

The Mathematical Association of America

(Incorporated)

Henry L. Alder
Secretary



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(916) 752-1073

October 4, 1971

To Section Officers and Governors of the MAA:

Dear Colleagues:

Enclosed are the minutes of the meeting of Section Officers held on August 30, 1971, at Pennsylvania State University.

Sincerely yours,

A handwritten signature in cursive script that reads "Henry L. Alder".

Henry L. Alder
Secretary

HLA:TW

Enc.

MATHEMATICAL ASSOCIATION OF AMERICA

MEETING OF SECTION OFFICERS

Monday, August 30, 1971

Pennsylvania State University

The annual meeting of officers of the Sections of the Mathematical Association of America was held on Monday, August 30, 1971, in Rooms 402-403 of the Conference Center of Pennsylvania State University, University Park, Pennsylvania. Professor L. E. Mehlenbacher, Chairman of the Committee on Sections, presided. Fifty-nine persons were present.

A. List of Official Representatives and Others Present. Twenty-six of the twenty-eight Sections were officially represented:

| | |
|------------------------|--------------------------------------|
| Allegheny Mountain | M. R. Woodard, Secretary-Treasurer |
| Florida | C. W. McArthur, Chairman |
| Illinois | J. A. Schumaker, Chairman |
| Indiana | R. T. Hood, Secretary-Treasurer |
| Iowa | not represented |
| Kansas | H. L. Thomas, Chairman |
| Kentucky | R. A. Dobyms, Chairman |
| Louisiana-Mississippi | R. A. Stokes, Chairman |
| Maryland-D.C.-Virginia | D. I. Schneider, Vice-Chairman |
| Metropolitan New York | R. F. Iacobacci, Secretary |
| Michigan | M. T. Wechsler, Chairman |
| Missouri | T. L. Hicks, Vice-Chairman |
| Nebraska | P. A. Haeder, Chairman |
| New Jersey | S. L. Greitzer, Chairman |
| North Central | K. W. Wegner, Chairman |
| Northeastern | R. S. Pieters |
| Northern California | H. M. Bacon |
| Ohio | S. E. Bohn, Chairman-Elect |
| Oklahoma-Arkansas | T. W. Cairns |
| Pacific Northwest | S. T. Rio, First Vice-Chairman |
| Philadelphia | H. N. Albright, Chairman |
| Rocky Mountain | D. J. Sterling, Secretary-Treasurer |
| Southeastern | Trevor Evans, Chairman-Elect |
| Southern California | T. N. Robertson, Secretary-Treasurer |
| Southwestern | R. W. Ball, Secretary-Treasurer |
| Texas | L. C. Huffman, Chairman |
| Upper New York State | C. F. Stephens, Chairman |
| Wisconsin | not represented |

Others present included:

| | |
|-----------------------|-----------------|
| Allegheny Mountain | F. T. Kocher |
| Florida | G. W. Medlin |
| | Herman Meyer |
| Illinois | Arnold Wendt |
| Indiana | Harley Flanders |
| Kansas | G. B. Price |
| Louisiana-Mississippi | B. E. Mitchell |

| | |
|------------------------|---------------------|
| Maryland-D.C.-Virginia | Joseph Milkman |
| Metropolitan New York | A. B. Willcox |
| | J. N. Eastham |
| | L. H. Kanter |
| | Howard Kleiman |
| Michigan | L. E. Mehlenbacher |
| Missouri | F. W. Wilke |
| Nebraska | H. M. Cox |
| | J. M. Earl |
| North Central | Alfred Aepli |
| Northeastern | D. E. Christie |
| Northern California | H. L. Alder |
| | E. M. Beesley |
| | D. W. Blakeslee |
| Ohio | D. T. Finkbeiner II |
| Oklahoma-Arkansas | J. E. Scroggs |
| Pacific Northwest | Victor Klee |
| | Lloyd Montzingo |
| Philadelphia | J. S. Mamelak |
| Southern California | Elmer Tolsted |
| Southwestern | E. A. Walker |
| Texas | C. J. Pipes |
| Upper New York State | Raoul Hailpern |
| | M. W. Pownall |
| | Alex Rosenberg |
| | Nura D. Turner |

B. Message from the President

President Klee welcomed the representatives of the Sections and guests. He stressed the importance of the work of the Sections and expressed the hope to be able to visit more Sections in the coming year.

C. Developments at the Washington Office of MAA, Dr. A. B. Willcox, Executive Director

The Executive Director reported on the new formula authorized by the Board of Governors at its meeting on August 29, for reimbursing official delegates to meetings of Section Officers. The new formula was designed to approximate the cost of round-trip tourist air fare between the delegate's home and the place of the meeting.

He reported that only two proposals for grants from the Fund for Aid to Sections had been received in 1971. Only four awards had been made in 1970. As a result, the 1972 budget for the Fund has been reduced. The level of the Fund remains substantially above the maximum annual use since its establishment, and Sections were urged to make use of it in accordance with the "Guidelines for Proposals" contained in the brochure "Guidelines for Sections".

