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The NEWSLETTER is a publication of the Canadian Mathematics Education Study Group

Ce BULLETIN est une publication du Groupe canadien d'étude en didactique des mathématiques

*CMESG is a group of mathematicians and mathematics educators who meet annually to discuss mathematics education issues at all levels of learning. The aims of the Study Group are:*

- 1) *to study the theories and practices of the teaching of mathematics*
- 2) *to promote research in mathematics education*
- 3) *to exchange ideas and information about all aspects of mathematics education in Canada*
- 4) *to disseminate the results of its work.*

*Le GCEDM est composé de personnes oeuvrant en mathématiques et en didactique des mathématiques et qui se réunissent une fois par année pour étudier diverses questions relatives à l'enseignement des mathématiques à tous les niveaux. Les buts du Groupe sont les suivants:*

- 1) *susciter une réflexion critique sur la théorie et la pratique de l'enseignement des mathématiques*
- 2) *encourager la recherche en didactique des mathématiques*
- 3) *faciliter l'échange d'idées et d'information sur tous les aspects de l'éducation mathématique au Canada*
- 4) *faire connaître les résultats de ses travaux.*

## PRESIDENT'S MESSAGE DU PRÉSIDENT

Bernard R. Hodgson, Université Laval

Bonjour à tous.

Ceci est mon deuxième — et dernier ! — message à vous à titre de président du GCEDM/CMESG. Je voudrais aborder ici quelques sujets ayant trait à la vie de notre groupe qui ont retenu mon attention récemment. Vous excuserez la longueur inhabituelle de ce billet, mais il s'agit là de questions qui me semblent avoir une grande importance en rapport avec le développement de notre groupe et que je voulais soumettre à votre réflexion avant de quitter la présidence.

### 1. Our new rules for elections

As the chair of the Nomination Committee for the past election, I have received comments from quite a few members of our group, surprised by the fact they had to vote directly for the position of president of CMESG/GCEDM (this having nothing to do with the quality of the candidate). I remind you that in the past, the members of the Executive Committee for a given year were responsible for allocating offices among themselves.

I just want to recall that this new election scheme was adopted at our AGM, last year. The positions of president and treasurer have been identified as of a special nature, in the sense that a person has to accept to run for this specific position (and not simply as a member of the Executive).

The same process will take place with the elections of next Winter, this time for the position of treasurer. It means that the group (ie, ALL the members) has to think about a member who could occupy this position. Not a trivial task, especially considering the fact that the treasurer of CMESG/GCEDM is at the

same time the treasurer of FLM. (This year is Eric's sixth consecutive year on the Exec, so a new treasurer has to be found.)

La position que j'ai adoptée en tant que responsable de la dernière élection a été de jouer un rôle plutôt passif : je n'ai pas cherché à susciter moi-même de candidatures, attendant les suggestions des membres ; je n'ai pas non plus jugé de ma compétence de filtrer les candidatures, même si certaines suggestions ne m'apparaissaient pas toujours opportunes — une personne proposée à la présidence m'a d'ailleurs signalé que le fait que son nom ait été suggéré lui paraissait hautement farfelu, compte tenu de son peu de familiarité avec le groupe !

Je crois que c'est là l'attitude qui convient à un responsable d'élections : c'est à tout le groupe (donc, à TOUS les membres) qu'il revient d'identifier des candidats compétents pour occuper les diverses fonctions ; et ensuite de tenter d'en convaincre d'accepter d'être en nomination. La qualité de notre vie collective en dépend.

Our new election scheme has the quality (or the defect) of putting all of us, as individuals, face to face with our responsibilities regarding the welfare of the group. Needless to say, not all of us need to think all the time of the daily problems of CMESG/GCEDM, but the identification of those who will do that falls directly on the shoulders of all of us. We form a small group (in fact, an excellent small group, but my point now is rather on the "small"), and all of us must feel directly concerned by these matters — at least once a year.

Il n'est pas trop tôt maintenant pour songer à la succession d'Éric en tant que trésorier, l'année prochaine. Qui y voyez-vous ?

## **2. Une question d'équilibre**

Le GCEDM/CMESG a déjà une longue histoire derrière lui (*n'oubliez pas, à cet égard, notre 25e anniversaire qui sera fêté en 2002 à Queen's*). Cette histoire nous montre que comme toute organisation, notre groupe s'est constitué en cherchant un certain équilibre entre divers facteurs.

Nos règles de procédure concernant l'élection du Comité exécutif sont d'ailleurs assez claires à cet égard : le Comité exécutif comprend normalement

- au moins un représentant d'une université francophone et au moins un représentant d'une université anglophone ;
- au moins un représentant d'un département de mathématiques et au moins un représentant d'un département ou d'une faculté des sciences de l'éducation.

Il est aussi d'usage de représenter au sein de l'Exécutif les diverses régions du Canada, et d'atteindre un certain équilibre quant au sexe. (Nos règles stipulent de plus que trois des membres de l'Exécutif doivent provenir de régions géographiques raisonnablement rapprochées l'une de l'autre, règle sans doute un peu désuète compte tenu du fait que la seule réunion de l'Exécutif a lieu lors de la rencontre annuelle et que tout le reste du travail se fait par courriel.)

I believe we have in general been quite successful in maintaining a good equilibrium among all these constraints. For instance, as a mathematician interested by problems of education, I have personally always felt truly comfortable inside the group. I appreciate our tradition that among the two plenary speakers invited at an annual meeting, one is more on the math ed side, and the other more on the math side (although such a distinction is naturally often somewhat blurry). Also it is always the case that at least one of our working groups is devoted to a topic related to advanced mathematics.

I was interested in getting a better idea of our equilibrium related to the three dichotomies : *math — math ed* ; *male — female* ; and *francophone — anglophone*. So I looked up at our membership for 1997 and found the following : among our 95 or so members of last year, there were approximately 30 mathematicians and 65 "didacticians", 55 men and 40 women, and 15 Francophones and 80 Anglophones (I did not dare try to distinguish between CDN Anglophones, UK Anglophones, US Anglophones, ...). (NB : These figures are not totally accurate, as I sometimes lacked precise information — we had in fact 105 members last year —, but I think they convey the correct impression.)

La proportion de mathématiciens par rapport aux didacticiens me semble traduire assez fidèlement la situation qui prévaut dans nos universités quant à la réflexion autour de l'enseignement des mathématiques. Je déplore cependant que peu de nos jeunes membres soient des mathématiciens ; cela s'explique peut-être en partie par les contraintes de promotion auxquelles doivent faire face les mathématiciens en début de carrière, mais pourrait mener à une situation moins satisfaisante à long terme (lorsque les vieux routiers de ma trempe auront pris leur retraite).

Un aspect fort intéressant révélé par les données précédentes est qu'il y a presque autant de femmes que d'hommes dans notre groupe. Voilà un domaine où il y a eu des progrès importants, et il y a tout lieu de s'en réjouir. J'aimerais cependant attirer votre attention sur un autre volet de la dichotomie homme — femme : avez-vous remarqué que toutes les personnes candidates lors de la dernière élection étaient de sexe féminin ? Certains pourront rétorquer : enfin, il était temps que le pendule se déplace. Évidemment, l'équilibre des sexes peut toujours être corrigé lors de la cooptation des deux derniers membres de l'Exécutif ; mais il est quand même frappant qu'aucun candidat de sexe masculin n'était en lice à l'un ou l'autre des postes lors des dernières élections.

