was awarded the George Polyá Award for "What do I know? A study of mathematical self-awareness," *The COLLEGE MATHEMATICS JOURNAL*.

Six members were recognized for their outstanding contributions in their Sections. Certificates of Meritorious Service were presented to Willard Baxter, University of Delaware (Eastern Pennsylvania-Delaware Section), Basil Gillam, Drake University (Iowa Section), Lily E. Christ, John Jay College of Criminal Justice (Metropolitan New York Section), Joseph D. E. Konhauser, Macalester College (North Central Section), Joseph Hashisaki (deceased), Western Washington University (Pacific Northwest Section), and Everett L. Walter, Northern Arizona University (Southwestern Section).

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## Visiting Lecturers and Consultants

Lecturers and consultants are available to both community colleges and four-year public and private colleges and universities in the United States and Canada through the MAA Committee on Visiting Lectures and Consultants. Lecturers are also available to MAA Sections and to other professional organizations that wish to secure speakers.

The new list of lecturers and consultants includes more than 125 mathematicians with a wide range of interests in mathematics, computing, and statistics.

The Visiting Lecturers and Consultants programs currently offer partial or full subsidies for those colleges or universities unable to fund the visits. A number of our lecturers and consultants have provided their services directly to universities without funding from the VLC programs.

A reorganization of the coordinating structure of the Visiting Lecturers and Consultants programs is in progress. When that reorganization is complete, separate programs will exist to provide lecturers and consultants to interested colleges and universities. In the meantime, the services described in the 1987-88 booklet are still available.

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## Minicourses

Approximately 600 mathematicians registered for the 12 continuing education minicourses held in conjunction with the 69th Annual Meeting of the MAA in New Orleans in January 1986. These courses increase in popularity each year and provide a variety of topics to the mathematical community.

Among the 1986 courses were: 1) Microcomputer software for teaching linear algebra and calculus, taught by David A. Smith and David P. Kraines, Duke University; 2) Introduction to actuarial mathematics, organized by Ellen M. Torrance, M & R Services, Inc.; 3) The teaching of applied mathematics, organized by W. Gilbert Strang, Massachusetts Institute of Technology; and 4) Introduction to computer graphics, taught by Joan P. Wyzkoski, Fairfield University.

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## R. H. Bing Memorial Fund

The permanent R. H. Bing Memorial Fund was established in 1986 to support programs and activities of public awareness of mathematics. Professor Bing has been called one of mathematics' greatest salesmen, and public awareness of mathematics was one of his passions.

He was President of both the MAA and the American Mathematical Society. He was a member of the National Academy of Sciences and served a term on the National Science Board.

He was an "earthy" mathematician, in the sense that he believed that mathematics is something one can see, feel, and manipulate. Mathematics fascinated and challenged his mind, but it tickled his senses, too. When explaining his ideas about decompositions of Euclidean spaces he would throw a pile of "pick-up sticks" on the table to illustrate an idea. He often challenged his audience to turn a real torus (an old inner tube) inside out through a small hole in its skin, perhaps the only way to convince many that it can be done.

About 300 persons contributed a total of \$15,400 in 1986 to start the endowment for the R. H. Bing Memorial Fund.



*R. H. Bing*  
*MAA President*  
*1963–1964*  
*MAA Distinguished*  
*Service Award*  
*recipient in 1974*

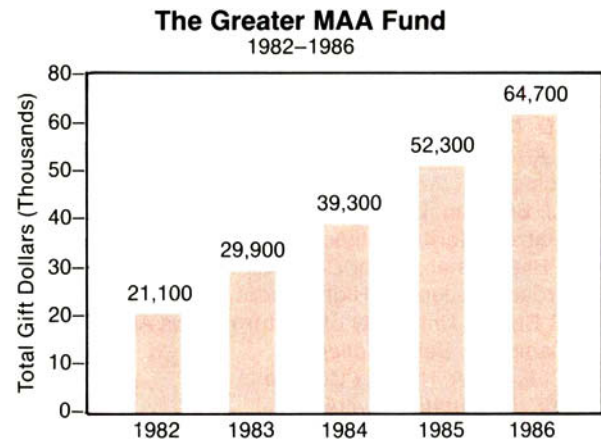
## The Greater MAA Fund 1986 Honor Roll of Donors

The Greater MAA Fund for 1986 had a 23% increase in donors and a 24% increase in dollars compared with 1985. The Fund reached a total of \$64,700 with 1,558 donors. (See the chart on the next page for five years of Fund progress.) In 1986 special gifts to the R. H. Bing Memorial Fund totaled \$15,400 from 288 donors.

In five years the Fund has grown from \$21,000 to \$64,000, an increase of over 200%. These funds have helped the MAA to (1) start up FOCUS; (2) renovate the carriage house behind our main property, which is now used as rental space; (3) carry out some of the work of Mathematics Awareness Week and our commitment to our national Washington presence being funded by the Joint Policy Board on Mathematics; (4) assist certain committees to hold planning meetings; (5) establish the R. H. Bing Memorial Fund; and (6) provide some unrestricted funds for the Association to use where the need was greatest.

The officers of the Association express their gratitude to the membership for its fine support of the Greater MAA Fund. The names of all donors for 1986, except a few who wish to remain anonymous, are listed below.