In answer to a question as to what kinds of projects are supported from the Fund for Aid to Sections, The Executive Director gave as examples (1) speakers at meetings, (2) special projects to study the problem of interface between two-year and four-year colleges, and (3) a small visiting lecturer program to secondary schools.

The Executive Director announced that a display of MAA publications was available from the Washington office for use at Section meetings. Books and other publications may be seen, felt and examined. They may be purchased by members attending Section meetings at the special members' prices. There will be an additional 10 per cent discount for publications ordered at Section meetings. This additional saving may be passed on to the purchaser or kept for the Section treasury at the discretion of the Section. The exhibit was on display at the meeting of Section Officers. The Executive Director demonstrated the setting up of the display.

In answer to a question whether the displays have to be returned to the Washington office, the Executive Director replied that this was to be the procedure. A suggestion was made that perhaps a display could be given to each Section, with a permanent set of publications, and that this may be financed from the \$1,450 remaining in the Fund for Aid to Sections, or, if this is not possible, Sections could buy the displays. The Executive Director stated that he would find out the total cost of each display and from this determine the feasibility of these suggestions.

It was also suggested that someone might be invited to give an expository talk at a Section meeting featuring one of the topics in one of the books on display.

D. How to Organize Section-Sponsored Secondary School Lecturer Programs, A Discussion led by Professor H. M. Bacon, Chairman of the Committee on Secondary School Lecturers

Professor Bacon noted that the Committee hopes that, in the absence of financial support for a Secondary School Lecturer Program on a national scale, responsibility for funding and operating Section-sponsored lecturer programs will be assumed by many or all of the Sections. He then outlined briefly some of the aims of such programs. Organization of a program was discussed under the two principal headings of Financing and Administration.

Under Financing, a few possible sources of funds were listed under two main headings, namely, general funds belonging to the Section, and funds specially secured for the lecturer program. Under the latter there were noted (a) contributions from local business and industry, (b) contributions either of funds or of services by State or local Departments of Education, (c) contributions from high schools themselves, (d) funds for Section projects administered by the MAA national office, (3) cooperative arrangements with local or state associations of teachers of mathematics, (f) cooperative arrangements with State Academies of Science, (g) contribution of travel expenses by a lecturer's own institution.

Under Administration of a Section-sponsored program, points were noted as follows: (1) A policy-setting committee of the Section would be useful. (2) A Director, probably chosen by the policy committee, is of great importance. He must have sound judgement, be interested and energetic, prompt and dependable in handling detail, tactful, reasonably well known, and a member of a college or university mathematics faculty. In a large Section, regional coordinators might assist the Director. (3) Suggestions were made concerning a "panel" of lecturers and about length of visits. (4) Lecture topics were discussed, and it was noted that experience seems to indicate that lectures in pure and applied mathematics or the history of mathematics are more successful than talks about such things as career opportunities, although this last kind of subject might well be taken up in informal conferences with individuals. (5) The question of honoraria and expenses of lecturers was touched upon, but it

was noted that there will necessarily be a wide variation in practice because of the uncertainty of funding. (6) Publicity for a Section-sponsored program will vary from one Section to another, but the Association plans to make available a small brochure that can be used by all Sections as one aspect of an effort to make a program known. (7) The importance of continuity in direction of a program was stressed.

Professor D. J. Sterling felt that it would be valuable to have the high schools report to the Chairman on the quality of the lectures. It was also urged that there was a need to have direct communication take place in the arrangements for the lecturer between the lecturer and the high school teacher in charge. Mr. R. S. Pieters suggested that the lecturers get in touch with NCTM to secure publicity for their talks. Professor Howard Kleiman felt that it would be desirable to write up tips on lecturing for prospective lecturers. Mr. Pieters added that such tips could include: how to prepare a lecture, how to get ideas across to an audience, what to expect from a high school audience.

Professor H. L. Alder recalled the point made by Professor Mary Gray in the panel discussion on "Women in Mathematics", held that afternoon, that having women lecture on mathematics in high schools would improve the image of women as prospective mathematicians in the eyes of high school girls. He urged, therefore, that Sections include women as lecturers in their programs wherever possible.

Professor D. E. Christie thought that it was important that the requests for visitors come from the high schools themselves and that the lecturers not be sent as missionaries. Professor Bacon noted that it was necessary, however, to inform the high schools of the existence of a secondary lectureship program, since without such information requests for visitors are unlikely to be made.

Professor Sterling felt that it would be very desirable if lecturers could cross Section boundaries and wondered whether this could be done as more Sections have lectureship programs. Professor Bacon replied that this might well be considered for the future.