There is a final dichotomy I would like to discuss : the linguistic one. Now this is a thorny question, isn't it ? In fact, probably a reflection of the overall situation in Canada. How come we have been so unsuccessful over the years in attracting more Francophones to GCEDM/CMESG ? Having been on the Executive for the last five years (this was my second round, having also been on the Exec in the early 80's), I plead guilty for not having succeeded in attracting to our group more people whose daily work takes place in French. There were some trials, for instance for a francophone working group at the meeting in Halifax in 1996, but for various reasons this did not work.

Right now, it must be said, CMESG/GCEDM offers only a "façade bilinguism". We do have our official announcements appearing both in French and English, but that's about it. Everything then goes on in English, especially all the presentations and discussions at our annual meetings. Is this the only reason why we have not been able to attract more francophone didacticians ? I don't know, but I would like to offer you the following information. There is in Québec a group called the Groupe des didacticiens de la mathématique (GDM) ; this group typically attracts some 30 to 40 participants at its meetings, which take place twice a year. This gives you an idea of the activity going on in Québec, and of the negative impact of our failure to have these people feel at home inside our group.

Let me add another piece of information which might better convey some of the difficulties related to language. A francophone participant at one of our recent annual meetings was telling me, at the end of one day of hard work, how exhausted he felt ("Je me sens complètement vidé"), not because of the hard work per se, but mainly because of the linguistic barrier — he was the one making efforts to be understood, he was the one making efforts to understand what was being said around him.

Maybe some will see the linguistic situation as a fact of life (that is, as I said above, a micro-Canada of its own). Maybe others will see the situation simply as an indication of the evolution of scientific work all over the world — but can't we do better in this country ? I wanted to raise this question here, because I

feel that while we have been quite successful, as a group, in maintaining a good equilibrium with respect to the professional field, and while we have made considerable progress with respect to the gender issue, we have failed to attract on a regular basis a large portion of the francophone didacticians, we have not been able to let them feel this group is for them. We all lose much in this sad situation.

### **3. The CANADIAN Mathematics Education Study Group**

La plupart des membres du GCEDM/CMESG apprécient et vantent le climat qui règne lors de nos rencontres annuelles. Nous formons un groupe relativement petit ; nous pouvons avoir des échanges personnels avec tous ceux qui sont présents lors d'une rencontre ; nous nous retrouvons dans un contexte propice aux discussions et à la réflexion ; nous essayons d'encourager les étudiants de 2e et de 3e cycles à cheminer avec nous ; les participants sont là pour accomplir quelque chose collectivement, et non pas pour présenter leur petit truc et se sauver immédiatement après, comme cela se voit parfois dans d'autres rencontres. Bref, sans se complaire dans l'auto-congratulation, il semble que nos rencontres fonctionnent plutôt bien et qu'il y a lieu d'en préserver l'esprit. Et un aspect relié à cela est le fait que notre groupe n'aspire pas à une vocation internationale tout azimut, mais concentre plutôt son action au Canada. Notre constitution est d'ailleurs explicite à cet égard.

But this does not mean that our group should be closed on itself. Each of our annual meeting has been attended by participants from outside Canada. In fact some of our most faithful "old hands" come from the "Southern Province" of Canada. The question raised is thus : to what extent do we want to "open the door" at our meetings to participants from outside Canada ?

The current Executive Committee had recently to take a position on this matter, considering the fact that the next meeting at UBC seemed to arouse a lot of interest outside Canada. What follows is the content of a letter sent to those non-Canadians inquiring about participation.

#### ***To those who have enquired about participation at CMESG/GCEDM conferences:***

*The Canadian Mathematics Education Group / Groupe canadien d'étude en didactique des mathématiques, was formed to meet two specific Canadian needs. The first was to bring together mathematics educators from Canadian mathematics departments and faculties of education. The second was to develop a common meeting place for those interested in fostering mathematical education in Canada, where education responsibilities are Provincial and therefore tend to be fragmented. For these reasons it is an organisation that takes a somewhat different focus at its meetings from most mathematics education conferences.*

*As the name implies, it is a study group whose major feature at its annual gatherings is the Working Groups. These are groups that meet for a total of at least nine hours during the conference and members commit themselves to one group on the first day with the intention of working at a common issue in depth and detail with the other group members throughout the conference. CMESG/GCEDM is additionally unusual in that the number of individual presentations is very small and these are by invitation only. They usually have a strong emphasis on Canadian research work. There is a session put aside at each meeting for ad hoc presentations that are not advertised in advance, but to which participants at the meeting may contribute. The role of these sessions is to generate ideas and discussion around developing research projects, rather than to present existing research results. This emphasis on the scholarship of Canadians reflects the nature of the CMESG/GCEDM organisation which does not attempt to be an international forum — the conferences held annually by PME and AERA are two alternative events for those interested in participation on an international scene.*

*There are, however, two exceptions to the notion that the participants at the meetings will be largely Canadians: anyone who is visiting a Canadian university at the time of the conference, as part of their sabbatical leave, is always welcomed; and the Executive Committee normally invites, additionally to the membership, two plenary speakers of international repute.*

*While we appreciate your enquiry, we are unable to offer you an invitation to make a presentation at this year's meeting. Nevertheless, should you still be interested in participating, we will be pleased to send you additional information about this meeting.*

*Thank you for your interest.*

#### **THE EXECUTIVE COMMITTEE OF CMESG/GCEDM**

As one member of the Executive expressed it while we were discussing this issue, we have tried this way to avoid CMESG/GCEDM becoming like every other international conference. We have tried to maintain its distinct flavour, which can be seen as "small, intimate and friendly"; a place where we do "real work", thinking on an extended period of time, addressing issues in depth; a place where no one is there to polish their ego by giving presentations, and where graduate students are given opportunities to "dip their toes in the water".

Have we succeeded, through this letter, in conveying the general feeling which would gain consensus among the members of CMESG/GCEDM ? Let us know.

#### **4. Un gros MERCI**

En terminant, je tiens à exprimer mes remerciements à tous ceux avec lesquels j'ai collaboré au sein du Comité exécutif au cours des cinq dernières années, et en particulier durant mon année à la présidence. Et je veux tout spécialement envoyer un très gros merci à un collègue dont l'amitié m'a été et m'est encore si précieuse, Éric Muller. La plupart d'entre vous sont conscients du fait que tout le groupe doit beaucoup à Éric, qui accomplit depuis nombre d'années une tâche vraiment colossale sur l'Exécutif — mais nous aurons sans doute l'occasion de lui rendre hommage à cet égard en temps et lieu. Pour le moment, je veux simplement dire à Éric : *Chapeau ! mon vieux.*

Au revoir,

Bernard



### **OTHER CMESG / GCEDM NEWS**

#### **Site Web Site: Les Recherches en Cours / Current Research**

David Reid and Linda Gattuso are continuing their work on the CMESG Web Site/Site Web GCEDM. Look for an announcement of a revised version sometime this spring.

As part of the Site they are assembling an index of Canadian researchers. Many of you have already provided information about your activities. If you have not, please email David ([dareid@morgan.ucs.mun.ca](mailto:dareid@morgan.ucs.mun.ca)) or Linda ([gattuso.linda@uqam.ca](mailto:gattuso.linda@uqam.ca)) to find out what to send.