**This graph shows the growth  
of the Greater MAA Fund  
for its first five years.**



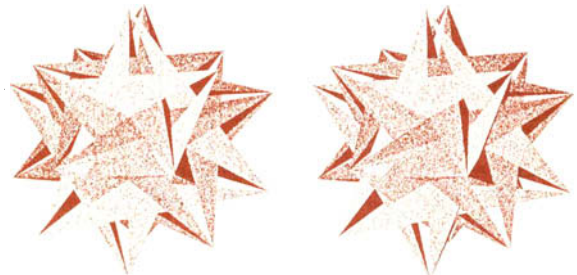
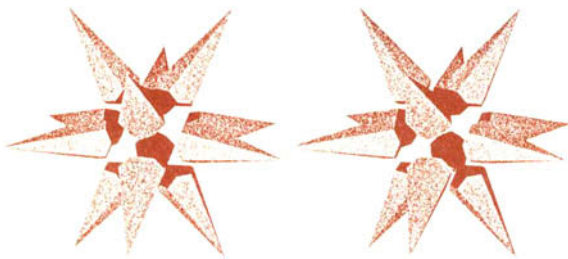
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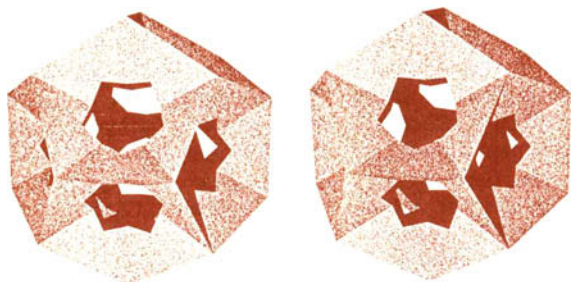
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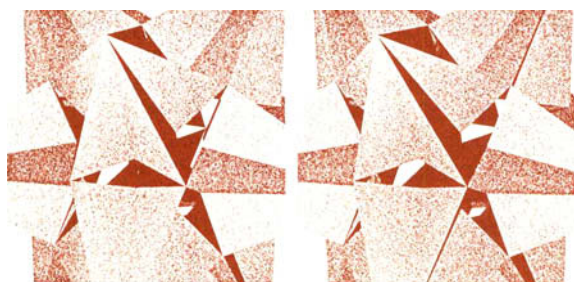


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At the end of 1986 the MAA experienced a deficit of approximately \$20,000. Although this might seem small in comparison to the total budget of just over three million dollars, the Finance Committee and the Board of Governors have taken steps to bring revenues and expenditures into balance. The MAA remains in a strong financial position, and it is a high priority of the officers of the Association and of the Board of Governors to preserve the MAA's ability to respond to the needs of mathematics and to take new initiatives.

Important changes have begun to strengthen our book publication program. The new Associate Director in the Washington office has primary responsibility for managing that program, and he has introduced much needed long-term scheduling in our book acquisitions, publishing, and marketing. At the same time the Publications Committee has been reorganized, and a new Publications Management Committee has been formed. As a result of these new developments we are optimistic about the future of the MAA's publications program. Although it had some difficult times during the inflationary period of the 1980's, it remains one of our most important programs for members and the mathematics community.

Another major initiative of the MAA during the 1980's has been our joining with AMS and SIAM, working through the Joint Policy Board of Mathematics, to support a Director of Federal Relations, a public relations consultant, and a government relations consultant. There is already a measurable increase in the Congress's awareness of critical problems faced by mathematics and mathematics education. And awareness is now being translated into increased support for mathematics. The MAA plays an essential part in speaking out about the importance of mathematics to our society and its position of leadership in the world.

In 1987 we have budgeted \$476,000 for book publications. This compares with \$105,000 for FOCUS, and \$892,000 for the three journals. The budget for government and public relations is approximately \$60,000. Overall, the MAA's 1987 operating budget increased about 12% over 1986 actual expenditures, reflecting the new and increased activities.

## Consolidated MAA Balance Sheet December 31, 1986

### ASSETS

#### Current Assets

Cash	243,812
Liquid Assets	231,220
Accounts Receivable	343,788
Publications Inventory	158,726
Prepaid Expenses	<u>68,596</u>
<b>Total Current Assets</b>	<b>\$1,046,142</b>

#### Non-Current Assets

Investments (at cost)	476,058
Furniture and Equipment	358,467
Building (at cost)	816,456
Building Improvements (at cost)	134,493
Accumulated Depreciation	(337,094)
Deferred Development Costs	<u>61,593</u>
<b>Total Non-Current Assets</b>	<b>\$1,509,973</b>

### TOTAL ASSETS

\$2,556,115

### LIABILITIES AND FUND BALANCES

#### Current Liabilities

Accounts Payable	66,716
Notes Payable	6,078
Accrued Royalties	24,773
Other Accrued Liabilities	122,852
Prepaid Dues and Subscriptions	<u>1,061,036</u>
<b>Total Current Liabilities</b>	<b>\$1,281,455</b>

#### Long-Term Liabilities

Mortgage Payable	305,842
Unexpended Grant Receipts	<u>120,463</u>
<b>Total Long-Term Liabilities</b>	<b>426,305</b>

### Total Liabilities

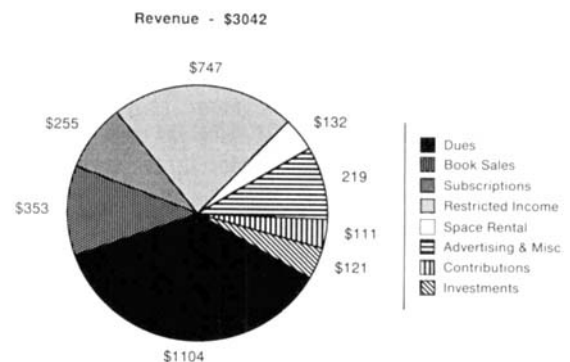
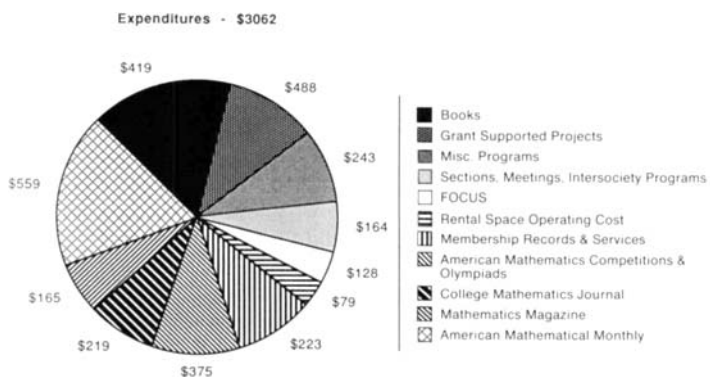
\$1,707,760

#### Fund Balances

Unrestricted Fund Balances	358,293
Restricted Fund Balances	399,884
Endowment	<u>108,202</u>
<b>Total Fund Balances</b>	<b>\$866,379</b>

### TOTAL LIABILITIES & FUND BALANCES

\$2,574,139





## FOCUS EMPLOYMENT ADVERTISEMENTS

Rates for FOCUS Employment Ads are:

- 50 words or less: \$25.00
- More than 50 words: \$30.00 per column inch

There is a 15% discount for the same ad in 3 consecutive issues (with contract in advance). An insertion order on institutional letterhead will be considered a contract. Charges will be billed after the **first** occurrence specified in the contract.