E. Report from the CUPM Panel on Special Problems of Minority Groups, Professor L. L. Clarkson, Chairman of the Panel

The major thrust of this Panel has been directed toward identifying and resolving mathematics and mathematics education problems in the Traditionally Black Institutions (TBI's) with the understanding that any useful information or techniques developed due to these efforts would have applications in a much wider range of institutions. In an attempt to make its efforts as meaningful as possible, the Panel maintains contact with other national panels, committees, or organizations which are concerned, at least in part, with some of the same problems. To the speaker's knowledge, there are six such groups associated with major national professional mathematical organizations. He then surveyed briefly the relevant activities of these groups, namely the National Association of Mathematicians, AAAS Commission on Science Education, AMS Committee on Opportunities in Mathematics for Disadvantaged Groups, National Research Council-Division of Mathematical Sciences Committee on Undergraduate Education, MAA Committee on Assistance to Developing Colleges, and CUPM Panel on Special Problems of Minority Groups.

Professor Clarkson mentioned that some of his colleagues from developing colleges have expressed a desire to have Section meetings at their institutions, and they have been concerned about not having an opportunity to be nominated for some office by nomination committees.

This point is understandable since people usually nominate individuals they personally know. It would be of some value to issue statements informing institutions on how to invite Section meetings to their campuses and for nomination committees to make a real effort to involve a larger segment of the mathematical community.

He also reported that the Panel would appreciate receiving invitations from the various Sections to have one or more of its members explain Panel involvements at Section meetings.

F. Report from the Committee on Assistance to Developing Collèges, Professor K. W. Wegner, a member of the Committee.

Since its last meeting in January, the Committee has had the disappointment of the turning down of the proposal for the establishment of an Office of Awareness of Opportunities in the Mathematical Sciences. It had been the hope that this office would carry on in a big way some of the projects it was attempting in a very small way. It is now hoped that many of the concerns of CADC will be taken over by the newly formed National Association of Mathematicians made up of teachers at TBI's.

The change in the economic situation has made the previously active "employment register" less important. Other concerns of CADC overlap with those of the CUPM Panel on Special Problems of Minority Groups. Thus, some members of CADC wonder whether or not it should even continue to exist.

G. Concern About the Future of the Committee on the Undergraduate Program in Mathematics, Professor Victor Klee, President of the MAA

President Klee discussed the serious prospect that NSF support of a separate CUPM Central Office may be unavailable after the middle of 1973. This would probably necessitate a change in the Association's procedures for attacking educational problems. Two resolutions were read, both of which had been passed by the Board of Governors at its meeting on the preceding day. One was intended to provide for an orderly transition from CUPM activities to those of a new mechanism for dealing with educational problems. The other expressed dissatisfaction with the fact that priorities for spending in Federal support of mathematics are too frequently set without adequate consultation with the mathematical community.

These resolutions, designated I and II, follow:

Resolution I

RESOLVED THAT:

(1) Since new problems have arisen in mathematical education, and new methods of attack may be required to deal with them, the Association requests its President to appoint an ad hoc Committee on New Priorities for Undergraduate Education in the Mathematical Sciences. This Committee should be asked to identify the most important problems and to recommend initial steps leading toward their solution.

(2) The Association expresses pride in the achievements of its Committee on the Undergraduate Program in Mathematics (CUPM) and a strong belief in the current importance of problems now being attacked by CUPM (technical-occupational mathematics, the role of computing in the study of mathematics, alternatives to current freshmen mathematics programs for the general student, special problems of minority groups, mathematics for the social sciences, applied mathematics, teacher training.) In order to bring these attacks to fruition and to avoid wasting funds already committed, continued Federal support may well be required until at least the middle of 1974 for the individual CUPM projects, for operation of the CUPM Central Office, and for meetings of the Commission.

(3) Since direct Federal support, for the indefinite future, of a separate CUPM Central Office and of meetings of the Commission appears to be unlikely, an urgent initial charge for the Committee on New Priorities should be the making of provisions for an orderly transition from CUPM's activities to those of a new mechanism for attack on educational problems. This will insure a continuity of effort in those areas in which the new problems identified by the Committee are related to the ones currently being attacked by CUPM. The Committee should give special consideration to the desirability of having all future MAA projects managed by an MAA Projects Director from the MAA Central Office in Washington, D.C.

(4) The Committee on New Priorities should devote special attention to the sort of problems raised in the recent Carnegie Commission report "Less Time, More Options", and to the following specific questions:

(a) How is mathematics involved, and how should it be involved, in current and likely future national concerns, such as population, pollution and environmental control, transportation, etc?

(b) How can mathematics be taught more effectively in "service courses" for those wanting to apply it in other disciplines, and how can mathematicians be better prepared to teach such courses?

(c) What are the important job opportunities, outside of mathematics, for those with mathematical training, and how should that training be improved so as to better fit them for such jobs?

(5) The Association recognizes that all of the constituent organizations of the Conference Board of the Mathematical Sciences have a vital interest in undergraduate mathematics education, and that several of them have their own committees on education. In view of this broad base of professional concern, the Committee on New Priorities should consider possibilities for cooperation with the CBMS Committee on Education in the Mathematical Sciences. It should also consider the advisability of the following (and if they are found to be advisable, should propose specific times and agenda):

(a) A public meeting, open to all mathematicians, to discuss new directions and new priorities for undergraduate education in the mathematical sciences. (This might be held at a winter or summer meeting of MAA-AMS-CBMS.)