## WHAT'S HAPPENING IN MATH EDUCATION

### Au Québec: Camp mathématique/Mathematics Camp

L'Université du Québec à Trois-Rivières (UQTR) sera l'hôte du camp mathématique 98 offert aux vingt-quatre (24) élèves de l'ordre collégial qui ont obtenu les meilleurs résultats lors du Concours mathématique (collégial) organisé par l'Association mathématique du Québec. Le camp se tiendra du 31 mai au 10 juin 98. Le professeur Harry White est le responsable local.

Les objectifs de ces activités sont: de permettre à des élèves doués en mathématiques de rencontrer des mathématiciens professionnels; de les intéresser aux différentes sphères des mathématiques; de les encourager à poursuivre des études avancées en mathématiques, en informatique ou en ingénierie.



The Université du Québec à Trois-Rivières (UQTR) will be the host of the mathematics summer camp offered to the twenty-four (24) students at the college level who obtained the best results in the College Contest of Mathematics administered by the Association mathématique du Québec (AMQ). This camp will be held from May 31 to June 10, 1998. Professor Harry White is the local organizer.

The goals of these activities are: to place students who are talented in mathematics in contact with professional mathematicians; to interest them in the different domains of mathematics; to encourage them to continue advanced studies in mathematics, computer science or engineering.

Pour plus d'information contacter

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### A Spring Update on the Western Canada Consortium

Florence Glanfield  
University of Alberta

Beginning this fall (1998) high schools across Western Canada will begin to implement the Western Canadian Protocol's Common Curriculum Framework for grades 10-12 mathematics. Schools in Manitoba and the NWT will begin implementing both precalculus and applied; schools in Alberta will be implementing the pure stream and some schools will be implementing the applied stream (the applied stream is optional in Alberta for the 1998-99 school year); schools in BC and the Yukon are moving to implement the Western curriculum beginning in 2001; and there is no word yet as to when Saskatchewan will begin to implement.

According to the Western Canadian Protocol, students at the grades 10-12 levels will have a choice between a Precalculus/Pure stream (the name depends on the province you are in) and an Applied stream. Each year (grades 10-12) there is a common set of outcomes that all students study and then each stream has an additional set of outcomes.

For example, in the grade 10 year, all students enrolled in either stream are expected to meet outcomes related to: analyzing numerical data in a table for trends, patterns and interrelationships and applying arithmetic operations on tables to solve problems; explaining and illustrating the structure and interrelationship of the sets of numbers within the real number system; using arithmetic operations on real numbers using decimal approximations; functions and representing data using linear functions; coordinate geometry involving lines and line segments; scale factors and their interrelationship with the dimensions of

similar shapes and objects; solving problems involving two right triangles, the sine law, and the cosine law; and implementing and analyzing sampling procedures and drawing inferences from the data collected.

In addition, students in the grade 10 Precalculus/Pure stream are expected to meet outcomes related to: using exact values, arithmetic operations, and algebraic operations on real numbers to solve problems; generalizing operations on polynomials to include rational expressions; generating and analyzing number patterns related to arithmetic and geometric growth; and making and analyzing decisions using expected gains and losses, based on the probabilities of simple events.

And students in the grade 10 Applied stream are expected to meet outcomes related to: using measuring devices to make estimates; describing and applying arithmetic operations on tables to solve problems, using technology as required; and applying line-fitting and correlation techniques to analyze experimental results.

Although the outcomes are the same in the common areas, the approach to studying the mathematics related to the outcomes is suggested as follows:

Pure/Precalculus outcomes “place more emphasis on precise mathematical theory. The approaches used are primarily algebraic and graphical.” (1996, p. 19, Western Canadian Protocol Common Curriculum Framework for K-12 Mathematics: 10-12)

The Applied outcomes “emphasize applications of mathematics rather than precise mathematical theory. The approaches used are primarily numerical and geometrical.” (1996, p. 19, Western Canadian Protocol Common Curriculum Framework for K-12 Mathematics: 10-12)

In general there is an emphasis on using technology like the graphing calculator, spreadsheets, and geometry software.

What does this mean for teacher education? From my beginning work with teachers at the grades 10-12 level, many feel comfortable with content in the Pure/precalculus stream. There is some wondering about the use of technology within that stream - using spreadsheets and the graphics calculator. It is an area about which teachers would like to learn more.

In the applied stream, there is first of all changes in content. This is not so evident at the grade 10 level, however, at the grades 11 and 12 levels there is work with linear programming, matrix algebra, and fractal geometry, so many of our colleagues are facing mathematical content that they may not have studied in the past. Second, the applied mathematics program again relies heavily on spreadsheets and graphics calculators and on ‘data driven’ lessons. For the applied stream, instructional strategies on ‘data driven’ lessons, the technology, and some content are areas about which teachers would like to learn more.

I am finding that students in preservice education programs have limited experience in working with technology and mathematics. I know that as I consider planning for classes and workshops, I am going to introduce many more experiences around this topic.

Again, if you re interested in more details on the Western Canadian Framework, visit the Alberta Education website: [www.edc.gov.ab.ca](http://www.edc.gov.ab.ca)

### **And Ontario Perspectives: News from Peter Taylor**

Taylorp@post.queensu.ca

As I reported last May, the high school math education scene in Ontario continues to be active and vital. The Field’s Institute Math Education Forum has put in a bid to write (revise, reimagine!) the high school math curriculum, and at the time of writing (mid-March) we are engaged in a lively email debate trying to pin down the details of our vision—a vision around which we have considerable consensus, but the nuts and bolts will challenge us in the end. By the time of the May meeting at UBC we’ll know whether we got the contract. If so, it will be a busy summer. [See Geoff Roulet’s extended commentary below for his view of the process leading to the current state of contract bidding – Ed.]

In connection with this, many of us have been producing (or recycling) high school materials and resources of different kinds, because what seems to exist in most classrooms at the moment does not effectively support our vision. Basically we are looking for models of how a curriculum might be organized around “big ideas” or “rich learning tasks.” In my own work, I have just put out a first draft of a “precalculus” book and I will bring some copies of this to UBC if anyone is interested.

Something else that's worth reporting: we have a Ph.D. degree in education at Queen's now (well it's all but officially official), and we will have our first group of students in September. One of our three streams is "curriculum," and one of our big strengths there is math, science and technology. Spread the news to your best students!

### **Members' Forum: "The Intellectual Meets the Corporate: Ontario's Secondary School Curriculum Development Process"**

Geoffrey Roulet  
Queen's University

Ontario is rapidly moving, perhaps stumbling is more accurate, toward a four-year secondary school program with new curricula in all subjects. Although the original implementation date of September 1998 has been pushed back a year, time lines remain incredibly tight and those of us with careers in education have been struggling to come to grips with the corporate models championed by the Harris government advisors. This report is a brief walk down the curriculum development path, Ontario, style, 1996-98, with opinionated commentary by the tour guide.

