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Reminder

Don't forget the NCTM Summer Meeting in Vancouver, August 26-28
and the annual general meeting of the MCATA to be held in con-
junction with it.

Note the two items enclosed with this newsletter.

IMPRESSIONS FROM THE 43RD ANNUAL MEETING OF THE NATIONAL COUNCIL OF
TEACHERS OF MATHEMATICS

Detroit, Michigan, April 1965

Editors' Note: Mrs. Kirkpatrick, the writer of this article, is a Division II teacher-consultant in the Edmonton Public Schools. She is the elementary representative on the MCATA executive this year.

I attended the NCTM Annual Meeting as a representative of the Department of Elementary Education, Edmonton Public School Board. Because this was the first such meeting I have ever attended, my first impression was of the size of it all. Imagine 4,200 educators from all parts of Canada and the United States all talking mathematics! Cobo Hall, Detroit's convention centre, is magnificent. Large as the meeting was, we only used about one-third of this enormous building. Much of the space (and any spare time I had) was devoted to the exhibit area. Very large and comprehensive, this included a school exhibit as well as the commercial exhibits. Each major publishing company had its mathematics materials on display, and it was most interesting to examine the various materials - particularly when the representative had just heard a competitor extolling the virtues of his materials to you, in the booth next door!

I attended sessions only in the elementary area - two general sessions and nine section meetings. Although the meeting had no central theme, the emphasis in the elementary sections was on geometry. If I came home with one major impression, this would be it: geometry is becoming a much more important part of the elementary school mathematics program. The geometry being introduced in the new texts is the nonmetric geometry of space; it deals with such ideas as points, lines, planes and space, all organized in terms of sets. The presentation of these ideas is informal, intuitive and descriptive. They are developed in such a way that later understanding of precise mathematical ideas will be facilitated. An examination of some of the newest elementary texts indicates this new stress on geometry; and it was stated that the new texts will devote 25 per cent of their coverage to geometry. (A further report on this topic will appear in the MCATA Annual). Five of the elementary sessions

were devoted to geometry. Space does not permit discussing all the sessions and I have chosen two.

Patrick Suppes spoke on "Intuition and Logical Inference in Elementary School Mathematics". He stated that discovery is the result of intuition and inference - both of which should be completely intertwined in the mathematics curriculum.

One of the most enjoyable sessions, a panel made up of Adeline Hartung, Myron Roszkopf and Herbert Spitzer, was moderated by Henry Van Engen. Their topic was "Sense and Nonsense in the Elementary Classroom" and their purpose was to discuss some of the things that were usually discussed informally at meetings such as this - over dinner, or in the evening but not at a scheduled session. Each participant spoke and time was allowed for questions and discussion by the audience. It was delightfully informal! The panel concluded by pointing out the extreme danger of trying to teach abstractions to young children. These abstractions begin with the physical. Teachers must not neglect this first, most important stage.

One of the things I enjoyed most was the variety of people one meets at a conference such as this. I was lucky enough to meet many of the "names" in mathematics - people we read about in journals and some authors of textbooks. However, the most satisfying impression I returned with is that we in Alberta need take second place to no one in the field of elementary mathematics. Certainly at isolated spots, both in Canada and the United States, there are some exciting experiments being tried but as far as a "total" program is concerned we are among the best.

In conclusion, I urge any of you who can to attend the Vancouver meeting of the NCTM. You will all receive programs and a look at the program participants should convince you there will be many worthwhile sessions. The experience of attending a meeting such as this is hard to describe (it has certainly been a highlight of my year!) so why not try it and see for yourself? Of course, there is our own annual meeting of the MCATA to attend also! See you in Vancouver!

WHAT IS MODERN MATHEMATICS?

Editors' Note: Elizabeth Galeski was a student in the Faculty of Education. She completed the professional year leading to certification following a Bachelor of Science degree.

One of the phrases which we, as prospective teachers, hear over and over again is "modern mathematics". In attempting to learn something about this, one might take each word individually and try to form a satisfactory definition for each. From the standpoint of inexperience, one must turn to a search of the works of the more experienced and wise mathematicians of this era to find an answer to the question "What is Modern Mathematics". First a record of some of the definitions of mathematics:

"The purely formal sciences, logic and mathematics, deal with those relations which are, or can be, independent of the particular content or the substance of objects." (Herman Hankel) (1: 176-177)

"Perhaps the least inadequate description of the general scope of modern Pure Mathematics - I will not call it a definition - would be to say that it deals with form in a very general sense of the term." (Hobson) (1: 176-177)

"Mathematics in its widest signification is the development of all types of formal, necessary, deductive reasoning." (Whitehead) (1: 176-177)

"Mathematics is the study of ideal constructions (often applicable to real problems), and the discovery thereby of relations between the parts of these constructions, before unknown." (Pierce) (1: 176-177)

"Mathematics is preferably free in its development and is subject only to the obvious consideration, that its concepts must be free from contradictions in themselves, as well as definitely and orderly related by means of definitions to the previously existing and established concepts." (Cantor) (1: 176-177)

"Mathematicians assume the right to choose, within the limits of logical contradiction, what path they please in reaching their results." (Adams) (1: 176-177)

Which brings us to the profound conclusion I think Bertrand Russell states beautifully; that "mathematics may be defined as the subject in which we never know what we are talking about, nor whether what we are saying is true." (1: 177)

Having arrived at this vague concept of what mathematics is, the topic implies the explanation of the term "modern" which is another impossibility. By "modern" do we mean today, this year, this decade, this century? When speaking in terms of math, it has been said that "modern" would include a period covering the last two or three hundred years. If this is the case, then the discussion of "modern math" would cover a vast array of topics which could probably fill dozens of textbooks.