(b) A conference dealing with the same topic, to which representatives of all national organizations in the mathematical sciences would be invited.

(c) Alternative meetings, conferences, or symposia.

Resolution II

In its relatively short history, the National Science Foundation (NSF) has been a vital force in the development of science, in general, and of the mathematical sciences, in particular, for the general national welfare. However, in recent years, there have been policy decisions by the NSF, affecting the mathematical sciences community (and other scientific disciplines), that seem to have been taken without adequate consultation with the community involved. In our own area, we can cite the plight of the Committee on the Undergraduate Program in Mathematics (CUPM), that of the Advanced Science Seminar Program, and the NSF intervention in the nature of the National Information System in the Mathematical Sciences, and the sharp cut-backs in fellowship support.

The task of the NSF is to "promote research and education in the sciences". In our view, the proper attainment of this goal requires close cooperation and consultation, on the part of the NSF, with the scientific community, in the formulation of the appropriate policies and mechanisms.

It is resolved that the Board of Governors of the MAA urge upon NSF a re-evaluation of the relationship of NSF to the mathematical community, with an eye towards a larger involvement by that community in NSF decisions affecting it.

It is further resolved that this resolution be transmitted to the appropriate officials of the Federal Government and to the other organizations in the mathematical sciences.

H. Report of the Committee on the Undergraduate Program in Mathematics, Professor Alex Rosenberg, Chairman

Professor Rosenberg felt that the situation regarding CUPM at the moment was extremely black. Support must come from the government or the MAA and, if neither source can supply it, CUPM has to be scaled down drastically. Since no one knows how much the membership values CUPM, Professor Rosenberg suggested that the Sections might try to find this out; he would be interested in any information they could contribute to such an assessment. Small samples of opinion taken from the membership indicate that CUPM is highly regarded. In the eight years of its existence, over 300 people have been involved as members of the Commission or members of its panels; several thousand people have attended conferences sponsored by the Commission; the CUPM Central Office receives about 48,000 requests for various publications each year, in addition to the numbers of documents it mails out automatically.

Professor Rosenberg then summarized the activities of CUPM since January 1971 under the headings:

Panel on Teacher Training.

The Panel met in February and in June to complete work on the revision of Recommendations and Course Guides for the training of elementary and secondary school teachers. These will be submitted to the Commission for approval at its August meeting.

Panel on College Teacher Preparation.

The Panel met in February to continue work on a handbook for new instructors and to plan a conference on problems of handling large classes and on the training of teaching assistants. The conference was held on May 1. A Newsletter publicizing some of the ideas from the conference is planned for publication in the near future. The handbook should be completed at the next Panel meeting in October.

Panel on Mathematics in Two Year Colleges.

"A Course in Basic Mathematics," prepared by a group consisting of this Panel augmented with other two- and four-year college people, has been printed and approximately 10,000 copies have been distributed. Two regional conferences (in New Orleans and Memphis) on this report have been held.

The Panel is now turning its attention to the role of mathematics in technical-occupational curricula. An information-gathering conference was held in February. The Panel met to work on this problem again in April and July.

Panel on Computing.

The report of the Panel entitled "Recommendations for an Undergraduate Program in Computational Mathematics" has been printed and is currently being distributed.

A reconstituted Panel has turned its attention to the impact of the computer on mathematics courses. An information-gathering conference was held in January, and the group has met one time since then. Another meeting is planned for September.

Panel on Applied Mathematics.

The Panel is working on options for the GCMC course Mathematics 10. Meetings were held in February and May. The next meeting will be in September, at which time the Panel should complete its report.

Panel on Statistics.

The Panel's report "Preparation for Graduate Work in Statistics" has been printed and is being distributed.

The Panel is now working on recommendations for a first course in statistics that would have no calculus prerequisite.

Panel on Special Problems of Minority Groups.

The Panel met in March and June. Among its projects is the preparation of a handbook to be used by minority students in their selection of graduate schools and specific efforts to open the lines of communication between the Black and White mathematical communities.

Revision of GCMC.

The group met in April. It is engaged in writing a Commentary on Mathematics 1-4 and Mathematics 6. The Chairman of the group is preparing a draft for the group to consider at its final meeting in October.

Panel on Innovations.

This new Panel, Chaired by Arnold Ross, with D. T. Finkbeiner, I. N. Herstein, Helmut Rohrl and J. H. Wells as members, met in June. As an initial project it is surveying departmental chairmen to determine what innovative techniques are being used which deserve wider publication, in a CUPM Newsletter for instance.

Consultants Bureau.

By July 1, 1971, there had been 35 applications for consultant visits during the previous academic year. Twenty-nine of these visits were completed.

Additional Publication.

