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THE APRIL MEETING OF THE IOWA SECTION, MATHEMATICAL ASSOCIATION OF AMERICA

The 56th regular meeting of the Iowa Section of the Mathematical Association of America was held at the University of Northern Iowa, Cedar Falls, on April 18, 1969. Chairman John C. Friedell presided. Total attendance was 92, including 47 members of the Association.

A business meeting opened the afternoon session. The Treasurer's report indicated a balance of $134.97, which was certified by the report of the Auditing Committee. A motion that the Iowa Section pay for membership in the Association for each Iowa student ranking in the top 100 in the W. L. Putnam Mathematical Competition, was made and passed.

The following officers were elected:

Chairman, Elsie Muller, Morningside College, Sioux City

Vice-Chairman, Timothy Robertson, University of Iowa, Iowa City

Secretary-Treasurer, B. E. Gillam, Drake University, Des Moines

As part of the program two films were shown. "Inversion", a 13 minute film, written by Dan Pedoe and produced by the College Geometry Project at the University of Minnesota was used to begin the morning sission. "Dihedral Kaleidoscopes", a 12 minute film written by H.M.S. Coxeter and by the College Geometry Project ended the afternoon program.

The following papers completed the program:

Panel discussion: Intuitive vs. Rigoristic Approach to Teaching Calculus, Fred Lott, Michael Millar, and John Longnecker of Cedar Falls.

The panel discussed the trends of the last 15 years or so leading to a more rigorous approach in teaching the beginning calculus courses as compared to the older, intuitive and computational introduction to the subject. Some of the problems encountered are: frustration of both

student and teacher in adding the more precise mathematical development as well as continuing to cover some applications and acquire some ability to carry out the mathematical manipulations; protests from colleagues in other disciplines that calculus is taught so abstractly that their students are not prepared to handle applications in such areas. However, the panel expressed the opinion that the trend toward more rigor has been healthy, if not overdone, and discussed instances where it is almost essential in developing a proper understanding. The major problem is how to make the calculus relevant to meet the needs of all. This may be an impossible task but teachers of mathematics should strive to do so.

Undergraduate Research in Mathematics---Purposes and Sources, Donald N. Pilgrim, Decorah.

The main goal of this paper is to present some sources of research problems accessible to undergraduate students in mathematics. The main sources discussed are: (1) application of mathematical models to problems that arise in the operation of a college; (2) further development of underdeveloped mathematical models; (3) the problems sections of the American Mathematical Monthly. Several examples of each type of activity are given and we discuss how this activity differs from work done by students in courses taught by traditional methods.

Some Thoughts on the Teaching of Algebra, Abstract and Linear, Sister Cathleen Real, Davenport.

Some ideas based on the author's experience in teaching algebra were presented and included proper use of the overhead projector, selection of course content, pace of presentation, frequency of tests, and balance between theory and problems. A student's view of courses in abstract and linear algebra was presented by Mary Ann Miller of Marycrest College.

Are We Only Concerned About Conveying Information?, Donald V. Meyer, Pella.

It was asked whether or not we, as teachers of mathematics, are only concerned about handing out a certain collection of facts which we requir-

our students to know. The discussion emphasized the importance of training our students to think abstractly and logically. Perhaps this means covering less material in a given course, but covering it more carefully.

Invited address: Integrating the Computer into the Collegiate Mathematics Curriculum, Gerard P. Weeg, Iowa City.

Computers should be used in the mathematics curriculum for at least three major reasons:

1. It is the responsibility of the liberal arts educator to help the student discover all of the forces of the past and present which will influence his future life. The technological revolution, central to which is the computer, is clearly one such force.

2. Computer use improves student understanding, by providing motivation; by allowing students to work on real problems with realistic numbers; by allowing students to see the algorithmic side of mathematics instead of the existential; by encouraging the student to generalize; and by avoiding busywork details.

3. Students are afforded greater flexibility upon graduation.

It is maintained that curriculum innovations in the use of computers must be done by active faculty members, perhaps with the empetus of released time.

Among the proposals made was one of establishing a first semester Freshman Mathematics course, supplanting the normal first course on Problems and Concepts of Mathematics. Computer programming would be learned in this course, and immediately applied to a broad range of mathematical areas.

Specific suggestions as to what topics in the mathematics curriculum which are computer amiable are made.

The University of Iowa's NSF Conference in Computer Science for Secondary Teachers, Marilyn J. Zweng, Iowa City.

During the summer of 1968, 24 Iowa teachers attended an NSF sponsored Conference in Computer Science. As a consequence of the Conference, approximately 20 junior and senior high schools in Iowa are presently developing computer extended mathematics courses. Programs are produced on mark sensed cards and run at The University of Iowa's computer center. The programming language being used is FORTRAN IV with WATFOR which has provisions for free (unformated) input/output. The goal of the program is to improve instruction in mathematics - not to make sophisticated programmers out of high school students.

On Uses of Computers in Teaching Statistics, James W. L. Cole, Iowa City.

There are three primary reasons for introducing the computer into a statistics curriculum. The user of statistics, for whom the computer will almost surely be an important tool, will benefit from prior exposure to the world of the computer. The student of advanced statistics will find his discipline being shaped by the influence of the computer. Finally, the student of applied statistics at any level, liberated from the drudgery of calculations, can concentrate on the foundations of statistics and the integral role of statistical analysis in research.

Representations of C* - Algebras, Robert S. Doran, Cedar Falls.

Given a C* - algebra A, a fiber-bundle-like structure (B, π, Q) is constructed from A and its set Q of primitive ideals. The space of continuous cross-sections of this bundle is then given the structure of a C* - algebra. The main result of the theory is a non-commutative analogue of the classical Gelfand-Naimark Theorem for commutative C* - algebras.