Anyone wishing to place an employment ad in FOCUS should write to: FOCUS Employment Ads, Mathematical Association of America, 1529 Eighteenth Street, NW, Washington, D.C. 20036. Or for more information, call the MAA Washington Office at (202) 387-5200.

The deadline for submission in the September issue is July 27.

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### MEMORIAL UNIVERSITY OF NEWFOUNDLAND DEPARTMENT OF MATHEMATICS AND STATISTICS ASSISTANT PROFESSOR OF PURE MATHEMATICS

Applications are invited from suitably qualified Algebraists for one tenure track position at the rank of Assistant Professor effective September 1987, subject to the availability of funds. The successful candidate will have primary research interests in classical ring theory, both associative and non-associative, and will have demonstrated ability in teaching and research.

Applicants should submit a complete curriculum vitae and the names of at least three references to:

Dr. Bruce Shawyer, Head  
Department of Mathematics and Statistics  
Memorial University of Newfoundland  
St. John's, Newfoundland A1C 5S7

In accordance with Canadian Immigration requirements, this advertisement is directed to Canadian citizens and permanent residents.

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### LAFAYETTE COLLEGE Easton, Pennsylvania 18042

Possible one-year visiting position. Instructor (near-Ph.D.) or assistant professor (Ph.D.) to teach undergraduate mathematics. Teaching load is 3 courses per semester. Liberal arts and engineering in a small (2000) college close to Philadelphia and New York City. Salary competitive (1986 AAUP salary rating 1\* in all ranks). Send resume, 3 reference letters, and telephone numbers (office and home) to Chair, Mathematics Search Committee. An Equal Opportunity Employer.

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**Western Psychiatric Institute and Clinic**, a division of the **University of Pittsburgh**, is seeking a statistician, systems programmer analyst. The major function of this position is to provide statistical and computer systems support for the Clinical Information System and psychiatric research studies involving the predictive validity of DSM-III diagnostic system. The successful candidate must have a Ph.D. in statistics or an equivalent field and should be familiar with longitudinal data analysis, large data base management and stochastic modeling. Experience in medical research or psychiatric research preferred. Knowledge of SPSS, BMDP, System 1032, Fortran on VAX/VMS required. Send resume, transcripts, and three recommendation letters to WPIC, 3811 O'Hara Street, Pittsburgh, PA 15213 Attn: Carol Gettings.

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**Midwestern State University** has a tenure-track position for an Assistant or Associate Professor of Computer Science beginning September 1, 1987. Applicants should have a Ph.D. in Computer Science. Applicants holding a Ph.D. in an associated field (Mathematics, Statistics, Operations Research, etc.) and a Master's degree in Computer Science will be considered. Applicants should have a commitment to excellence in teaching. Successful candidate will teach courses in undergraduate and graduate Computer Science, assist with student advising, serve on various departmental committees and participate in curriculum development activities. Compensation is competitive. Applicants should send a resume and three letters of recommendation to Dr. S. B. Carpenter, Computer Science Dept., Midwestern State University, Wichita Falls, Texas 76308.

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### MEMORIAL UNIVERSITY OF NEWFOUNDLAND DEPARTMENT OF MATHEMATICS AND STATISTICS ASSISTANT PROFESSOR OF APPLIED MATHEMATICS

Applications are invited from suitably qualified persons for one tenure track position at the rank of Assistant Professor effective September 1987, subject to the availability of funds. The successful candidate will have a doctorate in Applied Mathematics. Preference will be given to persons with research interests compatible with present members of the department. The successful candidate will have demonstrated ability in teaching and research.

Applicants should submit a complete curriculum vitae and the names of at least three references to:

Dr. Bruce Shawyer, Head  
Department of Mathematics and Statistics  
Memorial University of Newfoundland  
St. John's, Newfoundland A1C 5S7

In accordance with Canadian Immigration requirements, this advertisement is directed to Canadian citizens and permanent residents.

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### MANKATO STATE UNIVERSITY DEPARTMENT OF MATHEMATICS, ASTRONOMY, AND STATISTICS MANKATO, MN 56001

Tenure track faculty position in mathematics available. Rank/salary dependent upon qualifications. Ph.D. in mathematics required. Applications particularly encouraged from areas of algebra, analysis, applied mathematics, mathematics education, and statistics. Applicants must have strong interest in teaching at freshman through graduate levels and show evidence of successful teaching at postsecondary level. Teaching load at most 36 quarter hours per 9 month academic year. Successful candidate will teach courses in mathematics and assist with student advising, serve on various departmental committees, and conduct appropriate research. Open until filled. Send application letter, vita, research and teaching interests, and three (3) letters of reference to F. T. Hannick, Chairperson. AA/EOE

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### DIVISION OF MATHEMATICS & COMPUTER SCIENCE Northeast Missouri State University Kirksville, MO 63501

**Mathematics** Several tenure-track and temporary (renewable) positions available August, 1987. Ph.D. required for tenure-track positions. Specialties in applied or computational mathematics, numerical analysis, differential equations or algebra preferred, others considered.

**Computer Science** At least one tenure-track and one temporary position available August, 1987. Ph.D. or ABD preferred for tenure-track position. Specialties desired are operation systems, programming languages, artificial intelligence and computer graphics but other areas acceptable.

Teaching loads average 9-12 hours per semester depending on research activity. Most temporary positions are renewable for two additional appointments. Candidates must have strong commitment to excellence in teaching.

Northeast is a public, statewide university for the liberal arts and sciences with selective admissions and degree programs designed to prepare graduates to enter and compete successfully in strong graduate programs.

Send letter, resume, transcripts of undergraduate and graduate study and three letters of reference to Lanny Morley, Head.

**NORTHEAST IS AN EQUAL OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER**

**GRAND VALLEY STATE COLLEGE  
ALLENDALE, MICHIGAN**

Tenure-track positions in Mathematics and Computer Science:

**MATHEMATICS Assistant**—must have Ph.D. with an emphasis in statistics or mathematics education. Preference given to candidates with strong teaching recommendations.

