

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.*

## IN THIS ISSUE / DANS CE NUMÉRO

(in order of appearance / en ordre d'apparition)

- ? President's Message / Message de la Présidente
- ? Other CMESG News / Autres nouvelles du GCEDM
  - o Announcements/Annonces
  - o Elections 2004/ Élections 2004
  - o CMESG Annual Meeting/Rencontre Annuelle du GCEDM
- ? What's Happening in Math Education/Ce qui se passe en didactique des mathématiques
  - o Members' Activities
    - ✍ Reviewing the Ontario Mathematics Curriculum – *Ann Kajander*
    - ✍ Education Session at Summer CMS – *Richard Hoshino*
  - o Reports and Reviews
    - ✍ Conference Report: History and Philosophy of Science and Science Teaching—and Math! – *Ralph Mason*
    - ✍ Review: Patricia Fara's *Newton*: A Nutshell Review for Mathematics and Mathematics Education – *Ralph Mason*
- ? More Upcoming Professional Meetings/Autres Rencontres à Venir
- ? Coordonnées des personnes à contacter / Contact Information
  - o CMESG Editors / Les Éditeurs du GCEDM
    - ✍ Newsletter Editor / Éditeur du Bulletin
- ? L'Exécutif du GCEDM / CMESG Executive



# **PRESIDENT'S MESSAGE DE LA PRÉSIDENTE**

Malgorzata Dubiel, Simon Fraser University  
(dubiel@cs.sfu.ca)

Welcome to the CMESG/GCEDM Fall 2003 Newsletter, which is appearing as 2004 Early Winter Newsletter. This is in big part due to my December travels, which had interfered with all kinds of deadlines, including organizing the incoming elections to the CMESG executive and the FLM Board of Directors.

First, we need to thank Doug Franks, who has agreed to continue his work as the Newsletter Editor. Doug has been working recently on a new project: interviews with long standing CMESG members, for inclusion in our Newsletter - to chronicle a bit of our history. The work is slow, but it provides an incentive to stay on the job.

Looking back at the months since our last Newsletter: our 2003 Annual Meeting at Acadia was very successful, thanks in big part to our local organizer, David Reid. A conference scrapbook is being built on our website as I write this, with a wonderful, illustrated report on the pre-meeting to Cape Split, by Irene Percival, already there.

Also at Acadia, the meeting participants had an extraordinary opportunity to meet Zoltan Dienes, who gave two workshops. These were so popular that the attendance had to be limited.

In recognition of Zoltan Dienes' contributions to mathematics education in Canada and in the world, he was made an Extraordinary Member of CMESG. An award of Extraordinary Membership was introduced at the 2003 annual meeting, to recognize exceptional contributions to Canadian education of a person who was not a CMESG member.

Probably the most important event of the year was the Canadian School Mathematics Forum, which took place May 16 - 18th, 2003, in Montreal. The Forum, subtitled "Comparison of Experiences" and co-chaired by Christiane Rousseau and George Bluman, was designed to be the first of two, with the second one slated to take place in Toronto in 2005. One hundred forty-eight delegates from across Canada, representing school and college teachers, university faculty in mathematics and mathematical education, and other stakeholder groups, met for two and half days at the UQAM campus. They participated in plenary talks, panel discussions and working groups, themes to work on towards the next forum. Overloaded mathematics school curriculum

Bienvenue à notre bulletin d'automne 2003, qui paraît plutôt comme un bulletin du début de l'hiver 2004. Ce retard est dû en grande part à mes voyages de décembre et à la bousculade des échéances à ce moment de l'année, incluant l'organisation des élections à l'Exécutif du GCEDM et au Conseil d'administration de FLM.

En premier lieu, nous devons remercier Doug Franks qui a accepté de poursuivre son travail en tant qu'éditeur du bulletin. Doug travaille depuis peu à un nouveau projet, soit celui de réaliser des entrevues avec des membres de longue date du GCEDM afin de documenter l'histoire du groupe. Un travail de longue haleine qu'il est motivant de pouvoir accomplir.

Depuis notre dernier bulletin, la rencontre de 2003 à Acadia a eu lieu et a connu un franc succès, grâce notamment à David Reid, notre organisateur local. Un album souvenir est en construction sur notre site web : il contient un magnifique rapport de Irene Percival sur le voyage pré-rencontre à Cape Split.

De plus, à Acadia, deux ateliers extrêmement populaires ont donné la chance extraordinaire à plusieurs de rencontrer Zoltan Dienes : on a d'ailleurs dû limiter la participation aux ateliers.

En reconnaissance de sa contribution exceptionnelle à la didactique des mathématiques au Canada et dans le monde, il a été nommé Membre Extraordinaire du GCEDM. La création du prix de Membre Extraordinaire, réservé aux personnes qui ne sont pas membres du GCEDM, avait été adoptée lors de l'assemblée générale annuelle 2003 du groupe. Ce prix vise à souligner la contribution exceptionnelle du récipiendaire à l'enseignement au Canada.