In September of 1996 the government announced its intention to make significant changes to the province's high schools with the public release of a discussion paper, Excellence in Education: High School Reform (the Ontario Conservatives are the masters of Orwellian political speech). This document, with its focus on the issues of streaming, course duration, numbers of credits, compulsory courses, work experience, and provincial testing, was the first indication that school structure might be more important than substance. The rather simplistic approach to the identified issues and the check-off format of the response pages certainly encouraged public input, with the Ministry of Education and Training receiving over 28000 responses by the January 1997 deadline. Lost in the rush to respond to the reform proposals was a second Ministry release, Curriculum for Ontario Schools. Here was some indication that what is taught might be important, but still the Ministry's definition of curriculum as "the plan for student learning which is implemented in schools" had a definite mechanistic ring.

Those in the Ministry of Education and Training with an intellectual orientation managed to exert some influence late in 1996 and a call went out for the writing of curriculum discussion papers that would serve as "a review of the literature relevant to the subject, indicating the key issues, the range of current opinion on the subject and best practices in Ontario and other jurisdictions." These background research papers, including Mathematics Curriculum for Ontario Secondary Schools: Issues, Choices and Opinions (Roulet, 1997; available at <http://edu-ss10.educ.queensu.ca/~rouletg/WEG-PPR.htm#top>) were released in March of 1997, with the Ministry encouraging debate of the issues raised and further reading of the materials indicated in the extensive bibliographies.

The curriculum development process moved along in March, 1997 with the appointment of Expert Panels for each subject area to study the issues raised in the background papers, solicit opinion from subject associations and write Directions Papers, recommending key directions to be taken in the development of subject Guidelines. Expert Panels consisted of eight members, four from education (secondary school, college, university) and four to represent the "public". Fears that the government would select the public representatives from their allies in the various "back to the basics" movements did not materialize and for mathematics the educators received valuable advice and support from an engineer, accountant, nurse, and leader in the electrical trades. Despite a rather restrictive set of questions to be addressed and report format mandated by the Ministry, the 1997 Expert Panel for Mathematics was able to put together a paper that found considerable favour with Ontario's mathematics education associations.

Unfortunately since the writing of the Expert Panels' Directions Papers, the curriculum development process has swung back to following corporate models that reflect the present government's love affair with private enterprise. A committee selected by the Ministry of Education and Training read through the Expert Panels' reports and produced a "synthesis of the recommendations" in Key Directions in Secondary Curriculum Development. In my reading of this document I can find little of the original mathematics proposals and comments from those working in other disciplines suggest that this regression to the norm has lost much that is unique to each subject. Efficiency is emphasized with a recommendation that "the new curriculum must eliminate unnecessary repetition and overlap by identifying which specific disciplines are responsible for delivering core knowledge and skills." Recently this focus on school structure has continued with the Ministry presenting various "course menus" to reaction panels selected from the professional organizations and public. We appear to be working with an image of knowledge as a consumer item that can be chopped up and packaged for delivery in discrete courses over a four-year period, a type of assembly line production of graduates.

For the actual development of subject guidelines the government has fully embraced the free enterprise model. In January of this year Requests for Proposals were released through the government's regular competitive bidding system. This call set out in detail the composition of acceptable writing teams, "specifications of deliverables", schedules, and payment schemes. Again there is an image of generic structure for knowledge, one that applies to all disciplines. The organization of all guidelines is set out in terms of strands, expectations and sub-organizers.

Educators spent a month learning a new corporate vocabulary as they developed proposals for the closing date of February 25. For mathematics a team involving representatives from the Ontario Association for Mathematics Education (OAME), Ontario Mathematics Coordinators Association (OMCA), Ontario Colleges Mathematics Association (OCMA), faculties of education and university mathematics departments working under the banner of the Fields Institute for Research in Mathematical Sciences submitted a bid and we are now awaiting the Ministry's decision, scheduled for late April.

In the Ministry's schedule, writing teams awarded contracts will deliver their guidelines by the end of November, 1998, and if acceptable, these or the Ministry's revisions of them will be released in the new year. This leaves a maximum of 8 months (6 school months) for boards, schools, teachers and interested professional groups to produce the next level documents, Course Profiles. With their apparent image of curriculum development as essentially a task of identifying subject content and dividing this up to fit into a set number of slots, time is not a problem for the present Ontario government.



## UPCOMING PROFESSIONAL MEETINGS

### GDM '98

The annual Colloque of the Groupe de Didactique des Mathématiques du Québec will be held this year at the Concordia University in Montréal, May 25-26. The theme of the Colloque is:

INFORMATIQUE et L'ENSEIGNEMENT des MATHÉMATIQUES  
LE POINT DE VUE DE LA DIDACTIQUE

The guest speaker of the conference will be

NICOLAS BALACHEFF  
Grenoble, France.

There will be ten 40 minute presentations on the utilisation of technologies of information and communication in the teaching of specific mathematical subjects, and two working groups on the use of these technologies in teacher training at the primary and secondary levels. A panel discussion will close the conference.

More information and the program of the conference can be obtained from

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## PME-NA XX '98

You are invited to participate in the Twentieth Annual Conference of the North American Chapter of the International Group for the Psychology of Mathematics Education, to be held in Raleigh, North Carolina and sponsored by the Center for Research in Mathematics and Science Education, College of Education and Psychology, North Carolina State University. The Conference dates are October 31 to November 3. The richness and power of students' mathematical ideas will provide the scholarly focus for the conference. For more information and further announcements, visit the PME-NA XX Website at <http://www.ncsu.edu/pmena98/>.

Doug McDougall  
PME-NA XX Program Committee

### **ICMI Study: On the Teaching and Learning of Mathematics at University Level.**

The International Commission on Mathematical Instruction (ICMI), an official commission of the IMU, has recently released a Discussion Document (ICMI Bulletin 43) relating to the above Study. As part of the Study there is to be a conference in Singapore from December 8<sup>th</sup>-12<sup>th</sup> this year, and the Discussion Document invites submissions from people who might be interested in attending that conference.

As a result of the changing world scene, ICMI feels that there is a need to examine both the content and future of the teaching and learning of mathematics at university level. The primary aim of this study is therefore to pave the way for improvements in this area for all students.

In order to achieve this aim the study will attempt to

- identify, review, encourage and disseminate, research in educational matters at the tertiary level;
- identify and describe major approaches to tertiary mathematics teaching within different cultures and traditions;
- identify obstacles which might prevent the learning of mathematics;
- discuss equity and other issues relating to mathematics education at university level;
- discuss the goals of teaching mathematics to a range of students with different backgrounds and needs, and discuss who should be responsible for that teaching;
- find ways to meet changing needs without compromising the integrity of the subject;
- identify, publicise, and expose to scrutiny, new teaching methods and the positive use of technology;
- discuss the transition and the relations between secondary school and university;
- consider ways to improve the preparation of teachers of mathematics at university level.

The work of this Study will take place in two parts. The first consists of a conference which is to be held in Singapore from December 8<sup>th</sup> to 12<sup>th</sup>, 1998. English will be the language of the conference. The conference will be a working one where every participant will be expected to be active. Current planning is for a limited attendance of about 75 persons.

Given the style of the conference we anticipate a variety of types of contributions that will be presented in plenary sessions, working groups, panels and short presentations. Presentations may include position papers, discussion papers, surveys of relevant areas, reports of projects, or research papers of an educational nature.