**COMPUTER SCIENCE Assistant or Associate Professor**—must have Ph.D. in C.S. or Information Systems. Preference given to candidates qualified to assist in the development of a graduate program. For each position, duties include teaching, curriculum development, student advising and professional development. GVSC is located just west of Grand Rapids; the second largest metropolitan area in Michigan and offers numerous cultural and recreational opportunities. Cost of living is moderate and quality of life is high. Salary: Commensurate with experience; good fringe benefits. Send complete resume to: Dr. Donald W. VanderJagt, Chairman, Math & C.S. Dept., Grand Valley State College, Allendale, MI 49401. An EO/AA institution.

**ST. MARY'S UNIVERSITY  
DEPARTMENT OF MATHEMATICS  
SAN ANTONIO, TEXAS 78284**

Tenure-track faculty position in mathematics available. Rank/salary dependent upon qualifications. Ph.D. in mathematics required. Applicants should have the ability/desire to develop a new Bachelor's Degree Program in mathematical sciences incorporating mathematical modeling, statistics, and use of the computer in problem solving. Usual teaching load is 12 hrs/wk. Send application letter, vita and three (3) letters of reference to Bro. D Brisendine, Chairman.

**HAMILTON COLLEGE  
Dept. of Mathematics & Computer Science  
Clinton, NY 13323**

Two-year tenure track position. Ph.D. required; three years prior teaching experience desirable. Six courses per year at a small, highly selective, 4-year liberal arts college. Excellence in teaching and continued scholarly activity required. To apply send curriculum vitae and three letters of reference to Larry Knop, Chair. Women and members of minorities are encouraged to apply; Hamilton College is an Equal Opportunity Employer.

**Centenary College  
Department of Mathematics  
Shreveport, LA 71134**

Tenure-track position available beginning Fall 1987. Applicants should have a Ph.D. in mathematics and a strong commitment to the teaching of undergraduate students. Rank and salary based upon qualifications and experience. To apply, send resume, transcript of all college work, and three letters of recommendation to David Thomas at the above address. An Equal Opportunity Employer.

**The University of Scranton  
Dept. of Mathematics/Computer Science**

The University of Scranton is a Jesuit university with over 3500 undergraduates. At least one tenure-track position is available in Fall 1987 for faculty interested in a teaching environment. Individuals with expertise in any area of mathematics or computer science will be considered. Research is encouraged and supported through a strong faculty development program. Rank and salary are open and competitive. The department currently has 19 full-time faculty and about 400 majors. The University has a campus-wide commitment to computing including a faculty PC purchase program. Submit a vita, transcripts and three references to: Mathematics/Computer Science Search Committee, University of Scranton, Scranton, PA 18510 or phone (717) 961-7774.

An AA/EO Employer and Educator

**ANTICIPATED POSITION  
MATHEMATICS**

A tenure track position at the level of Assistant Professor is anticipated for Fall, 1987. Responsibilities include teaching undergraduate and graduate mathematics courses, student advising, and research.

The position requires a Ph.D. in mathematics, with a specialization in an area of applied mathematics preferred. Ph.D. candidate nearing completion of dissertation can be considered for initial appointment at the rank of Instructor.

Send application and resume by June 26, 1987 to: Dr. Peter Failley, Chair, Department of Math/CS/Physics, Fairleigh Dickinson University, c/o University Employment Office, 285 Madison Avenue, Madison, New Jersey 07940.

*equal opportunity/affirmative action employer m/f*

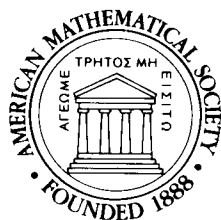
**FDU** FAIRLEIGH  
DICKINSON  
UNIVERSITY

**DEVELOPMENT  
EDITOR**

**College  
Mathematics Texts**

Seeking experienced editor to assist authors in developing introductory college texts in mathematics. Superior editing and writing skills, ability to analyze competing texts, experience in evaluating manuscripts from student perspective are essential. Must be able to handle projects independently throughout developmental phase and must have strong interpersonal skills. Degree in Mathematics or mathematics education or some college or high school teaching experience required. Salary commensurate with experience.

Send resume and introductory letter which must include current salary to: **Box MMN 875, 10 W. 20th St, NY, NY 10011.** An Equal Opportunity Employer M/F



## SEARCH FOR AN EXECUTIVE DIRECTOR for the AMERICAN MATHEMATICAL SOCIETY

**Position:** The post of Executive Director of the American Mathematical Society will become vacant on a date to be established in 1988 upon the retirement of William J. LeVeque from that position. The Executive Director is employed by the Trustees of the Society, who now seek a replacement. Employment could begin at a date of mutual convenience in 1988 and might include overlap with the term of the incumbent, though this is not a requirement. The central office of the Society is in Providence, R.I.

**Duties:** The duties of the position are summarized in Article VI of the bylaws of the Society as follows:  
Section 1. There shall be an Executive Director who shall be a paid employee of the Society. He shall have charge of the central office of the Society, and he shall be responsible for the general administration of the affairs of the Society in accordance with the policies that are set by the Board of Trustees and by the Council.

Section 2. The Executive Director shall be appointed by the Board of Trustees with the consent of the Council. The terms and conditions of his employment shall be fixed by the Board of Trustees.

Section 3. The Executive Director shall work under the immediate direction of a committee consisting of the President, the Secretary, and the Treasurer, of which the President shall be chairman ex officio. The Executive Director shall attend meetings of the Board of Trustees, the Council, and the Executive Committee, but he shall not be a member of any of these bodies. He shall be a voting member of the Committee to Monitor Problems in Communication but shall not be its chairman.

Note: In the above statement, "he" is the sexless third person singular pronoun, used to avoid the awkwardness of repeated "he or she" or the barbarism "he/she."

The purpose of the Society is described in this quotation from the charter:

The particular business and objects of the Society are the furtherance of the interests of mathematical scholarship and research.

The Society accomplishes its purpose through meetings and conferences and through publication. There is a diversity of other activity.

The annual budget of the Society exceeds thirteen million dollars, about one fifth being in the general fund and four fifths in the publication fund. There are about 150 employees in Providence and 75 in Ann Arbor. Mathematical Reviews is a semi-autonomous operation in Ann Arbor under the direction of the Executive Editor.

There are about eight general meetings per year and as many as twelve to fifteen specialized conferences.

The Society publishes at least sixteen journals of various kinds. It publishes about a dozen series of books. All of the operations, except for the printing of a couple of journals with very large print runs, are done in-house.