"A Basic Library List for Two Year Colleges" was printed in July and distributed to the mathematics departments of two- and four-year colleges. The initial mailing was 4,200 copies.

1. Report of the Editor of the MONTHLY, Professor Harley Flanders

Professor Harley Flanders, Editor of the MONTHLY, announced that the MONTHLY is dependent upon suggestions from Section Officers for names of outstanding speakers at Section meetings who might provide good articles for the MONTHLY. He suggested that names of such speakers be sent to him, along with names of other people in attendance at the meeting, so that a number of recommendations can be secured before the speaker is invited to submit an article.

J. Report of the Committee on Visiting Lecturers, Professor M. W. Pownall, Chairman

During the past academic year, 169 colleges and universities which do not grant a Ph.D. in mathematics were visited under the auspices of the MAA Program of Visiting Lecturers. Among these were 30 institutions not visited during the previous five years.

We are slowly building up a clientele among the two-year colleges, the traditionally Black colleges, and the developing colleges. It is one of our major objectives to increase the participation of these institutions, and we welcome the assistance of the Association and its Sections as we continue to work on this program. We have been funded for 1971-72 in exactly the same manner as we have been for several years. Contributions from participating colleges have enabled the Program to increase its operations by almost 25%.

The future of the Program is not entirely clear. (1) We have heard some rumors that funding from NSF is by no means guaranteed after 1971-72. (2) There have been suggestions that the CUPM Consultants Bureau will not operate after 1971-72, and we are exploring the possibility of merging the two programs.

SECTION OFFICERS CAN BE OF GREAT HELP IN SEVERAL WAYS: (1) MAKE IT KNOWN THROUGH THE FORUM OF YOUR SECTION MEETINGS THAT THE VISITING LECTURER PROGRAM HAS SOMETHING TO OFFER COLLEGES OF ALL TYPES (EXCEPT THOSE GRANTING A Ph.D. IN MATHEMATICS). (2) HELP US IDENTIFY OUTSTANDING LECTURERS FROM TWO-YEAR COLLEGES AND DEVELOPING COLLEGES: AND (3) HELP US TO MAKE IT CLEAR THAT COLLEGE CONTRIBUTIONS TO THE PROGRAM (THOUGH OPTIONAL) DO HELP US TO BRING THE PROGRAM TO ADDITIONAL COLLEGES (IN 1970-71 WE WERE ABLE TO INCREASE OUR OPERATIONS BY ABOUT 20 TO 25% BECAUSE OF CONTRIBUTIONS).

In answer to a question whether it might be possible to have cooperation between two-year colleges and graduate departments of mathematics so that seminars might be provided to bring creativity to the two-year institutions, Professor Pownall agreed that such cooperation would be valuable. He noted, however, that the nature of the current visiting lecturer program is one of one-day visits; the suggested type of cooperation might fall under the jurisdiction of another NSF-sponsored program.

K. Report of the Committee on High School Contests, Professor J. M. Earl, Chairman

Students and Schools. More than 320,000 students from approximately 6,000 schools within the ten regions into which Canada and the U.S. is divided, participated in the Twenty-Second Annual Examination in H.S. Mathematics on March 9, 1971. Also several hundred schools in England used 20,000 copies of the Examination* and smaller numbers of schools used additional copies in a scattering of other countries abroad. The Braille and Large Print editions for blind students as well as translations into foreign languages serve to broaden accessibility to the Examination.

The Examination. As in the three immediately preceding years (also next year), a 35 question multiple 5-choice test was (will be) used, ten each of Very Easy (3 point), Easy (4 point), Medium (5 point), and five Hard (6 point) questions. The Individual and Team median and quartile scores in 1971 were somewhat lower than in other recent comparable tests. These results for each and all ten of the Regions appear in Tables I and II respectively on page 44 of the 1971 Summary of Results and Awards. Table III on page 45 gives the percentages of each answer and no answer to each of the 35 questions for the top 100 students in the NE-SD Section. On only five questions (10,3,16,1,8) was the adjusted per cent correct (% correct - 1/4% wrong) at least 77%. On four questions (35,31,32,30), 90% or more of the group made no response. The group scored at the Honor Roll level on ten questions and their average scores on Parts I,II,III, and IV of the test were 17.14, 15.15, 12.12, and .93 of 30,40,50, and 30 points respectively. No report of error or ambiguity in the 1971 Examination or Solution-Key was received from any school or student. Questions and suggestions centered most often on 34, a clock problem.

Awards. The Charles T. Salkind Silver Cup was awarded to Freeport H.S., New York for the highest Team Score of 354.00 of a possible 450 points. A Small Plaque was awarded to James S. Pace of the same high school for the highest Individual Score of 142.50 of 150 points. In addition to nine schools on the School Honor Roll, 570 upper decile schools were placed on the School Merit Roll. Of these 523 were awarded Certificates of Merit; the others won prior awards including Cups, Demonstration Slide Rules, New Mathematics Library Sets, and Golden Gate Books. Fifty each of Individual Slide Rules and subscriptions to Mathematics Magazine were awarded to top ranking students. Committee awards of Medals and Certificates to two, three, and four time winners in their own schools totaled about 600 and Honor Roll Pins to students winning no prior award numbered about 100. First time intramural winners received more than 5,000 MAA Pin Awards.

