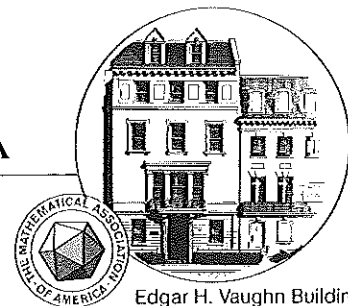


The MATHEMATICAL ASSOCIATION of AMERICA

INCORPORATED

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Edgar H. Vaughn Building
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MEMORANDUM

TO: Section Chairs
Section Secretaries

FROM: Long Range Planning Committee
(Gerald Alexanderson, Ronald Davis, Marcia Sward, Lynn Steen)

RE: Long Range Planning for Sections

DATE: February 13, 1986

As you may know, last year the MAA Board of Governors initiated a process of long range planning, based on ideas provided from MAA Sections and committees. We expect to present a draft of a long range planning document to the Board of Governors at its August 1986 meeting.

However, the work of the MAA is carried out as much by the Sections as by the national organization. So as part of the broad MAA planning process, we are asking Sections to undertake long range planning of their own in order to best serve their members and the profession. We ask that this spring each Section Executive Committee discuss long range planning for the Section. A simple form is enclosed on which to record your plan.

The first important step in the process of setting long-range goals is to record concisely what your Section is doing at the present time, and what you would like to be doing in the next 3-5 years. The enclosed list of general goals, which emerged from the questionnaire sent to MAA leaders, may be helpful in focussing your ideas. Please keep them in mind as you discuss possible new initiatives that might be undertaken by your Section, but do not feel constrained by them.

In recording possible new initiatives, please balance vision with realism. Don't hesitate to suggest something dramatic simply because it costs money; but don't ignore the realities of cost by making unrealistic suggestions. We'd like to know what you really would like to do and would be prepared to carry out if you had the resources to do it. Good plans will help you find appropriate resources, both within the Section and with help from the national office.

We would appreciate a response as soon as possible after your Spring meeting. Please, however, return your planning form by June 1, 1986. Please return it to Andrew Sterrett, Interim Associate Director, MAA, 1529 - 18th Street, N. W., Washington, D. C. 20036.

In advance, many thanks for your cooperation.

MAA LONG RANGE PLANNING SUMMARY
June 27, 1985

On the following pages there are summaries of the responses to the MAA Long Range Planning Questionnaire, which was mailed to leaders in the MAA and others in March 1985. Responses are given in ten Target Areas (not in order of priority):

- Recruitment and Guidance of Students
- Mathematics Curricula
- Preparation and Supply of Precollege Teachers
- Collegiate Faculty Issues
- Exposition of Mathematics
- Financial Resources for Mathematics Education
- Public Understanding of Mathematics
- Membership in the MAA
- MAA Organizational Issues
- Intersociety Cooperation.

These are areas in which there appear to be high levels of interest and concern within the MAA community, and in which it might be feasible to expand existing programs and/or undertake new initiatives.

The lists of specific suggestions came primarily from questionnaire responses. A few were made by officers of the Association at the meeting of the Executive and Finance Committee last May. No effort has yet been made to evaluate these suggestions or set priorities among them. It should be noted that the lists include suggestions for activities which are already under serious consideration (eg., a joint MAA-AMS-SIAM Public Relations Office) or have recently been implemented (eg., hiring an MAA Development Officer).

RECRUITMENT AND GUIDANCE OF STUDENTS

The questionnaire returns indicated high levels of concern about "attracting students to the mathematics major", "the transition between high school and college", "preparation for non-academic careers in mathematics", and "encouraging women and minorities to study mathematics."

Issues rated slightly lower, but still of significant concern, were "placement of students in mathematics courses", "prognostic testing programs for juniors in high school", and "mathematics remediation." Mathematics anxiety among college students is an issue which seems to be, in the words of one respondent, "almost worn out in discussion."