Both the office operations and the publication are highly computerized.

**Qualifications:** Candidates should have a Ph.D. in mathematics (or the equivalent), published research beyond the Ph.D., and significant administrative experience. Desirable qualifications include experience in mathematical publication, fiscal management, and computer utilization.

**Applications:** A search committee, with Frederick W. Gehring as Chairman, has been formed to seek and review candidates. Persons who wish to be considered or to make a nomination should provide supporting documentation to

Professor F. W. Gehring  
Department of Mathematics  
University of Michigan  
Ann Arbor, MI 48109

before 1 September 1987 to receive full consideration.

THIS SIDE: AMS SEEKS EXECUTIVE DIRECTOR - OTHER SIDE: MAA BOOK SALE

Order at the lower price until July 15. See your MAA Catalog or call the MAA at 1-800-331-1622 for details.

## NEW MATHEMATICAL LIBRARY

INGENUITY IN MATHEMATICS, by **Ross Honsberger**. Sit with this book for half to three-quarters of an hour and you will have mastered an elegant and pleasing bit of mathematics. Nineteen independent essays give ingenious approaches to topics including number theory, geometry, combinatorics, logic, and probability. 206 pp., 1970, ISBN 0-88385-623-9.

Cat.# NML-23	
List:	<del>\$11.00</del> 10.00
MAA	<del>\$9.80</del>
Member:	8.00

FIRST CONCEPTS OF TOPOLOGY: The Geometry of Mappings of Segments, Curves, Circles, and Disks, by **W.G. Chinn** and **N.E. Steenrod**. This clear and winning little book, for readers willing to come to genuine grips with the idea of a mathematical proof, presents topology . . . as mathematicians see it. The parlor tricks are gracefully alluded to here and there, but they are distinctly for after hours. The center of interest is the stuff itself: the powerful notions of set theory are . . . exploited to define open sets and their coverings, and from them [to prove] the key theorems . . . How this austere topic becomes 'rubber-sheet geometry' is made quite plain in the exposition and in the examples, which carry the flavor of the elegance of mathematical proof but fill out its thin, severe line with uniform grace and interest. The interplay of strict theorem and picturesque example is sustained. One cannot any longer doubt that a single stroke of a knife exists that divides any irregular ham sandwich so that ham and both bread slices can be shared with perfect fairness by two consumers. Philip Morrison in *Scientific American*. With over one hundred and fifty problems and solutions. 160 pp., 1966, ISBN 0-88385-618-2.

Cat.# NML-18	
List:	<del>\$10.00</del>
MAA	<del>\$8.00</del>
Member:	

## DOLCIANI MATHEMATICAL EXPOSITIONS

GREAT MOMENTS IN MATHEMATICS BEFORE 1650, by **Howard Eves**. This outstanding volume (along with its companion Volume 7) has become an MAA bestseller. It contains 23 fascinating mathematical episodes from antiquity to about 1650. 270 pp., Paper, 1982, ISBN 0-88385-310-8.

Cat.# DEP-05	
Paper	
List:	<del>\$16.50</del> 15.00
MAA	<del>\$12.50</del>
Member:	11.50

## CARUS MONOGRAPHS

IRRATIONAL NUMBERS, by **Ivan Niven**. A master expositor gives us the properties of irrational numbers. Among other topics Niven treats algebraic irrationals, transcendental, and normal numbers. He concludes with the solution of Hilbert's seventh problem. This result, proved by Gelfond and Schneider (independently) states, that  $a^b$  is transcendental, where  $a$  and  $b$  are algebraic over the rational with  $0 \neq a \neq 1$  and  $b$  is either irrational or not a real number. 164 pp., 1956, ISBN 0-88385-011-7.

Cat.# CAM-11	
List:	<del>\$21.00</del> 19.00
MAA	<del>\$16.00</del>
Member:	14.00

FROM ERROR-CORRECTING CODES THROUGH SPHERE PACKINGS TO SIMPLE GROUPS, by **Thomas M. Thompson**. All of the basic mathematical ideas of the historical journey from error-correcting codes to sphere packings to simple groups. 228 pp., 1984, ISBN 0-88385-023-0.

Thompson provides an excellent example of the constant interaction between applied and theoretical mathematics . . . Thompson's work is first-rate historical research and good clear writing. As a mathematics teacher, he has gone to great pains to make the material understandable to anyone with even a casual acquaintance with vector spaces and groups.

Henry S. Tropp in  
*Annals of the History of Computing*

Cat.# CAM-21	
List:	<del>\$26.50</del> 24.00
MAA	<del>\$20.00</del>
Member:	18.50

## MAA STUDIES IN MATHEMATICS

STUDIES IN COMBINATORICS, **Gian-Carlo Rota**, Editor. Presents an exposition of important recent developments in combinatorics. This is a gem of a book. In layout and size it brings back memories of classic *Combinatorial Mathematics* by H.J. Ryser. The index is very good and the editor is to be warmly congratulated on bringing out a book of enormous value and uniformly high standard. It is the sort of book which could be used with great profit as the basis of a weekly working seminar on combinatorics. I recommend it unreservedly.

D.J.A. Welsh in *Bulletin of the Institute of Mathematics and its Applications*

Cat.# MAS-17	
List:	<del>\$26.50</del> 24.00
MAA	<del>\$20.00</del>
Member:	18.50

**Awareness** (continued from page 1)

**OHIO** A lecture for undergraduates entitled "The Combinatorics of Soccer Balls" was presented by Terry McKee at Wright State University.

A special collegewide symposium featuring three outside speakers was held at Denison University in Granville to celebrate the 300th anniversary of Newton's PRINCIPIA.

**MISSOURI** A 30 second television spot was prepared for cable and local stations by Southwest Missouri State University in Springfield, which also arranged a 30 minute television panel discussion on mathematics featuring spokespersons from local public schools and nearby colleges. In addition, the mayor of Springfield signed a proclamation for Mathematics Awareness Week.

**MASSACHUSETTS** A fractal exhibit, "Frontiers of Chaos," featuring the work of Heinz-Otto Peitgen, was held at the Boston Museum of Science.

A symposium on the "Beauty of Fractals" was co-sponsored by the MIT Department of Mathematics and the Goethe Institute featuring presentations by Michael Barnsley, Robert Devaney, Benoit B. Mandelbrot, H. -O. Peitgen, and Richard Voss.