Comments. 1. The National Association of Secondary School Principals has placed the Annual Examination on its Advisory List of Contests and Activities for 1971-72.

2. Five of the six "Putnam Fellows" and three of the five next highest ranking individuals in the William Lowell Putnam Mathematical Competition held on December 5, 1970, were formerly Honor Roll Students in the Annual Examination.

3. The Subcommittee on a USA Olympiad has been reactivated under the Chairmanship of Professor Samuel L. Greitzer who feels that tentative plans for instituting some form of Olympiad might well be agreed upon at a meeting to be held at Penn State.

4. Publication of Volume III of the Contest Problem Book (1966-1971) has been recommended by the Committee. Volume II (1961-1965) has been reprinted.

5. With about equal amounts of help from Committee Members and non-Members, the brochure, "How about a Career with Mathematics" has been revised. In the revision, reference to further information is focused primarily on the eighth edition of "Professional Opportunities in Mathematics" and the 1970-71 revision of the "Occupational Outlook Handbook" of the Bureau of Labor Statistics.

Professor H. M. Cox, Executive Director of the Contest, announced that the date of the next examination is March 14, 1972. He expressed appreciation to the Section Contest Chairmen and to the officers who have assisted with the Contest.

L. Report on the Proposed USA Mathematical Olympiad, Professor S.L. Greitzer, Chairman of the Subcommittee on a USA Mathematical Olympiad.

Previous to February 1971, the Committee on High School Contests had appointed a subcommittee to investigate the desirability of presenting a contest which would consist of very few problems whose solution would require mathematical maturity beyond that required for the Annual High School Mathematics Contest. This subcommittee apparently was dormant after the death of Professor Salkind.

As the result of an article by Professor Nura Turner in the February issue of the MONTHLY, Professor Earl reactivated the subcommittee. Correspondence with mathematicians and educators made it evident that many of them think there is a place for such a competition.

At a meeting of the subcommittee held on August 30, 1971, it was decided to recommend that such an "Olympiad" be instituted with a minimum of delay. It would be small, involving about 100 students who had earned top scores in the Annual High School Mathematics Contest, with about 8 of these selected as top scorers.

The help of the Section Officers might be needed, chiefly for publicity purposes. The recommendations will be submitted to the Committee on High School Contests on August 31.

[Secretary's Note: The Committee approved the recommendation at its meeting on August 31, and the proposal for a USA Mathematical Olympiad has in the meantime been approved by the Board of Governors by a mail ballot. The first such Olympiad will be held in May 1972.]

In answer to a question whether students from states which give their own Contest rather than the national High School Mathematics Contest could enter the USA Mathematical Olympiad, Professor Greitzer replied that they could. For these states, there will be assigned a certain quota of students, in relation to their population, and they will be allowed to participate in the Olympiad.

It was reported that Massachusetts already has such an Olympiad.

M. Report on Certification and Accreditation in Mathematics, Professor D. T. Finkbeiner, Chairman of the ad hoc Committee to Consider Certification and Accreditation in Math.

About 1000 members have returned the questionnaire prepared by the Committee. Responses were received from twenty-six of the twenty-eight Sections, with one other Section known to have participated in the discussion on this question.

Professor Finkbeiner then announced the recommendations of the Committee as they had been approved by the Board of Governors at its meeting the previous day:

1. We recommend that the Association take no action toward establishing a system of accreditation or certification in mathematics at this time. Whatever advantages or disadvantages such a system may have in the abstract, we believe that MAA members have been given ample opportunity to consider the matter and to express their views, that general support for the idea has not been assured, and that there is some evidence of strong opposition.

Acceptance of this recommendation would not preclude reopening the issue under significantly altered circumstances.

2. We recommend that the Board of Governors request the President to appoint a committee to study the future role of the Consultants Bureau as a continuing MAA agency for encouraging and assisting professional development and improving mathematics instruction in colleges. The relation of the role of a Consultant with that of a Visiting Lecturer should be considered, and thought should be given to means by which any such Visitor might work with members of a department over a longer period to develop programs of self-evaluation and improvement. In particular, funding problems might need to be considered anew.

3. We recommend that the Board of Governors extend their thanks to the officers and members of the Sections for their splendid cooperation in bringing the issues of accreditation and certification to the attention of the mathematics community, and that they encourage the Sections to continue to promote regional study and discussion of problems related to the improvement of standards of mathematics education within their regions.

4. We recommend that a suitable version of this report be published in the MONTHLY to make it available to the large number of members of the Association who contributed to its findings and available also to the even larger number who would be directly affected by any action on the subject of this report.