Some suggestions are:

- * Start non-honorary mathematics clubs for undergraduates.
- * Expand/improve the career guidance materials issued by the MAA; materials suitable for middle-school students are particularly needed.
- * Solicit articles for the MAA journals on the kinds of work, other than teaching, that mathematicians do.
- * Study emerging careers in mathematics to guide students better.
- * Provide career guidance to secondary school teachers.
- * Establish a career guidance program for secondary school students involving college mathematics faculty.
- * Find ways to encourage and assist advanced placement programs such as the one at the University of Minnesota.
- * Give more attention to the problem of poorly prepared students entering college.
- * Pay more attention to the overwhelming majority of college and university undergraduates who study mathematics, but do not go on to careers in mathematics.
- * Support the Visiting Lecturers and Consultants Program better.
- * Offer more services of lecturers and consultants at the secondary level, possibly in cooperation with other societies.
- * Find ways to increase student readership of MAA publications, particularly the New Mathematical Library, College Mathematics Journal, and Mathematics Magazine.
- * Circulate FOCUS in high schools.
- * Promote a National Mathematical Fitness Program - a widespread campaign to popularize mathematical reasoning. Undertake this jointly with NCTM, AMS, ASA, SIAM, etc.
- * Establish a national examination (with national norms) for mathematics majors in their senior year.

MATHEMATICS CURRICULA

The curricular issue identified by respondents as most pressing was "problem-solving in mathematics courses." Of somewhat lesser concern were: "use of computer methods in mathematics courses", "balance between applications and pure mathematics in undergraduate courses", "role of modeling in mathematics courses", "definition of the mathematics major", and "calculus vs. discrete mathematics." "The role of calculus in the high school curriculum" was a secondary school curriculum issue of concern to many respondents.

Some suggestions are:

- * Conduct a study comparing U.S. and foreign mathematics training.

- * Work with SIAM and AMS on incorporating more applied and applicable mathematics into the curriculum.
- * Upgrade the level of mathematics service courses.
- * Make the undergraduate mathematics major more relevant for those going into industry.
- * Integrate history into the mathematics curriculum.

PREPARATION AND SUPPLY OF PRECOLLEGE MATHEMATICS TEACHERS

The highest-rated issues on the questionnaire were "the mathematical education of secondary school teachers", and "attracting more prospective mathematics teachers." Only slightly behind these issues was "the mathematics education of elementary school teachers." Other issues of interest were "retraining for mathematics teachers from other subject areas", and "development of new materials for teacher training."

Some suggestions are:

- * Join with other professional societies (chemists, historians, language teachers, etc.) to improve working conditions for teachers.
- * Work closely with NCTM to make mathematics teaching at all levels appear to be an attractive profession.
- * Examine the role of statistics in the mathematical preparation of teachers.
- * Put out more posters like the MAA's "Be a Math Teacher" poster.

COLLEGIATE FACULTY ISSUES

The highest-rated issues concerning college faculty were "professional development", "supply of undergraduate mathematics faculty", and "faculty workloads." Of somewhat lesser concern were "evaluation and criteria for promotion", "graduate preparation of mathematics faculty", and "linking research to teaching."

It was clear from the questionnaire responses that, for many members, minicourses and short courses are an important aspect of their professional development. Many respondents urged the MAA to offer more, both at Sectional and national meetings.

A few specific suggestions concerning minicourses are:

- * Hold two-day minicourses, with six hours of instruction on the first day and four on the second day.
- * Emphasize minicourses that would directly improve the quality of undergraduate teaching.
- * Offer minicourses on any subject for which there is

- sufficient demand, and provide enough space to take care of all who wish to enroll.
- * Organize traveling minicourses to be held in the Sections.
- * Schedule the minicourses at national meetings so they do not interfere with the program.

Other suggestions on collegiate faculty issues are:

- * Develop guidelines for the promotion and granting of tenure to college mathematics faculty.
- * Give formal "approval" to mathematicians who work with curriculum development or how students learn mathematics.
- * Examine and make recommendations on faculty workloads and salaries in two-year colleges.
- * Recommend criteria on class size, weekly paper grading, etc.
- * Publish a statement of what constitutes good mathematics teaching.
- * Examine and make recommendations on the use of temporary faculty instead of tenure-track faculty.
- * Initiate a joint AMS-MAA-SIAM effort to establish accreditation procedures in the colleges and universities.
- * Develop preparatory materials for beginning graduate teaching assistants.
- * Foster opportunities for college mathematics faculty to participate in funded conferences, such as the CUPM Conferences, Cornell Workshops, Indiana University Summer Seminar.
- * Do something about the growing community of college level computer science faculty that need an organizational bond.
- * Hold joint meetings with computer science organizations.
- * Schedule sessions at national meetings on the effect of computer science on mathematics departments.