A proclamation was signed by Governor Dukakis and the signing was covered by mathematician and Harvard professor, Michael Guillen on WCVB-TV.

**ARKANSAS** The governor signed a statewide proclamation for Mathematics Awareness Week and University of Arkansas students gave the governor a copy of THE BEAUTY OF FRACTALS by H. -O. Peitgen and P. H. Richter. And not to be outdone, the state legislature passed a Joint Resolution for Mathematics Awareness Week.

**MICHIGAN** A luncheon/reception sponsored by Central Michigan University featured Congressman William Schuette and members of the Mathematics Department who gave certificates of recognition to talented mathematics students from all surrounding high schools.

A series of events was spearheaded by Wilfred Kaplan at the University of Michigan. A state proclamation was secured and signed in Lansing at an April 9 news conference. The University sponsored a special Saturday program for high school students with presentations, computer demonstrations, and films. Posters saying "Learn Math, It's Exciting, It's Beautiful" were printed and distributed to nearby schools and libraries. Mathematicians gave a demonstration at the Ann Arbor Hands-On Museum, a speech to the Chamber of Commerce, and addresses during local high school math classes. There was also an exhibit on campus about Isaac Newton.

Two luncheons with programs on the role of mathematics were hosted for community officials, the media, and other guests by Western Michigan University in Kalamazoo and Ann Arbor. Mayors of both cities also issued Mathematics Awareness Week proclamations.

**OKLAHOMA** A special afternoon program featuring Dr. Curtis McKnight, author of THE UNDERACHIEVING CURRICULUM, was held at the University of Oklahoma, where awards were also given to graduate students for outstanding teaching and scholarship.

**PENNSYLVANIA** The opening of a new mathematics laboratory for experimental research was the highlight of Mathematics Awareness Week at Pennsylvania State University.

The Joint Policy Board for Mathematics is interested in getting even more mathematicians involved as spokespersons, as organizers, and as writers of informational material for Mathematics Awareness Week 1988. We are also interested in getting suggestions about the theme of the week.

The 1987 theme, "The Beauty and Challenge of Mathematics," was illustrated this year by using two visuals, a straight line drawing made by David Middleton in the 1940's (under the direction of G. D. Birkhoff) and a fractal created by H. -O. Peitgen in this decade.

Comments and suggestions on Mathematics Awareness Week are welcome. Address them to Jane Heckler, JPBM, 1529 18th Street, NW, Washington, D.C. 20036.

**Atlanta Meetings** (continued from page 1)

Presentations are normally limited to ten minutes, although selected contributors may be given up to twenty minutes. Individuals wishing to submit papers for any of these sessions should send the following information to the MAA Washington office (1529 Eighteenth Street, NW, Washington, DC 20036) by September 15: (1) title; (2) intended session; (3) a one-paragraph abstract (for distribution at the meeting); and (4) a one-page outline of the presentation.

Rooms where sessions of contributed papers will be held are equipped with one overhead projector and screen. Blackboards are not normally available. Persons having any other equipment needs should notify the Secretary (Kenneth Ross, Department of Mathematics, University of Oregon, Eugene, OR 97403) as soon as possible, but in any case prior to November 1. Upon request, the following will be made available: an additional overhead projector, 35 mm slide projector, 16 mm film projector, or VCR/VHS with one color monitor.

**MINICOURSES FOR JANUARY** There will be twelve or thirteen minicourses among which will be the following:

**Coloring and path following algorithms for approximating roots and fixed points** by William F. Lucas of The Claremont Graduate School

**Computer based discrete mathematics** by Nancy Baxter of Dickinson College and Ed Dubinsky of Clarkson University

**Computer graphics in elementary statistics** by Sheldon Gordon of Suffolk County Community College and Florence Gordon of New York Institute of Technology

**Computer software for differential equations** by Howard L. Penn of Dallas County Community College

**Logo and problem-solving** by Charles A. Jones of Grinnell College

**The use of computing in teaching linear algebra** by Eugene Herman and Charles Jepsen of Grinnell College

**Using computer algebra systems in undergraduate mathematics** by Paul Zorn of St. Olaf College

Other potential topics include problem-solving and statistics. A full list of minicourses will be given in the September issue of FOCUS.

## 1988-89 Competition Opens for Fulbright and Other Awards

**FULBRIGHT SCHOLAR AWARDS** The awards for 1988-89 include more than 300 grants in research and 700 grants in university lecturing for periods ranging from three months to a full academic year. There are openings in over 100 countries. A new policy removes the limit of two Fulbright grants to a single scholar.

Application deadlines for the Awards are: June 15, 1987 (for Australia, India, and Latin America, except lecturing awards to Mexico, Venezuela, and the Caribbean); September 15, 1987 (for Africa, Asia, Europe, the Middle East, and lecturing awards to Mexico, Venezuela, and the Caribbean); November 1, 1987 (for institutional proposals for the Scholar-in-Residence Program); January 1, 1988 (for Administrators' Awards in Germany, Japan, and the United Kingdom; the Seminar in German Civilization; the NATO Research Fellowships, and the Spain Research Fellowships); and February 1, 1988 (for the France, Italy, and Germany Travel-Only Awards). For information contact the Council for International Exchange of Scholars, Eleven Dupont Circle, NW, Washington, DC 20036. Telephone (202) 939-5401.

**FULBRIGHT TEACHER EXCHANGE PROGRAM** is for junior and senior high school teachers and college instructors through the professor level teaching mathematics. It allows for one-year direct exchange of positions with teachers from the Federal Republic of Germany. Fluency in German is required. Application deadline is October 15, 1987. For information, contact Fulbright Teacher Exchange Program, E/ASX, United States Information Agency, 301 Fourth St., SW, Washington, D.C. 20547. Telephone (202) 485-2555.

**NSF VISITING PROFESSORSHIPS FOR WOMEN** The National Science Foundation Visiting Professorships for Women program will provide opportunities to conduct research and interactive activities (teaching, counseling) not possible at home institutions. The proposal deadline is October 1, 1987. For information and application, write Forms and Publications Unit, Room 232, National Science Foundation, Washington, DC 20550. The Catalog of Federal Domestic Assistance number for this program is 47.059.