Therefore, since it is unlikely that a definition of this topic can be discussed in a logical and precise manner, I would rather discuss what is entailed in the teaching of contemporary mathematics and which attitudes should be fostered. There is a certain feeling for mathematics which must be conveyed to the students of mathematics in order that they will be able to understand thoroughly what math is really all about and be able to apply their knowledge to the world of tomorrow. Professor Carl Raymond Hedrick vigorously supports the idea that the real values of mathematics reside in its processes. In his own words, he states that "if we allow our attention to centre on a special case, on a given fact, or on a particular skill . . . we shall be in danger of abandoning the process itself." (2: 454) It seems that today we have abandoned the emphasis on process - if there ever was one - and if "modern" curricular proposals do nothing more than redirect our attention to this most significant aspect of mathematics they will have made a tremendous contribution to mathematics education. In a report from the Netherlands, summarized by Professor John Kemeny of the International Congress of Mathematics meeting in Stockholm, 1962, there is a recommendation that "stress should be laid on thinking mathematically and more value attached to this ability than to knowledge

of a variety of less important facts." (2: 155) It has been said that "one of the great glories of mathematics is the possibility of moving its generalizations from the domain of probability into the domain of certainty within a given structure. It is this task to which we, as math teachers, have been called and at no time in the history of American education has the call been so inviting."

Bibliography

1. Eves and Newson, An Introduction to the Foundations and Fundamental Concepts of Mathematics, New York, Holt, Rinehart and Winston, 1958.
2. Fawcett, Harold R., "Reflections of a Retiring Teacher of Mathematics", The Math Teacher, November, 1964.

MCATA NEWS

1. Membership

The Mathematics Council membership for the 1964-65 year rose to a record high of 567. This represents an increase of approximately 230 over the 1963-1964 year.

2. President Attends Annual Meeting of NCTM

Len Pallesen of Calgary, our hard working president, was our delegate to the Forty-Third Annual Meeting of the National Council of Teachers of Mathematics held in Detroit, Michigan, April 21-24, 1965. On Thursday morning, Mr. Pallesen was presented with our certificate of affiliation with the NCTM.

Also attending this meeting were Mrs. Joan Kirkpatrick (Edmonton Public School Board), T.P. Atkinson, W.F. Coulson, and Dr. L.D. Nelson (University of Alberta, Edmonton).

3. Mathematics Seminars

Two one-day mathematics seminars, sponsored by MCATA, were held

on April 3 in Edmonton and Calgary. W.B. MacLean, Professor of Methods in Mathematics, Ontario College of Education, University of Toronto, was the special consultant at the Calgary seminar. D.M. Mumford, Associate Professor of Methods in Mathematics, Ontario College of Education, University of Toronto, was the consultant at the Edmonton seminar. In all, over 160 teachers in the two areas availed themselves of the opportunity to learn more about the modern approach to Grade X mathematics. Professors MacLean and Mumford are two of the team of authors of "Secondary School Mathematics", the text authorized for Mathematics 10 beginning in September, 1965.

4. Mathematics 341 Films

The major project of the Mathematics Council for the year was the taping of the Math 341 television course on 16 mm films. These were circulated to 16 viewing centres throughout the province where they formed the basis of inservice programs for over 360 teachers.

5. Regional Council Activities

The Edmonton Area Regional Council sponsored two informal discussion sessions for elementary teachers this year. Both meetings were well attended by teachers from Edmonton Public, Edmonton Separate, Griesbach, Namao and the County of Strathcona schools. These are a few of the comments and conclusions from the meetings:

- (1) Further and continuing inservice education is needed - particularly in geometry.
- (2) Primary teachers must continue to use a variety of manipulative materials.
- (3) "Charting the Course for Arithmetic" (W.J. Gage Ltd.) should be read by any teacher using the STA program.
- (4) An interest was expressed in holding regular meetings of this nature next year.

6. Canadian Elected to NCTM Board of Directors

As a result of the 1965 election, John C. Egsgard, C.S.B., of Toronto, Ontario, became one of the three new NCTM directors for the 1965-68 term. Father Egsgard is the first Canadian to

become a member of the executive of the NCTM and members of the MCATA join with other mathematics teachers across Canada in congratulating Father Egsgard on his achievement.

BOOKS FOR YOUR PROFESSIONAL LIBRARY

For the Elementary Teacher:

Swain and Nichols, Understanding Arithmetic, Revised Edition, New York, Holt, Rinehart and Winston, Inc., 1965.

Heddens, James W., Today's Mathematics, A Guide to Concepts and Methods in Elementary School Mathematics, Chicago, Science Research Associates, Inc., 1964.

For the Secondary Teacher:

Whitesitt, J. Eldon, Principles of Modern Algebra, Reading, Mass., Addison-Wesley Publishing Company, Inc., 1964

Moise and Downs, Geometry, Teachers' Edition, Reading, Mass., Addison-Wesley Publishing Company, Inc., 1964.

SOME PUZZLES TO PONDER

The time is between 5 and 6 p.m. In 15 minutes it will be as many minutes before 7 p.m. as it was past 5 p.m. 9 minutes ago. What time is it now?

A coin collector has a set of nine coins identical in appearance but he knows that one is counterfeit and weighs slightly more than one of the genuine coins, which all weigh the same. The man has a scale balance and in two weighings is able to identify the counterfeit coin. How does he do it?

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