5. Finally, we recommend that the ad hoc Committee to Consider Accreditation and Certification in Mathematics be discharged.

The Board has taken one additional action on this matter, namely, it voted to request the President to appoint a committee to attempt to set up guidelines for the evaluation of mathematics departments and undergraduate programs; such guidelines could be distributed to the six regional commissions for general accreditation of institutions of higher learning in the United States. Analogous guidelines for the mathematics programs of precollege teachers could be distributed to the National Council for Accrediting of Teacher Education (NCATE) for their use in accrediting college programs of teacher training. In addition, such guidelines could be used by individual departments for voluntary self-evaluation. The committee was requested to submit these guidelines to the Board of Governors for consideration, possible approval, and transmittal to the agencies mentioned above.

N. A Resolution from the Michigan Section

Professor Mehlenbacher called attention to the following resolution passed on May 8, 1971, at the annual business meeting of the Michigan Section:

"WHEREAS the strength and good work of the Mathematical Association of America is largely dependent on the health and vigor of its several Sections, and

WHEREAS we are in agreement that the individual's sense of ineffectiveness as one member in a very large organization should be combatted by fostering smaller groupings and granting to those smaller groups--in this case, the Sections--as much freedom of action as is consistent with the overall purposes of the parent organization, and

WHEREAS the lack of adequate financial resources has severely inhibited implementation of the above mentioned principles,

"THEREFORE BE IT RESOLVED that the central administration of the Mathematical Association of America collect with its dues an amount no less than \$1.00 in the name of the individual Sections, and that this amount be returned to the Sections for their unrestricted use in furthering the goals of the Association."

The Executive Director announced that this resolution would be referred to the Executive and Finance Committees for a recommendation to be acted on at the January meeting of the Board of Governors in Las Vegas.

O. Review of Section By-Laws

Professor Mehlenbacher announced that the Board of Governors at its meeting the previous day had voted that all Sections be requested to review their By-Laws by a committee of the Section in accordance with the suggestions made at the meeting of Section Officers on August 24, 1970 at the University of Wyoming, and contained in the brochure "Guidelines for Sections" (available from the Washington office of the MAA). Particular attention is directed to suggestion 6, namely that, since it takes about a year to learn the routine of the office of Section Chairman, it is unwise to have him serve merely a year, and that accordingly it is recommended that Section By-Laws provide for a Chairman to serve first for one year as Chairman-Elect, then for two years as Chairman, and that he remain on the Executive Committee for an additional year as Immediate Past-Chairman.

Attention was also called to suggestion 4, namely that, because of his key role, a Secretary should be elected for a term of at least three/^{years} and should have the option of being renominated and reelected.

As suggested in items 7 and 8, each Section was also urged to have a reasonable number of officers committed to its welfare, for example, by the appointment of a First and a Second Vice-Chairman, so that the Executive Committee would consist of at least six persons.

Professor Mehlenbacher requested that, when Sections submit By-Laws to the Committee on Sections, they send seven copies so that he can distribute them to the members of the Committee. He urged Sections to consult the article "How to Organize a Section for Maximum Effectiveness" in the brochure "Guidelines for Sections", when they undertake the review of their Section By-Laws.

Professor H. L. Alder underscored the importance of having all Sections strongly organized at a time when the difficulties encountered in Federal support for CUPM and other Association activities make it essential for the Sections to assume a more active role in carrying out the objectives of the Association.

In answer to a question how a complete list of Section Officers could be obtained, the Executive Director replied that such a list can be obtained upon request from the Washington office.

P. The Texas Section Work with Two-Year Colleges, Professor L. C. Huffman, Chairman of the Texas Section

The Texas Section has for a good many years been trying to include the two-year colleges in a meaningful way. This effort can be summarized under four categories:

1. There is always at least one two-year college representative on the Executive Committee of the Section.

2. At least one session of the annual meeting is always designed especially for the two-year college teachers.

3. The annual meeting of the Section is held on the campus of a two-year college about every sixth year.

4. At the request of the two-year college representatives, a booklet is being written which will give the course description and textbook for the undergraduate mathematics courses being taught in the various colleges and universities in the Texas Section.

Professor Kleiman felt that the two-year colleges needed more attention from four-year institutions and asked how to achieve this.

President Klee replied that this matter has been of great concern to the Association and steps have been taken to help with this problem. A new standing Committee on Two-Year Colleges has been established to replace the ad hoc Committee on the Role of the Two-Year College Teachers of Mathematics in the Association and the Committee on Assistance to Sections on Two-Year College Problems, which had not been effective in the past. The new committee has a broader charge and will establish a list of names of 50 people in two-year colleges who can be contacted periodically for some feedback as to how the Association is doing to fill the needs of the two-year college teachers of mathematics. This will result in more direct participation by mathematicians in two-year colleges in the affairs of the Association. He felt that the list should be as geographically representative as possible, and invited suggestions for names of people who should be included on this list.

Professor Kleiman felt that it was important for someone to go to the two-year colleges and speak to members of departments.