## New MAA Governors Elected

This spring, eight sections have completed elections for governors to serve from July 1, 1987 to June 30, 1990. Those elected by these sections are as follows:

### ALLEGHENY MOUNTAIN SECTION

Barbara T. Faires

### INDIANA SECTION

Daniel P. Maki

### KENTUCKY SECTION

Kyle D. Wallace

### NEBRASKA SECTION

Randall K. Heckman

### METROPOLITAN NEW YORK SECTION

Robert J. Bumcrot

### NORTHERN CALIFORNIA SECTION

Hugh M. Edgar

### OKLAHOMA-ARKANSAS SECTION

Robert D. McMillan

### WISCONSIN SECTION

Gary L. Britton

## Meritorious Service Awards Presented in San Antonio

Six individuals who have given extraordinary service to their Sections were awarded Certificates for Meritorious Service at the MAA Business Meeting in San Antonio, Texas last January. Each year, six MAA Sections are invited to select a member to be honored nationally. The first awards were made in August 1984.

The names and affiliations of the individuals honored in 1986 and brief biographical sketches follow:



### EASTERN PENNSYLVANIA AND DELAWARE SECTION

Willard E. Baxter  
University of Delaware, Newark

Baxter, an MAA member for over 30 years, has served in every elected office of the section: Executive Committee (1967-69), Chairman (1969-71), Governor (1971-74), Secretary-Treasurer (1976-82), and has been a primary source of guidance for section activities and policy matters. He enthusiastically encourages young mathematical talent, serving as regional coordinator for the AHSME (American High School Mathematics Examination) and director of the Delaware Junior Science and Humanities Symposium. A popular lecturer at section meetings, Baxter co-authored a pioneering book which combines probability with calculus, emphasizing modeling.



### PACIFIC NORTHWEST SECTION

The late Joseph Hashisaki  
Western Washington University  
Bellingham

From humble beginnings in rural eastern Montana, Joseph Hashisaki grew to an outstanding leader in mathematics and mathematics education. After studying at the University of Montana, Missoula, and serving in the Pacific front during World War II, he received his Ph.D. from the University of Illinois. He taught at the University of Montana from 1953 to 1962, then moved to Western Washington University at Bellingham as chairman. At Bellingham he strengthened the undergraduate and the graduate programs in mathematics. He coauthored with John Peterson *THE THEORY OF ARITHMETIC*, a landmark book in the training of elementary school teachers. He was the founding editor of *THE TWO-YEAR MATHEMATICS JOURNAL* (now the MAA's *COLLEGE MATHEMATICS JOURNAL*). Always a strong supporter of the MAA, Joe served on many committees and task forces.

To those who knew him, the most memorable aspect of his life was his infectious enthusiasm for mathematics, for people, and for life. His caring and encouragement led many to become professional mathematicians. Many a student went to that first mathematics meeting or presented that first paper because of gentle persuasion from Joe, a dedicated teacher and a kind and generous human being.

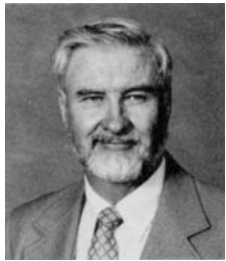
On January 2, 1986 the mathematical community lost one of its finest members.



**NORTH CENTRAL SECTION**  
Dr. Joseph Konhauser  
Macalester College

Recognized early for his contributions to the study of biorthogonal polynomials and for his work in the Geometry Films Project of the 1960's, Konhauser has gone on to become even better known as Editor of *PI MU EPSILON JOURNAL* and for his service to the *MONTHLY* where he has authored hundreds of "telegraphic reviews" and is an Associate Problem Editor. Less widely known are his many contributions to the USA Olympiad and Putnam competitions and to numerous MAA committees.

Within the North Central Section, Konhauser is renowned for his skill as a lecturer, for his unmatched record as an organizer and supporter of section activities, and for his outstanding service as President and Governor.



**SOUTHWESTERN SECTION**  
Everett L. Walter  
Northern Arizona University

Walter, an MAA member since 1959, served as Governor of the Southwest Section from 1976 to 1979, as Secretary-Treasurer from 1964 to 1967 and in various other capacities. Virtually all of his career has been in the Southwest Section including his undergraduate and graduate studies, his contributions in the earlier years of rocketry and computers and his thirty years as member of the Departments of Mathematics at New Mexico State University and at Northern Arizona University.

Walter is recognized as an outstanding teacher of mathematics and has always considered this as his primary goal.



**METROPOLITAN NEW YORK SECTION**  
Lily E. Christ  
John Jay College  
City University of New York

Lily Christ has been, and is, active at several levels in the Metropolitan New York Section. She has been an integral part of the New York City Mathematics Fair for fifteen years, willing and able to do any task. She was secretary of the section for nine years. She was completing her last term as secretary when she learned that she was being considered as a possible nominee for this award. Her reaction was instantaneous: "Oh no, that's not appropriate, I'm just the secretary.!" Just the secretary?! By the direct testimony of at least four consecutive section chairs, Lily has done more work, and is more responsible for the continuing success of the section, than any other officer or member in many, many years. When she recently decided to resign as secretary, to encourage new blood and a new perspective in the section's leadership, the section was unwilling to let her go and immediately elected her as its next chair! Clearly, her contributions to this section will continue.



**IOWA SECTION**  
Basil E. Gillam  
Drake University

Basil E. Gillam, Professor Emeritus of Drake University, received a Ph.D. from the University of Missouri in 1940. In 1944 he moved to Drake University as Head of the Department of Mathematics, a position he held for the next 28 years. He served as a full Professor in the Department for an additional 12 years until his retirement in 1984. During his 40 years at Drake, Dr. Gillam was an active supporter of mathematics in general and of the Iowa Section of the Mathematical Association of America in particular. He served a term as chair of the section in 1949-50 and at least nine years as secretary-treasurer in the 60's and 70's. In addition, three faculty members hired by Dr. Gillam have served as chair of the section since his term.



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# Calendar

## National MAA Meetings

- 66th Summer Meeting**, Salt Lake City, Utah, August 5-8, 1987.  
**71st Annual Meeting**, Atlanta, Georgia, January 6-9, 1988.  
**72nd Annual Meeting**, Phoenix, Arizona, January 11-14, 1989.  
**73rd Annual Meeting**, Louisville, Kentucky, January 24-27, 1990.

