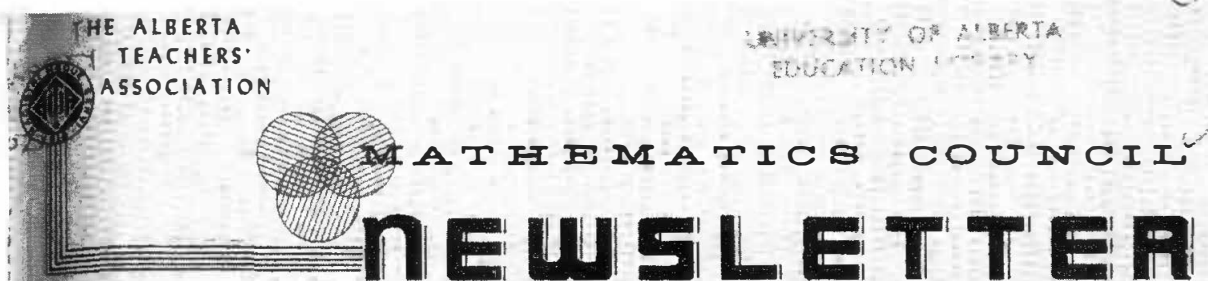


# First Issue of the *Mathematics Council Newsletter* (January 1962)



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## Announcing the New Bulletin

At the inaugural conference of the Mathematics Council recommendation was made to the executive committee to provide a vehicle that would disseminate information to the members of the council. The executive committee met on November 4, 1961 and passed a motion authorizing the present publication. The intention is to publish a yearbook summarizing each annual conference and a series of news bulletins that will keep the members aware of current developments. These news bulletins are to be published in January, April, June, and November. It is proposed to include in these news bulletins, besides current news items that might be of interest to our council members, an article of theoretical nature.

## L. W. Kunelius on Geometry

Editor's Note At the Mathematics Council's inaugural conference last August, Mr. Kunelius, at the end of his address, was asked the question, "What is the place of geometry in our high schools?" What follows is his answer.

The place of geometry in high school has been defended on several grounds.

- (1) It provides knowledge of important geometric relationships of which the educated adult has future need. In other words, it contributes to literacy.
- (2) It provides the best means we presently have for teaching elementary ideas concerning the nature of proof.
- (3) It has a peculiar or unique value for teaching habits of logical reasoning.

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(4) It provides an example of a logical mathematical system, the only example we have in our high school mathematics of a system founded upon undefined terms, definitions and postulates.

Let us look at each of these. If the main purpose is to teach geometric facts - in other words, knowledge of basic geometric constructions and relationships - this can be accomplished by the methods of informal or intuitive geometry in junior high. The pupil at the end of Grade IX knows that the angles of a triangle are together equal to two right angles or  $180^{\circ}$ , he knows the conditions for congruence of triangles, similarity and parallelism though he cannot give formal proofs for them. Furthermore the number of geometric facts which the average citizen should know and which are not now taught informally by the end of Grade IX is few. Clearly the first reason is not enough to justify demonstrative geometry in the high school.

It provides the pupils with a means of acquiring a glimpse of the nature of a logical mathematical system. But Euclid's geometry as it is taught, or can be taught at the high school level is not very logical; it has several weaknesses. Much simpler and better examples of postulational systems can be developed in algebra.

It provides a means for teaching pupils something of the nature of proof and for practice in logical or deductive reasoning. It can do these provided it is taught with that end in view - if the role and nature of undefined terms, definitions, assumptions and of theorems derived from them are brought out; if hidden assumptions are carefully analyzed in both mathematical and non-mathematical situations; if the character of analysis, of indirect proof, of inductive proof, are understood. To do this we don't need to study several books of Euclid. Nor is any crime committed if for example the congruence theorems are left unproven and treated as assumptions.

I therefore predict that though the mastery of the more significant theorems (significant because they have frequent applications in life) will continue to be recognized, this will be overshadowed by other objectives for high school geometry, viz, (a) that pupils come to appreciate the postulational structure of geometry, (b) that pupils come to appreciate that there are other geometrics each based on its

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own set of postulates, (c) that algebraic or analytic methods will be introduced more widely, and (d) that pupils come to appreciate the nature of proof and the types of reasoning involved in proof.

These changes will come gradually. I believe that within the framework of the present text some changes can be made which would provide the teacher with more time to give greater emphasis to the structure of geometry and the nature of proof. I would hope that alert teachers who are thinking along the lines I have outlined above will take the initiative and the courage to depart from the traditional approach to the text in Mathematics 10. There are some commendable features in the text which presently receive but scant notice due to pressure of time and lack of appreciation of their significance. I would say: telescope the work on theorems.