We invite you to make a submission for consideration by the International Programme Committee no later than 1 May 1998. Submissions should be up to three pages in length and may be e-mailed, faxed or sent as hard copy. They should be related to the problems and issues identified in this document but need not be limited to these alone. You might also draw to the attention of the Committee, the names of other people whom you feel ought to be invited, stating the type of contribution they might make. We would appreciate knowing the nature and results of related studies in this area.

Participation in the conference is by invitation only. Invitations to those whose submissions have been accepted will be made in July 1998. At the same time invitees will be asked to produce a longer version of their submission for publication in the pre-conference proceedings. The Study organisers are seeking funds to provide partial support to enable participants from non-affluent countries to attend the conference but it is unlikely that full support will be available for any one individual.

The second part of the Study is a publication which will appear in the ICMI Study Series. This publication will be based both on the contributions requested above and the outcomes of the conference working

group and panel deliberations. The exact format of the publication has not yet been decided but is expected to be an edited, coherent book which it is hoped will be a standard reference in this field for some time.

The Discussion Document, and information relating to the conference, can be found on the ICMI website, on [www.nie.ac.sg:800/~wwwmath/](http://www.nie.ac.sg:800/~wwwmath/) and on <http://emmy.otago.ac.nz:800/Maths.html>.

All contributions, suggestions, and enquiries concerning the Study should be sent to Joel Hillel, the Canadian representative on the International Programme Committee of this study, or to:

Derek HOLTON, Chair, IPC, ICMI Study,  
Department of Mathematics and Statistics  
University of Otago  
P.O. Box 56  
Dunedin  
New Zealand  
e-mail: [dholton@maths.otago.ac.nz](mailto:dholton@maths.otago.ac.nz)  
fax: (+64-3) 479 8427

### ... More Conferences: 1998

CMS, June 13-15 /SMC, du 13 au 15 juin, UNB, St. John  
SCEE du 28 au 31 mai, Université d'Ottawa /CSSE, May  
28-31, University of Ottawa

**International Conference on the Teaching of  
Mathematics**, July 3-6, Samos, Greece

**International Congress of Mathematicians**, Berlin,  
Germany, August 18-27, (Website:  
<http://elib.zib.de/icm98>)

**ICMI Study Conference: on "The role of the history of  
mathematics in the teaching and learning of  
mathematics"**. April 20-25, Luminy, France. (By invitation  
only. For more information, contact Bernard Hodgson.)

**Mathematics Education and Society: An International  
Conference**, Sept. 7-10, University of Nottingham  
**PME 22**, July 12-17. University of Stellenbosch, South  
Africa



## CMESG/GCEDM Business

### Minutes of CMESG/GCEDM Annual General Meeting Held at Lakehead University, May 25, 1997

Eric Muller, Secretary/Treasurer  
Brock University

The meeting opened at 16:00 hours with 47 members present and with Sandy Dawson in the Chair.

1. The Agenda was approved on a motion by David Reid, and seconded by Medhat Rahim.
2. Sandy Dawson brought greetings from David Wheeler. He thanked Medhat Rahim and the Local Organizing Committee for all the work they had done to prepare the various local arrangements and the extensive social programme. He thanked members of the 1996/1997 Executive who had achieved so much in one year. The work preparing the transfer of FLM to CMESG/GCEDM auspices had taken much time and effort, especially by Eric Muller who had undertaken this over and above his regular duties on the Executive. He indicated that members were seeing the Executive as they directed various sessions. He hoped that in this way members would have an increased opportunity to interact with members of the Executive.
3. The Minutes of the 1996 AGM were approved on a motion by Doug Franks, seconded Carolyn Kieran with a note that Tom Kieren's and Carolyn Kieran's names had been misspelled.
4. Business arising from the minutes

- a. Sandy reported on and thanked members of the FLM Editor Search Committee consisting of Tom Kieren (Chair), David Wheeler, and Gila Hanna. He introduced the new Editor David Pimm from the Open University and indicated that the FLM Board of Directors had signed a contract with David Pimm that terminates December 31, 2000.
  - b. Eric Muller reported on the transfer of the FLM "home" from Simon Fraser University, where Sandy Dawson had done so much, to Queen's University. He reported on the enthusiasm shown by Rena Uptis (Dean of Education), Bill Higginson and Geoff Roulet. A contract has been agreed to between the two parties, the FLM Board of Directors and the Faculty of Education at Queen's, the former having signed it at its Annual Meeting the day before. The contract was on its way to Queen's for signature. Eric outlined the main points of the contract for the information of the membership pointing out that the length of term of the contract was equal to that for the new Editor. Eric suggested that CMESG/GCEDM should be delighted, as he was, with FLM finding a Canadian University home.
5. The Financial statement was approved on a motion by Eric Muller, seconded by Carolyn Kieran. The following items were highlighted:  
 Mary Crowley, Yvonne Pothier and the local organizing Committee at Mount St. Vincent University did a tremendous job last year. They had covered, within the accommodation fees, some administrative costs of the programme.  
 Yvonne also negotiated great prices for the production of the proceedings. She is to be complimented on the quality of the finished product and for having them ready for distribution at this meeting. In order for this to happen again, for the Proceedings of this meeting, Eric emphasized the importance of meeting the time line set out in the guidelines that have been circulated to presenters.  
 A further help to CMESG/GCEDM was that David Reid said that Memorial University was able to absorb the costs of the Newsletter. The Group benefits from contributions by many Universities and Departments.  
 Unfortunately we were not successful in an SSHRC bid. Nevertheless Eric very much appreciated the input of Claude Gaulin, Carolyn Kieran, Tom Kieren and Bill Higginson in preparing the grant application.
  6. A number of motions dealing with the formation of an FLM Board of Directors were recommended by the Executive, moved by Eric Muller, seconded by Bernard Hodgson (please refer to the 1997 Spring Newsletter where they were printed in full).  
 All motions were approved without amendments.  
 Sandy Dawson requested that members consider standing for the FLM Board of Directors or speaking to individuals who they think would make contributions to the development of this Journal.  
 Geoff Roulet underlined the difference between the Editorial Board and the FLM Board of Directors. The former would be working with the Editor on the content of the Journal while the latter would deal with its administration.
  7. A number of Constitutional Amendments were recommended by the Executive and were moved by Lesley Lee, seconded by Susan Stuart (the amendments approved at the meeting have been inserted in the copies of the Constitution included in this Newsletter)  
 An amendment to Article 5 sentence 2 was moved by Bernard Hodgson, seconded by Susan Pirie that at the end of it the following be added "among the elected members one shall be designated as Vice President."  
 First the amendment was passed and then the amended motion.  
 All other recommendations were passed without amendments.
  8. Reports from publications editors
    - a. Proceedings - Yvonne Pothier  
 Yvonne underlined the fact that articles for the Proceedings should be submitted by August 30th 1997 and that both hard copy and a diskette using WordPerfect 5.1 or 6.1 were requested.
    - b. Newsletter and Web - David Reid  
 David volunteered to put the updated "Current Research on the Teaching and Learning of Mathematics in Canada" report on the Web. He will be contacting members through the List Serve for an update to the information included in the volume issued at ICME 7.
  9. Report of Local organizer - Medhat Rahim  
 Reported on the extensive preparations undertaken at Lakehead to ensure that the meeting would be a success. He received an extended round of applause.