## Sectional MAA Meetings

- Eastern Pennsylvania & Delaware**, Franklin & Marshall College, Lancaster, Pennsylvania, November 21, 1987.  
**Indiana**, Tri-State University, Angola, Indiana, October 17-18, 1987.  
**Kansas**, Fort Hays State University, Hays, Kansas, April 15-16, 1988.  
**Louisiana—Mississippi**, Northwestern State University, Natchitoches, Louisiana, February 26-27, 1988.  
**Maryland-D.C.-Virginia**, Salisbury State University, Salisbury, Maryland, June 13, 1987.  
**Missouri**, Washington University, St. Louis, Missouri, April 8-9, 1988.  
**North Central**, Bemidji State University, Bemidji, Minnesota, October 23-24, 1987; College of St. Thomas, St. Paul, Minnesota, April 1988.  
**Northeastern**, Connecticut College, New London, Connecticut, June 12-13, 1987; Bentley College, Waltham, Massachusetts, November 20-21, 1987.  
**Ohio**, College of Wooster, Wooster, Ohio, October 30-31, 1987.  
**Oklahoma-Arkansas**, Hendrix College, Conway, Arizona, Spring 1988.  
**Pacific Northwest**, Pacific Lutheran University, Tacoma, Washington, June 18-20, 1987.  
**Southeastern**, Furman University, Greenville, South Carolina, April 15-16, 1988.  
**Southern California**, UCLA, Los Angeles, California, November 14-15, 1987.  
**Southwestern**, Northern Arizona University, Flagstaff, Arizona, Spring 1988.

## Other Meetings

### June 1987

15-19. **1987 Mathematical Science Lecture Series**, Johns Hopkins University, Baltimore, Maryland. Ten lectures by Richard Karp on probabilistic analysis of algorithms. For information, contact Edward Scheinerman (301) 338-7210 or Robert Serfling (301) 338-7200, Department of Mathematical Sciences, Johns Hopkins University, Baltimore, MD 21218.

15-19. **MAA North Central Section Summer Seminar on Graph Theory and Linear Algebra**, University of Minnesota, Duluth, Minnesota. This will consist of eight lectures by Allen Schwenk on the relationship between graph theory and linear algebra; talks by invited speakers and contributed papers (talks) by participants. No prior knowledge of graph theory required but undergraduate level linear algebra assumed. For information write: J. Gallian, Dept. of Mathematics and Statistics, University of Minnesota, Duluth, Minnesota 55812.

24-26. **1987 National Educational Computing Conference**, Temple University, Philadelphia, Pennsylvania. Conference information and registration forms: Frank L. Friedman, General Chair, NECC '87, Computer Activities Bldg, Box JA1, Dept. of Computer and Information Sciences, Temple University, Philadelphia, PA 19122 (215) 787-8450; specifications for submission of original papers: Laurie Schteir.

29-July 3. **ICIAM87**, First International Conference on Industrial and Applied Mathematics, LaVillette, Paris, France. Sponsored by:

GAMM, IMA, SIAM, and SMAI. For information write: SIAM, 14th Floor, 117 South 17th Street, Philadelphia, PA 19103-5052, USA.

### July 1987

12-16. **Inter-American Conference on Mathematics Education (VII IAMCE)**, Santo Domingo, Dominican Republic. For registration information, write: Septima Conferencia Interamericana de Educacion Matemática, Centro de Investigaciones, Universidad Católica Madre y Maestra, Apdo. Postal 822, Santiago de los Caballeros, República Dominicana. Telephone (809) 583-0964; telex ITT 3461032.

20-24. **SIAM Conference on Applied Geometry**, cosponsored by the Rensselaer Polytechnic Institute, Albany, New York. Abstracts for contributed papers due February 20, 1987. For information, write: SIAM Conference Coordinator, 117 South 17th Street, 14th Floor, Philadelphia, PA 19103-5052. Telephone (215) 564-2929.

20-25. **ASL European Summer Meeting** (Logic Colloquium '87), University of Granada, Spain. For information, contact Dr. J. J. Acero, Apartado 120, 18080 Granada, Spain.

31-Aug. 3. **Boston Workshop for Mathematics Faculty**, M.I.T., Cambridge, Massachusetts. Contact Gilbert Strang, Room 2-240, M.I.T., Cambridge, MA 02139.

### August 1987

3-7. **Michigan Section Short Course** on Integrating Mathematics: Geometry, Numbers, Algebra and Combinatorics, Hope College, Holland, Michigan. The lecturers will be Peter Hilton and Jean Pedersen. For information, contact John Van Iwaarden, MAA Short Course, Mathematics Department, Hope College, Holland, MI 49423. Telephone (616) 392-5111 Ext. 3192 or 3001.

4-7. **Sixth International Conference on Mathematical Modeling** to be held at Washington University. For information, write: Professor Ervin Y. Rodin, Department of Systems Science and Mathematics, Washington University, Saint Louis, MO 63130. Telephone (314) 889-5806.

### October 1987

9-10. **Ohio Delta Chapter of Pi Mu Epsilon**, Miami University, Oxford, Ohio. Abstracts of student contributed papers in mathematics and statistics should be sent to Professor Milton Cox, Department of Mathematics and Statistics, Miami University, Oxford, OH 45056.

12-15. **SIAM 35th Anniversary Meeting**, Marriott Hotel-City Center, Denver, Colorado. For information, contact SIAM, 1405 Architects Building, 117 South 17th Street, Philadelphia, PA 19103. Telephone (215) 564-2929.

20-22. **PROTEXT IV, the Fourth International Conference on Text Processing Systems**, Boston, Massachusetts. Contact: Conference Management Services, PO Box 5, 51 Sandycove Road, Dun Laoghaire, Co Dublin, Ireland. Telephone: (+353-1) 452081 or 808025 if no reply) Telex: 30547 SHCN EI (Ref. BOOLE) FAX: (+353-1) 805990 (Ref. BOOLE).

### December 1987

13-15. **Canadian Mathematical Society Winter Meeting**, University of British Columbia, Vancouver, British Columbia. Contact: Denis Sjerve, Department of Mathematics, University of British Columbia, Vancouver, British Columbia, Canada V6T 1Y4.

### July 1988

23-Aug. 3. **Sixth International Congress on Mathematical Education (ICME 6)**. See **FOCUS**, Volume 7, Number 1, page 3 for details.

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