#### MCATA Committees

The ATA Accreditation Committee requested from our Council evaluation criteria in mathematics for accreditation. A committee consisting of the following was appointed: I. P. Atkinson, F. Tarlton, and J. K. Sherbanuk, all of Edmonton. This committee should complete its work in January.

J. Holditch of Edmonton has been appointed as MCATA library secretary.

John Cherniwchan and Eugene Wasylyk are appointed editors for MCATA.

#### Modern Mathematics by a Local Author

A book entitled, Modern Mathematics: Introductory Concepts and Their Implications, is to be published February 15, 1962 by W. J. Gage, Limited, Box 550, Scarborough, Ontario. The expected price is \$4. A. B. Evenson, the author, formerly with the Curriculum Branch of the Department of Education, is now general supervisor of senior high schools in Edmonton.

This is a professional book written primarily for teachers who wish to become acquainted with the basic concepts, language and implications of modern mathematics. It is not aimed at any particular grade level. The material covered has implications for a program throughout all

the grades. The main topics discussed are sets, number and numeration systems; conditions in one variable; relations; functions; elementary logic and proof, mathematical systems.

#### Experimentation at Junior High School Level

Experimentation with new materials in mathematics at junior high level is being conducted by a total of 33 teachers in the following administrative areas: Cities - Calgary, Edmonton, Red Deer, Jasper Place; Rural Areas - Clover Bar School Division, Pincher Creek School Division, Rocky Mountain School Division, County of Sturgeon, and Vermilion School Division. This experimentation is under the direction of the Junior High School Mathematics Subcommittee of the Alberta Department of Education.

#### Cuisenaire Materials at Primary Level

For the past three years members of the Grade I teaching staff of the Ponoka School have experimented with Cuisenaire materials in arithmetic. It is the opinion of this staff that the primary pupils grasped some of the more difficult concepts at this level more readily than they would have with traditional methods.

#### Seeing Through Arithmetic Inservice Work

Thirteen classrooms in Ponoka County are experimenting this year with the Seeing Through Arithmetic series. These experimental classes include every grade level from I through VI. The school committee has accepted the recommendation of H. L. Larson, assistant superintendent of the county, to introduce the STA series into all elementary classrooms in September 1, 1962.

In preparation for this introduction, Mr. Larson has organized a series of meetings dealing with the new approach to arithmetic teaching in the elementary grades. At meetings held in Ponoka and Rimbey on November 8 and 9, respectively, an excellent attendance was recorded and enthusiastic interest was exhibited. The first film of the Seeing Through Arithmetic series, put out by the Scott, Foresman and Co., was shown. We understand that this was the first showing of this film in Alberta.

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## MCATA Constitution

The MCATA constitution as amended at the inaugural conference appears below.

Name. The name of this organization shall be the Mathematics Council of The Alberta Teachers' Association.

Object. The object of this organization shall be, to promote and advance the teaching of mathematics throughout the province, especially in elementary and secondary schools.

Membership. The following are eligible for membership: (a) any member of The Alberta Teachers' Association or non-member covered by the Teachers' Retirement Fund, (b) any certificated teacher in private schools, and (c) any member of the University of Alberta or of the Department of Education.

Fees. Membership fees may be established by resolution at the annual general meeting of this council.

Finances. The executive committee shall have power to collect fees and to make expenditures. A financial statement shall be submitted to the annual general meeting.

Officers. The officers of this council shall consist of a president, a vice-president, a past president, and a secretary-treasurer, to be elected for a term of one year at the annual general meeting, and a member appointed by the Executive Council of The Alberta Teachers' Association.

Executive Committee. The executive committee shall consist of the officers and one MCATA member from each of the elementary school, the junior high school, the high school, the Faculty of Education, and the Department of Mathematics of the University of Alberta, appointed by the officers.

Committees. The executive may appoint from time to time such committees as are necessary to carry on the work of the council.

Liaison. Any communication regarding policy which this council wishes to make with any organization, government department, or other agency, within or without the province, shall be conducted through the Executive Council of The Alberta Teachers' Association or other regular channels of that Association.

Regional Councils. The executive committee of this council shall encourage the establishment of regional councils and shall have authority to determine regional boundaries and to establish

regulations governing the organization of regional councils, consistent with this constitution.