10. Sandy Dawson introduced the new Executive  
 President - Bernard Hodgson  
 Treasurer - Eric Muller  
 Conference coordinators - Susan Pirie, Mary Crowley  
 Co-Secretary and Membership Secretary - Lesley Lee, Elaine Simmt
11. Future Meeting dates and locations - Bernard Hodgson  
 1998 May 29- June 2 in UBC  
 There is a possibility that 1999 will be in Montreal  
 The Executive will be searching for volunteers for 2000 and 2001  
 2002 in Kingston
12. Other business - Bernard Hodgson  
 ICMI report - Is the time ripe to establish a Canadian Committee for ICMI?  
 As there are no funds if such a committee were formed it would have to work by e-mail.  
 No one had information on when the ICME 8 Proceedings would appear.  
 Year 2000 - World mathematical year. CMS has created a committee to develop activities for that  
 year, anyone that has some suggestions as to what the mathematical community should be doing,  
 should contact Bernard.  
 Two new ICMI studies have been announced:
  1. role of history in teaching Marseilles April 1998;
  2. teaching of mathematics at the University level 8-12 December 1998.

There will be an IFIP meeting on new technologies and the teaching of mathematics in October 1997 in France. See Bernard for more information.

Bernard thanked Sandy Dawson for all the contributions he had made to CMESG/GCEDM as President of the organization and presented him with a token of the membership's appreciation.

The meeting closed at 18:00 hours.

### **Compte rendu de la 21e Assemblée générale annuelle du GCEDM/CMESG tenue à l'Université Lakehead le 25 mai 1997**

Eric Muller, Secrétaire/Trésorier  
 Brock University

L'Assemblée débute à 16 h 00 sous la présidence de Sandy Dawson. 47 membres sont présents.

1. L'ordre du jour est adopté sur proposition de David Reid appuyée par Medhat Rahim.
2. Sandy Dawson transmet les salutations de David Wheeler. Il remercie Medhat Rahim et le Comité d'organisation locale pour le travail accompli afin de mettre en place les arrangements locaux ainsi qu'un programme social considérable. Il remercie également les membres du Comité exécutif 1996/97 pour le travail important réalisé au cours de l'année. La préparation du transfert de FLM sous les auspices du GCEDM/CMESG a exigé beaucoup de temps et d'efforts, en particulier de la part d'Eric Muller qui avait accepté cette responsabilité en plus de ses tâches usuelles sur l'Exécutif. Sandy souligne que les participants à la rencontre pourront voir les membres de l'Exécutif à l'oeuvre à titre de responsables de diverses séances. Il espère qu'ainsi les participants pourront facilement être en contact avec les membres de l'Exécutif.
3. Le compte rendu de l'Assemblée générale de 1996 est accepté sur proposition de Doug Franks appuyée par Carolyn Kieran. On fait observer que les noms de Tom Kieran et de Carolyn Kieran sont garnis de coquilles.
4. Affaires découlant du compte rendu
  - a. Sandy fait état des travaux du comité responsable de la recherche d'un éditeur pour FLM et remercie les membres de ce comité, Tom Kieran (président), David Wheeler et Gila Hanna. Il présente le nouvel éditeur de FLM, David Pimm de l'Open University, en indiquant que le Conseil d'administration de FLM a signé avec David Pimm un contrat se terminant le 31 décembre 2000.
  - b. Éric Muller indique que le "domicile" de FLM a été transféré de l'Université Simon Fraser, où Sandy Dawson a tant accompli pour le journal, à l'Université Queen's. Il fait état de

l'enthousiasme montré par Rena Upitis, doyenne de la Faculté d'éducation, Bill Higginson et Geoff Roulet. Il y a entente de contrat entre le Conseil d'administration de FLM et la Faculté d'éducation de Queen's. Les membres du Conseil ont apposé leur signature au contrat lors de la rencontre annuelle tenue la veille, et celui-ci sera acheminé sous peu à Queen's pour signature. Eric fait ressortir les principaux points du contrat pour le bénéfice des membres, en indiquant que la durée du contrat coïncide avec le mandat du nouvel éditeur. Eric mentionne que le GCEDM/CMESG devrait être satisfait, tout autant que lui, du fait que FLM reste dans une université canadienne.

5. La rapport financier est approuvé sous proposition d'Éric Muller appuyée par Carolyn Kieran. On fait ressortir les points suivants.  
Mary Crowley, Yvonne Pothier et les membres du Comité local d'organisation de l'Université Mount St. Vincent ont accompli une tâche remarquable l'année précédente. Ils ont pu couvrir, à même les frais de logement, certains des coûts administratifs du programme. Yvonne a également pu négocier d'excellents tarifs pour la production des Actes. Il convient de la féliciter pour la qualité du produit fini et pour avoir fait en sorte que les Actes puissent être distribués lors de la présente rencontre. Eric insiste sur l'importance, pour que cela puisse se répéter avec les Actes de cette année, de respecter l'échéancier remis aux conférenciers et responsables de groupes.  
Le GCEDM/CMESG reçoit également le support de plusieurs départements ou universités. Par exemple, David Reid a pu obtenir que l'Université Memorial prenne à sa charge les coûts de production du Bulletin. Malheureusement la demande de subvention présentée au CRSH a de nouveau été refusée cette année. Eric tient à remercier néanmoins Claude Gaulin, Carolyn Kieran, Tom Kieren et Bill Higginson pour l'aide apportée dans la préparation de la demande.
6. Diverses propositions ayant trait à la formation d'un Conseil d'administration de FLM sont acheminées par l'Exécutif, elles sont présentées par Éric Muller et appuyées par Bernard Hodgson (on trouvera ces propositions dans le Bulletin du printemps 1997).  
Les propositions sont toutes adoptées sans amendements.  
Sandy Dawson demande aux membres présents d'envisager de se présenter lors de l'élection à venir au Conseil d'administration de FLM, ou de parler à des personnes qui selon eux pourraient contribuer au développement du journal.  
Geoff Roulet insiste sur la différence entre le Comité éditorial de FLM et le Conseil d'administration: le Comité éditorial travaille avec l'éditeur sur le contenu, tandis que le Conseil est responsable de la gestion administrative du journal.
7. Divers amendements aux statuts sont acheminés par l'Exécutif. Ils sont proposés par Lesley Lee et appuyés par Susan Stuart (les amendements approuvés lors de la réunion sont intégrés à la nouvelle version de la Constitution incluse dans le présent Bulletin). L'amendement suivant à l'article 5 est présenté par Bernard Hodgson et appuyé par Susan Pirie: après la 2<sup>e</sup> phrase, ajouter les mots "L'une des quatre personnes élues porte le titre de vice-président-e." L'amendement est adopté, et ensuite la proposition emendée est adoptée. Toutes les autres propositions sont adoptées sans amendements.
8. Rapports des éditeurs des publications
  - a. Actes – Yvonne Pothier  
Yvonne insiste sur le fait que les textes pour les Actes doivent lui être remis au plus tard le 30 août 1997; on doit lui faire parvenir à la fois une copie sur papier et une disquette avec un fichier WordPerfect 5.1 ou 6.1
  - b. Bulletin et inforoute – David Reid  
David s'est porté volontaire pour rendre accessible sur le réseau électronique une version révisée du document "Les recherche en cours sur l'apprentissage et l'enseignement des mathématiques au Canada". Il entrera en contact avec les membres par l'intermédiaire du babillard du GCEDM/CMESG afin de mettre à jour l'information contenue dans le volume publié à l'occasion d'ICME-7.
9. Rapport de l'organisateur local – Medhat Rahim  
Medhat fait état des préparatifs intenses entrepris à Lakehead afin d'assurer le succès de la rencontre. Il reçoit une salve d'applaudissements.
10. Sandy Dawson fait la présentation du nouvel exécutif.  
Président – Bernard Hodgson  
Trésorier – Eric Muller  
Coordonnatrices des rencontres – Mary Crowley et Susan Pirie  
Co-secrétaire et secrétaire à l'adhésion – Lesley Lee et Elaine Simmt

11. Rencontres futures - Bernard Hodgson  
29 mai au 2 juin 1998 – UBC  
1999: peut-être Montréal  
On recherche des volontaires pour 2000 et 2001  
2002 – Kingston

12. Divers – Bernard Hodgson

Rapport sur la CIEM

Le moment est-il propice en vue de la création d'un Comité canadien pour la CIEM? Comme il n'y a pas de fonds disponibles, un tel comité, si constitué, devrait travailler par courriel.