Professor C. F. Stephens, Chairman of the Upper New York Section, thought that appointment of a Vice-Chairman to pay attention to the problems of the two-year colleges was a good plan. He felt that, in addition, we should let them know that they are welcome in the Association.

Professor Huffman felt that meeting on the campus of a two-year institution every few years would be an additional help.

Professor J. A. Schumaker, Chairman of the Illinois Section, suggested appointment of at least one person from a two-year college to the nominating committee.

Professor C. W. McArthur, Chairman of the Florida Section, cited the example of his Section which has meetings in conjunction with Articulation Conferences, thereby bringing in people from community colleges.

Professor J. S. Mamelak of the Philadelphia Section felt that part of the problem is that we (the two-year college mathematician) do not know what to tell the four-year college people; we have problems which we must resolve ourselves. He invited Section Officers to the panel discussion on Wednesday, when some of these problems will be brought out. He felt that the Association had made a commitment to the two-year college people.

Professor L. J. Montzingo, Jr. of the Pacific Northwest Section cited the example of his Section which has a Vice-Chairman for four-year colleges and one for two-year colleges. He stated that having the former Vice-Chairman always succeed as Chairman had caused some dissatisfaction. His experience as Chairman was that it was very difficult to find people from the two-year colleges to serve.

Professor Kleiman suggested the establishment of some type of seminar--joint meetings between the two-year colleges and the local Sections.

Q. The Handling of Large Classes of Students by Professor David Schneider, Vice-Chairman of the Maryland-D.C.-Virginia Section, and Professor J. S. Mamelak, member of the Executive Committee of the Philadelphia Section

Professor Schneider reported his experiences with handling large classes of students. He described in detail how a precalculus and probability course which is intended for students majoring in the biological, social, and management sciences, is conducted at the University of Maryland. An enrollment of over 3000 students per semester justified a major commitment by the mathematics department and resulted in a course which is beyond the capabilities of the standard classroom situation.

Students meet in groups of about 25, for 3 hours per week with a Graduate Assistant. The first thirty minutes of the average class consists of a discussion of concepts and homework, conducted by the Graduate Assistant. Then new material is presented via TV using a pretaped lecture which is transmitted from the TV studio over a closed-circuit system. Printed lecture notes are distributed at each lecture, allowing the students to concentrate fully on the TV presentation.

Extreme care went to the preparation of the TV lectures in an attempt to meet professional standards of TV production. Three faculty members of the mathematics department were assigned, as their sole teaching duties for 1-1/2 years, the making of a series of 63 video tapes. The Speech and Drama Department provided a professional director, a well-equipped studio, and a seven man technical staff. On the average the members of the mathematics department devoted about 75 man-hours to the making of each lecture. Although one person had the primary responsibility for each lecture, the lectures were thoroughly discussed by the other faculty members working on the course. Careful consideration was given to content, clarity, relevance, and style. Full use was made of the capabilities of the TV media by using slides, mats (subtitles), film clips, and imaginative props. As an example, part of a lecture on an application of mathematics to medicine was filmed at the National Institute of Health, with the commentary given by the director of a cancer research project.

In answer to a question as to whether or not there was a textbook, Professor Schneider replied that there was one. In answer to a question about arrangements with the University for salaries of those on the faculty who spent 1-1/2 years preparing the television tapes, Professor Schneider explained that the salaries were provided by the mathematics department and that the University had provided the studios and supplies. He also noted that students were graded on a standard scale. Complete studies have not as yet been made to measure the effectiveness of these techniques.

Professor Mamelak suggested that modern display techniques, closed circuit TV films encourage large class teaching. Such teaching tends to be well-organized

and authoritative. Students learn factual information in large classes as well as they do in small classes. The principal drawbacks of teaching large classes are in the effective areas of student learning: lack of contiguous feedback, loss of interest and motivation. The traditional recitation method is frequently self-defeating. The expenditure on large class instruction is not fully offset by the use of assistants in recitation classes; and, the ability of young graduate students to administer to the broad demands of the student body is frequently questionable.

Some possibilities for using modern media technology to enhance teaching to large classes were indicated. The use of frequent testing as a motivator and objective evaluator of course content and methodology is possible with the current state of knowhow in all areas related to testing. The use of two-way radio and closed-circuit TV techniques to organize discussion periods in large classes under the direction of the principal lecturer to offset the weaknesses of the recitation arrangement is feasible. Finally, the increased use of numerical techniques in the teaching of mathematics is suggested. Computer technology cannot be used in the feedback stage of learning today, but it can be used as a storage and retrieval device for the solution of assigned problems. A numeric program is largely self-checking; stress on numeric and algorithmic techniques automatically changes the character of support required by the student in learning problem-solving.

R. Concluding Remarks by the Chairman

Professor Mehlenbacher reminded the audience of the purpose of the meeting, namely that the Section representatives take back to their Sections information relevant to their Sections.

The meeting adjourned at 11:05 p.m.