EXPOSITION OF MATHEMATICS

The single clearest message in the responses to the questionnaire was that the MAA publications are, almost without exception among the respondents, very highly regarded. The "quality of MAA books and journals" was cited repeatedly as one of the greatest strengths of the Association. One respondent wrote: "The MAA journals collectively form the only real source of expository mathematical writing available. This sort of thing is vital if college faculty are to keep abreast of developments in their fields."

Another respondent made the following observation: "My general view is that in the division of responsibilities between the AMS and the MAA, the main distinction is not between research and teaching, but between research and exposition in the broadest sense. The MAA's responsibility is to extend knowledge of mathematics to the general public and to educate laymen, and

above all, our members.... If the MAA does not take as its main responsibility keeping the mathematical community aware of major developments and ideas from throughout mathematics, no one else will do it."

A number of respondents expressed a need for more news about developments in mathematics, written for the non-research mathematician. Some complained that the Monthly is becoming too technical.

Some suggestions are:

- * Expand FOCUS in size and scope to include advances in research and instruction, reports from meetings, etc.
- * Publish more detailed accounts of significant results described in terms comprehensible to the general mathematics audience.
- * Include more survey or summary articles in the journals.
- * Publish a journal which informs the public about mathematics.
- * Encourage members who are dissatisfied with the Monthly to subscribe to the other MAA journals.
- * Distribute reprints of articles from SCIENCE 85 and similar magazines.
- * Develop sections on computing in MAA journals.

FINANCIAL RESOURCES FOR MATHEMATICS EDUCATION

MAA Projects

Numerous comments were made about the necessity for the MAA to be more pro-active in its search for supplemental funds from government, industry, and private foundations for special MAA projects. Mention was made of the success of the Greater MAA Fund. Several respondents also mentioned the need for the MAA to develop a program of deferred giving, including wills and bequests, trusts, annuities, etc.

Specific activities which were mentioned for funding include:

- * Curriculum development.
- * Mathematics education projects at two-year colleges.
- * Studies of professional problems.
- * Professional development conferences and workshops.
- * Expansion of MAA materials.
- * Expansion of Section activities.

General Funding for Mathematics Education Projects

Funding for mathematics education projects was a concern of many questionnaire respondents. At issue is how mathematics can attract its fair share of limited college and university resources, and how MAA can assist in making links to the business and governmental

sectors for the mathematics community in general. Some members would like to see more lobbying in Washington for more funding for mathematical research and education.

Some members would have the MAA assist individuals and schools in identifying funding sources (public and private) to improve undergraduate mathematics education. It was suggested that the MAA sponsor workshops, minicourses, directories, etc. which would be helpful to those interested in developing proposals.

MEMBERSHIP IN THE MAA

Membership recruitment was ranked high in the questionnaire responses. Many respondents commented on the importance of bringing young people into the Association. Possible strategies include:

- * Offer a "bounty" to Sections for new members recruited in that Section.
- * Offer free (or very reduced price) memberships to graduate students.
- * Broaden membership recruitment efforts to reach people who majored in mathematics, but for whom mathematics is not a central professional interest.
- * Develop new strategies for increasing membership of college mathematics teachers.
- * Activate the MAA Representatives Network.
- * Provide colleges and universities with membership posters with return cards for MAA information.
- * Recruit more two-year college faculty into membership in the MAA.
- * Revitalize the Membership Committee.

MAA ORGANIZATIONAL ISSUES

There are several internal organizational matters which were commented on by respondents.

MAA Sections

Many respondents emphasized the importance of the Sections to MAA members, and the need for additional support for Section activities. Some activities and program ideas that were suggested are:

- * Organize regional summer meetings of adjacent Sections. *Support Section*
- * Organize traveling minicourses to be conducted at Section meetings.
- * Offer short courses at Section meetings. *5 or 6*
- * Encourage more university faculty participation in Section *Section* work. *71 56 76*
- * Try to get more universities to host Section meetings.

- * Encourage Sections to share program information with one another. *Meetings*
- * Send observers from one Section to meetings of another Section.
- * Create a Consultants Bureau for Sections.
- * Coordinate Lecturers and Consultants Program with Sections.
- * Encourage self-evaluation of Sections every 5 years or so.
- * Discuss problems and issues of the mathematics community at Section meetings, e.g., economics of the profession, accreditation, workloads, etc.
- * Use Section meetings as forums for high school, 2-year, 4-year, and university faculty members to discuss interconnected problems.
- All but* * Encourage Section newsletters and news releases; provide professional guidance for these projects.
- * Develop a videotape on the national MAA organization for Section meetings.