Aucune information n'est disponible quant à la date de publication des Actes d'ICME-8.

L'année mondiale des mathématiques 2000 – La Société mathématique du Canada a créé un comité devant planifier des activités en vue de cette année. Toute personne ayant des suggestions à faire à cet effet est priée d'entrer en contact avec Bernard.

On a fait l'annonce de deux nouvelles Études de la CIEM:

- le rôle de l'histoire dans l'enseignement des mathématiques, Marseille, avril 1998;
- l'enseignement des mathématiques à l'université, Singapour, 8 au 12 décembre 1998.

Il y aura une rencontre de l'IFIP sur les NTIC et l'enseignement des mathématiques en France en octobre 1997. Voir Bernard pour plus de renseignements.

Bernard remercie Sandy Dawson pour tout ce qu'il a apporté au GCEDM/CMESG en tant que président et lui remet un gage d'appréciation de la part des membres.

La rencontre est levée à 18 h 00.



*The GCEDM/CMESG Constitution, revised in 1997, is printed below in French and in English.*

**Group canadien d'étude en didactique des mathématiques/Canadian Mathematics Education Study Group**

**STATUTS**

(Adoptés lors de l'Assemblée générale de 1980 et amendés lors des Assemblées générales de 1983, de 1992 et de 1997).

Article 1

Le nom de l'organisme est le Groupe canadien d'étude en didactique des mathématiques (Canadian Mathematics Education Study Group).

Article 2

Les buts du Groupe d'étude sont (i) de susciter une réflexion critique sur la théorie et la pratique de l'enseignement des mathématiques; (ii) d'encourager la recherche en didactique des mathématiques; (iii) de faciliter l'échange d'idées et d'informations sur tous les aspects de la didactique des mathématiques au Canada; et (iv) de faire connaître les résultats de ses travaux.

Article 3

Les mathématiciens et didacticiens des mathématiques du Canada acceptant les buts d'écrits à l'article 2 peuvent adhérer au Groupe d'étude. Les membres doivent payer la cotisation telle que fixée par le Groupe d'étude.

Article 4

Le Groupe d'étude se réunit en assemblée générale une fois l'an. Le quorum est de dix membres en règle. Les propositions sont adoptées à la majorité simple, à l'exception de celles concernant les statuts.

Article 5

Le Comité exécutif du Groupe d'étude comprend quatre personnes en titre, ainsi que deux "membres adjoints". Les personnes en titre consistent en un-e président-e, un-e trésorier-ère, un-e secrétaire et un-e coordonnateur-trice des rencontres annuelles; elles ne doivent pas toutes résider dans la même province.

Le-la trésorier-ère du GCEDM/CMESG est également trésorier-ère du Conseil d'administration de FLM. L'une des quatre personnes élues porte le titre de vice-président-e. Le Groupe doit établir une procédure d'élection garantissant que la composition de l'Exécutif soit conforme avec les buts et le caractère national du Groupe, et régissant le mode de désignation des membres de l'Exécutif.

#### Article 6

Une assemblée générale spéciale peut être convoquée à la demande de vingt membres en règle. Le délai de convocation est d'un mois.

#### Article 7

Les statuts peuvent être amendés, lors de la réunion générale annuelle, par une proposition ralliant une majorité des deux tiers. Le secrétaire doit recevoir un avis de motion au moins un mois avant la date de la réunion.

## RÈGLEMENTS

### Article 3 des statuts

1. Est membre du Groupe d'étude toute personne (a) occupant ou ayant occupé un poste en mathématiques ou en didactique des mathématiques au Canada, et (b) ayant payé la cotisation annuelle.

La cotisation couvre une période de douze mois commençant le 1er janvier et se terminant le 31 décembre.

L'adhésion au Groupe d'étude devient périmée après douze mois mais peut être renouvelée en tout temps par le paiement de la cotisation.

## PROCÉDURES D'ÉLECTION DU COMITÉ EXÉCUTIF DU GROUPE CANADIEN D'ÉTUDE EN DIDACTIQUE DES MATHÉMATIQUES

### 1. Composition du Comité EXÉCUTIF

- 1.1 L'Exécutif se compose de six personnes, dont quatre élues par les membres du Groupe et deux cooptées par les quatre personnes déjà élues.
- 1.2 Normalement, l'Exécutif comprend au moins un représentant d'une université francophone et au moins un représentant d'une université anglophone.
- 1.3 Normalement, l'Exécutif comprend au moins un représentant d'un département de mathématiques et au moins un représentant d'un département ou d'une faculté des sciences de l'éducation.
- 1.4 Normalement, au moins trois membres de l'Exécutif proviennent de régions géographiques raisonnablement rapprochées l'une de l'autre.
- 1.5 La durée du mandat des membres élus est de deux ans et celle des membres cooptés est d'un an.
- 1.6 Une même personne ne peut faire partie de l'Exécutif durant plus de six années consécutives.
- 1.7 Les fonctions de président-e et de trésorier-ère font l'objet d'élections. Les fonctions de secrétaire et de coordonnateur-trice des rencontres annuelles sont réparties par l'Exécutif parmi les quatre autres membres. Les membres sans titre sont appelés "membre adjoints".

### 2. Procédure de mise en candidature

- 2.1 Le Comité de mise en candidature est formé de deux personnes.
- 2.2 Le Comité de mise en candidature comprend au moins un membre sortant (ou ancien) de l'Exécutif qui n'est pas candidat pour l'élection, ainsi qu'un autre membre nommé par l'Exécutif.
- 2.3 Le Comité de mise en candidature a principalement pour tâches: (i) de solliciter des mises en candidature à l'Exécutif ainsi qu'au Conseil d'administration de FLM, à la lumière des principes

énoncés en 1.2, 1.3 et 1.4 sur la composition du Comité exécutif, de la Section 3 décrivant la procédure de sélection des membres du Conseil d'administration de FLM, ainsi que de tout autre principe (par exemple la continuité) que l'Assemblée générale lui demande de respecter; (ii) de s'assurer que toutes les mises en candidature sont en règle et qu'elles ont reçu l'assentiment des personnes proposées; (iii) de dresser une liste de toutes les mises en candidature en règle reçues et de la transmettre à l'Exécutif.