Reports. The executive committee shall submit annually a written report of its activities to The Alberta Teachers' Association, prior to December 31.

Amendments. After three months' notice of motion to amend the constitution has been given to each member, this constitution may be amended by a two-thirds majority vote of the members present at any annual general meeting of this council, subject to ratification by the Executive Council of The Alberta Teachers' Association.

General Meetings. The Mathematics Council shall hold at least one general meeting a year. At least thirty days' notice shall be given for all general meetings.

#### Mathematics Publications, ATA Library

At the inaugural conference of the Mathematics Council, Dr. J. H. Hlavaty suggested a list of publications that might be useful as background reading on curriculum revision in mathematics. The ATA Library Committee was asked to consider adding these titles to the professional library, and the following is a list of the books which have been acquired -

Selections From Modern Abstract Algebra; Andree, Richard V.; Holt, Rinehart and Winston, New York

The Teaching of Arithmetic; Spitzer, Herbert F.; Houghton Mifflin Co.

New Thinking in School Mathematics, Report of Seminar held by Canadian Teachers' Federation at Ottawa, April 28-30, 1960 (four copies)

The Introduction to the Foundations and Fundamental Concepts of Mathematics; Eves, Howard, and Newson, Carroll V.; Holt, Rinehart and Winston, New York.

"Patterns of Plausible Inference"; Polya, G.; Mathematics and Plausible Reasoning; Princeton University Press, Princeton, New Jersey, 1954, Vol. II.

"Induction and Analogy in Mathematics"; Polya, G.; Mathematics and Plausible Reasoning, Princeton University Press, Princeton, New Jersey, 1954, Vol. I.

The Secondary Mathematics Curriculum, Report of the Secondary School Curriculum Committee, National Council of Teachers of Mathematics, Washington 6, D.C.

New Developments in Secondary Mathematics; California Association of Secondary School Administrators, 1705 Murchison Drive, Burlingame, California.

Studies in Mathematics Education--A Brief Survey of Improved Programs of School Mathematics; Scott, Foresman & Co., 1960.

Adventures in Graphing; Glenn, William H., and Johnson, Donovan A.; Webster Publishing Co., St. Louis, Atlanta, Dallas, Pasadena, 1961.

Program for College Preparatory Mathematics, Report of the Commission on Mathematics; College Entrance Examinations Board, New York, 1959.

Appendices, Report of the Commission on Mathematics; College Entrance Examinations Board, New York, 1959.

Charting the Course in Arithmetic; Hartung, Maurice L.; Van Engen, Henry; Knowles, Lois; Gibb, E. Glenadine; Scott, Foresman & Co.

Sets, Operations and Patterns, Teachers' Supplement, Chapters 1-9.

Instruction in Arithmetic; Twenty-fifth Yearbook; National Council of Teachers of Mathematics, Washington 6, D.C., 1960.

New Thinking in School Mathematics; Organization for European Economic Co-operation, Paris, 1961

Synopses for Modern Secondary School Mathematics; Organization for European Economic Co-operation, Paris, 1961.

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MCATA Executive Meeting, November 4, 1961

At the first executive committee meeting of the MCATA, held at Barnett House, the following items were decided.

- (1) The editorial committee was authorized to publish (a) a full report of the inaugural conference and (b) four newsletters a year.
- (2) The executive committee approved in principle the idea that the MCATA had some responsibility in providing aid to elementary teachers in preparing themselves for mathematics curriculum changes.
- (3) Steps are to be taken to investigate the possibility of holding a special seminar for local resource persons. A decision was reserved until the next executive meeting.
- (4) The date for the next meeting was set for December 29.

Membership in the MCATA

Teachers of mathematics in Alberta are facing a major challenge in the implementation in the next few years of the proposed curriculum changes. The speed with which these changes can take place depends to a great extent on how ready the teachers will be to accept these changes. We believe the MCATA is part of the answer.

Don't delay. Join now. Application for membership in the MCATA may be sent to: Miss Olive Jagoe, 1431 - 26 Street, S.W., Calgary.

Wanted ...

We are scouting around for material that would be of interest to members of the MCATA. If you have some pet idea, some teaching device, some strong convictions about some aspect of mathematics, we would be most pleased to hear from you. We are particularly interested in receiving comments on the present trend toward teaching modern mathematics in school systems. If you are handling an experimental unit, or a set of units, we are sure your comments would be useful to others.

Anything you care to submit will be gratefully received by John M. Cherniwchan, 276 Evergreen Street, Sherwood Park, or Eugene Wasylyk, Box 2, Thorhild.

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