Special Interest Groups

Many other professional societies offer membership in Special Interest Groups (e.g. Association for Computing Machinery). Suggestions were made that MAA SIG's might be formed, for example, for mathematicians interested in computer science, mathematicians in teacher training, two-year college teachers, mathematicians in industry, and/or teachers from small liberal arts colleges.

SIG's might organize special sessions at Sectional and/or National meetings. They might publish their own newsletters targeted to their members' interests. The MAA journals might start "corners" devoted to SIG interests.

Student Clubs

A number of respondents indicated the need for greater student involvement in the MAA to prepare them for their careers in mathematics and to help in assuring a continued membership in the MAA. It was suggested that the MAA initiate non-honorary mathematics clubs for undergraduates.

PUBLIC UNDERSTANDING OF MATHEMATICS

Many respondents urged increased efforts to achieve greater public understanding of mathematics.

Possible activities include:

- * Establish a Public Information Office in Washington, D.C.
- * Seek free publicity through the National Advertising Council, industry campaigns, etc.
- * Provide professional help for Section Public Information Officers seeking local and regional publicity for mathematics.
- * Develop and widely disseminate information about the importance of mathematics and its necessity for other fields of endeavor.

- * Publish non-technical articles for the lay person in popular print media.
- * Publicize MAA position papers to a wider general audience.
- * Develop a high-visibility campaign designed to develop greater awareness of the basic role of mathematics in our society.
- * Communicate to the public current mathematical discoveries and their implications.
- * Secure more "math profiles" (likes ones in CMJ) in the public press.
- * Do more television programming aimed at the general public.
- * Initiate a journal about mathematics for the general public.
- * Sponsor dinners at national meetings with local community leaders, business and industrial officers, news media, etc.
- * Arrange for TV and radio appearances by mathematicians.

INTERSOCIETY COOPERATION

Many respondents commented on the need to cooperate more fully with other societies in the mathematical sciences (particularly AMS and NCTM).

Several suggestions for joint activities are listed within other target areas. Some additional suggestions are:

- * Enhance relations with AMATYC.
- * Merge MAA and AMS.
- * Take a leadership role in bridging the gap between the scientific and pedagogical communities.
- * Encourage regional meetings concerned with drawing together high school staff, 2-year and 4-year college faculty, and possibly graduate school faculty.
- * Establish more joint ventures with SIAM, NCTM, etc., to speak for public school mathematics teachers and their training/certification.
- * Establish closer ties with SIAM.
- * Establish ties with the IEEE mathematics group.
- * Increase cooperation with IMS (Institute of Mathematical Statistics).

APPENDIX
STRENGTHS AND WEAKNESSES OF THE MAA

The questionnaire included a request that respondents comment on the major strengths and weaknesses of the MAA. Major strengths enumerated were:

- * Consistent focus on undergraduate/collegiate mathematics.
- * Human resources: dedicated and involved members of the mathematical community.
- * Diversity of membership: teachers, researchers, industrial and governmental mathematicians, students, and international members.
- * Sense of community/collegiality: professionals tackling common problems, interactive participation on policy decisions.
- * Leadership in the mathematics curriculum.
- * Encouragement of student involvement in mathematics through secondary school lecture programs.
- * Provision of services needed by faculty across the country.
- * Help in keeping members abreast of new developments in the mathematical community.
- * Loyalty of membership (there are 3600 25-year members).
- * Washington, D.C. location.
- * Summer meetings.
- * Minicourses at national meetings.

Specific programs or services which were mentioned most frequently as MAA strengths were Journals; FOCUS; Section programs and activities; national meetings; contests; Visiting Lecturers and Consultants Program.

The major weaknesses in the MAA, as seen by the respondents are:

- * Lack of clear focus on collective goals.
- * Lack of visibility outside mathematics - to students and to the general public.
- * Remoteness from the research community and from industry.
- * Lack of influence, prestige, and clout in the political arena.
- * No mechanisms to increase public awareness and understanding of mathematics.
- * Lack of leadership in bonding computer science faculty to the mathematical community.
- * Need for more professional development programs and activities.
- * Lack of solid relationships with students.
- * Need for more coherent relationship with secondary education.
- * Need to make two-year college faculty feel they belong.
- * Lack of funding for projects.
- * Limited capacity to initiate bold, new endeavors; slow and too conservative in responding to changing student, faculty, and societal needs.
- * Complicated bureaucracy (hard to know which committee is responsible for what).