- 2.4 Lors de l'envoi du Bulletin de l'automne, les membres du Groupe sont normalement invités à soumettre au Comité de mise en candidature des propositions en vue de combler, pour l'Assemblée générale annuelle suivante, tout poste vacant à l'Exécutif ou au Conseil d'administration de FLM.
3. Procédure d'élection du Comité exécutif
- 3.1 Il y a élections pour les postes de président-e et de trésorier-ère une année sur deux, à tour de rôle. Le Comité de mise en candidature doit susciter des mises en candidatures au poste de président-e les années paires, et au poste de trésorier-ère les années impaires. Dès leur élection, le-la président-e et le-la trésorier-ère deviennent automatiquement membres du Conseil d'administration de FLM.
- 3.2 L'Exécutif fait l'envoi des bulletins de vote normalement avec l'annonce de l'Assemblée générale annuelle, et dans tous les cas au plus tard le 1er mars de l'année de l'Assemblée.
- 3.3 Les membres du Groupe doivent faire parvenir leur bulletin de vote par courrier au président du Comité de mise en candidature au plus tard le 31 mars de l'année de l'Assemblée.
- 3.4 En cas d'égalité, l'Exécutif, en consultation avec les candidats en cause, détermine une procédure pour briser l'égalité.
- 3.5 Si un membre élu du Comité exécutif démissionne avant la fin de son mandat, l'Exécutif peut, à sa discrétion, nommer quelqu'un pour le remplacer jusqu'à ce qu'une élection puisse avoir lieu.

## **Canadian Mathematics Education Study Group/Group canadien d'étude en didactique des mathématiques**

### **CONSTITUTION**

(Adopted at the 1980 Annual Meeting and amended at the 1983, 1992 and 1997 Annual Meetings)

#### Article 1

The name of the organisation shall be the Canadian Mathematics Education Study Group (Groupe canadien d'étude en didactique des mathématiques).

#### Article 2

The aims of the Study Group shall be: (i) to study the theories and practices of the teaching of mathematics; (ii) to promote research in mathematics education; (iii) to exchange ideas and information about all aspects of mathematics education in Canada; and (iv) to disseminate the results of its work.

#### Article 3

Membership of the Study Group shall be open to mathematicians and mathematics educators in Canada who accept the aims set forth in Article 2. Members shall be required to pay such dues as are set by the Study Group.

#### Article 4

There shall be an Annual General Meeting of the Study Group in each calendar year. Ten members in good standing shall constitute a quorum. All business at a general meeting, with the exception of matters concerning the Constitution, shall be decided by a simple majority vote.

#### Article 5

The Executive Committee of the Study Group shall consist of four officers and two members-at-large. The officers shall be a president, a treasurer, a secretary, and an annual conference coordinator. Not all the officers shall be resident in the same province. The treasurer of CMESG/GCEDM will also be treasurer of the Board of FLM. Among the elected members one shall be designated as Vice President. The Study Group shall establish election procedures to ensure that the composition of the Executive is in accord with the aims and national character of the Study Group, and to govern the appointment of the members of the Executive.

### Article 6

Special general meetings shall be called at the petition of twenty members in good standing. At least one month's notice shall be given.

### Article 7

The Constitution may be amended by resolution passed by a two-thirds majority at an Annual General Meeting. Notice of an amending resolution shall reach the secretary at least one month before the date of the meeting.

## GUIDELINES

### On Article 3

1. To be called a "member of the Study Group" a person must (a) be a present or past holder of a position in mathematics or mathematics education in Canada, and (b) have paid the required annual dues.

Membership will be regarded as running from January 1st to the following December 31st.

Membership will automatically lapse after twelve months but may be reinstated at any time by payment of the required dues

## PROCEDURES GOVERNING THE ELECTION OF THE EXECUTIVE COMMITTEE OF THE CANADIAN MATHEMATICS EDUCATION STUDY GROUP

### 1. Composition of the Executive Committee

- 1.1 The Executive shall consist of six persons, four to be elected by members of the Study Group and two to be coopted by the four elected persons.
- 1.2 Normally, there shall be at least one representative from a francophone university and at least one representative from an anglophone university.
- 1.3 Normally, there shall be at least one representative from a mathematics department and at least one representative from an education department or faculty.
- 1.4 Normally, at least three members shall be in reasonably close geographical proximity to each other.
- 1.5 The elected positions on the Executive shall be for a two-year term and the coopted positions for a one-year term.
- 1.6 An individual shall not serve more than six consecutive years on the Executive Committee.
- 1.7 The position of President and Treasurer of CMESG/GCEDM shall be elected positions. The positions of secretary and annual conference coordinator shall be allocated by the Executive among its remaining 4 members. Members without office shall be termed "members-at-large".

### 2. Nominating procedures

- 2.1 There shall be a Nominations Committee consisting of two persons. Positions will normally be for a two-year term.
- 2.2 Members of the Nominations Committee shall consist of at least one outgoing (or past) member of the Executive who is not seeking re-election, and another member appointed by the Executive.
- 2.3 The main functions of the Nomination Committee shall be (i) to solicit nominations for the Executive Committee and the Board of Directors of FLM, keeping in view the principles enunciated in 1.2, 1.3, and 1.4 of the Composition of the Executive Committee and Section 3 of the Responsibilities and Selection of the FLM Board of Directors, and any other principles (e.g. continuity) it may be instructed to observe by an Annual General Meeting, (ii) to ensure that all

nominations are in order and have received the assent of the nominees, and (iii) to compile a list of all valid nominations received and forward it to the Executive Committee.

- 2.4 Members of the Study Group will normally be invited at the time of the fall Newsletter to submit to the Nominations Committee nominations for any vacancies on the Executive Committee and the FLM Board of Directors that must be filled at the forthcoming Annual General Meeting.
3. Procedures for the election of the Executive Committee
  - 3.1 The positions of President and Treasurer are to be elected in alternate years. The Nominations Committee will seek suitable candidates for the position of President in even numbered years, and for Treasurer in odd numbered years. Upon election, the President and Treasurer of CMESG/GCEDM automatically become members of the FLM Board of Directors.
  - 3.2 The Executive will normally distribute voting forms with the Announcement of the Annual General Meeting, and in any case not later than March 1st of the year of the meeting.
  - 3.3 Members of the Study Group must mail their completed voting forms to the Chair of Nominations Committee not later than March 31st of the year of the meeting.
  - 3.4 In the event of a tie, the Executive, in consultation with the individuals who have tied, will develop a procedure for breaking the tie.
  - 3.5 If any elected member of the Executive Committee should resign before completing the regular term of office, the Committee may, at its discretion, appoint someone to fill the vacancy until the earliest time when an election for a replacement can be held.



**Hope to see you in Vancouver! - Doug**

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The members of the executive extend an invitation to you to contact us about any item of interest. If you have something you want to suggest, if you have a concern you wish to raise, if you want more information, etc., please let one of us know. In order to be of service to the membership, we need to be aware of what your interests are.

Les membres du Comité exécutif vous invitent à leur faire part de votre point de vue concernant n'importe quel aspect de la vie du GCEDM. Que ce soit pour transmettre suggestions ou commentaires, ou encore pour être mieux informé, n'hésitez pas à entrer en contact avec l'un d'entre nous. En nous faisant connaître vos intérêts, vous nous aidez à mieux vous servir.

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