L'événement le plus important de l'année a sans doute été le *Forum canadien sur l'enseignement des mathématiques* qui s'est tenu du 16 au 18 mai 2003 à Montréal. Le Forum, sous le thème *La comparaison des expériences*, était coprésidé par Christiane Rousseau et George Bluman. Il doit être le premier de deux fora, le second étant prévu pour prendre place à Toronto en 2005. La rencontre a regroupé à l'UQAM, pendant deux journées et demie, 148 délégués de partout au pays, comprenant des enseignants à tous les

was deemed to be one of the most important. This issue was further discussed by one of the working groups at our Acadia meeting, and, more recently, at the Education Session of the 2003 CMS Winter Meeting in Vancouver. The work will continue at the 2004 CMESG annual meeting at Laval.

The 2005 Forum Organizing Committee is co-chaired by Bradd Hart, Frédéric Gourdeau and Florence Glanfield.

It is worth noting that, as one of the outcomes of working together towards the Forum, since the 2003 CMS Summer Meeting in Edmonton, the CMESG President is invited to report at the CMS Board of Directors meeting, together with the President (or delegate) of MAA and directors of CRM, Fields, and PIMS.

\* \* \*

niveaux, des chercheurs en mathématiques et en didactique des mathématiques, et des représentants de divers autres groupes intéressés. Conférences plénières, panels et groupes de travail portant sur des thèmes importants pour l'enseignement des mathématiques au Canada étaient au menu. Le Forum devait aussi identifier des directions et thèmes dont l'étude serait poursuivie en vue du second Forum. La surcharge du curriculum scolaire a été identifiée comme l'un des thèmes les plus importants. Ce thème a été l'objet de l'un des groupes de travail de la rencontre d'Acadia et, plus récemment, d'un panel lors de la séance d'éducation de la rencontre d'hiver 2003 de la SMC à Vancouver. Le travail sera poursuivi lors de la rencontre 2004 du GCEDM à l'Université Laval.

Le Forum 2005 est co-présidé par Bradd Hart, Frédéric Gourdeau et Florence Glanfield.

Il est important de souligner que suite au travail que nous fait en collaboration avec la SMC en vue de la réalisation du Forum 2003, le président du GCEDM/CMESG est invité, depuis la réunion d'été 2003, à présenter un rapport au Conseil d'administration de la SMC, tout comme le président (ou son délégué) de la MAA, et les directeurs de trois instituts : CRM, Fields et PIMS.

\* \* \*



## AUTRES NOUVELLES DU GCEDM/OTHER CMESG NEWS Annonces/Announcements

### Élections 2004

#### GCEDM Exécutif - Appel de Candidatures

Les mandats de deux ans de Malgorzata Dubiel (Présidente) et de David Reid (Membre) au sein de l'Exécutif viennent à échéance le 31 mai 2004.

Vous êtes invités à soumettre des candidatures pour ces deux postes à Malgorzata Dubiel, [dubiel@cs.sfu.ca](mailto:dubiel@cs.sfu.ca), présidente du Comité de nominations, d'ici au 10 février 2004. Veuillez prendre note que selon nos statuts, Malgorzata Dubiel ne peut être mise en nomination ayant été membre de l'Exécutif pour six années consécutives.

Pour chaque personne que vous désirez mettre en nomination, vous devez indiquer s'il s'agit d'une mise en nomination pour la présidence ou en tant que membre de

### Elections 2004

#### CMESG Executive - Call for Nominations

The two year terms of Malgorzata Dubiel (President) and David Reid on the Executive Committee will be ending May 31st, 2004.

You are invited to submit names of candidates for the two positions to Malgorzata Dubiel, [dubiel@cs.sfu.ca](mailto:dubiel@cs.sfu.ca), the chair of the Nomination Committee, no later than February 10th, 2004. Please note that under the CMESG constitution, Malgorzata Dubiel is not eligible for nomination as she has been a member of the Executive for six consecutive years.

For each nomination, please indicate whether it is for

l'exécutif. Il n'est pas nécessaire de vérifier si une personne dont vous proposez la nomination accepte de se présenter.

## **Appel de Candidatures – Conseil D'Administration de FLM**

Les mandats de quatre ans de Bill Higginson et Joel Hillel au sein du Conseil d'administration de FLM viennent à échéance le 31 mai 2004.

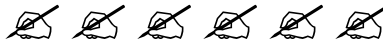
Vous êtes invités à soumettre des candidatures pour ces deux postes à Malgorzata Dubiel, [dubiel@cs.sfu.ca](mailto:dubiel@cs.sfu.ca), présidente du Comité de nominations, d'ici au 10 février 2004. Il n'est pas nécessaire de vérifier si une personne dont vous proposez la nomination accepte de se présenter.

the position of president or as a member of the Executive. It is not necessary to verify if the individuals you wish to nominate are willing to run for the office.

## **Call for Nominations – FLM Board of Directors**

The four year terms of Bill Higginson and Joel Hillel on the Board of Directors of FLM will be ending in May 31st, 2004.

You are invited to submit names of candidates for the two positions to Malgorzata Dubiel, [dubiel@cs.sfu.ca](mailto:dubiel@cs.sfu.ca), the chair of the Nomination Committee, no later than February 10, 2004. It is not necessary to verify if the individuals you wish to nominate are willing to run for the office.



## **Rencontre Annuelle du GCEDM** Caroline Lajoie

Bonjour à tous et à toutes,

Comme vous le savez déjà, la prochaine rencontre du GCEDM/CMESG aura lieu à l'Université Laval, dans la ville de Québec, du 28 mai au 1er juin 2004. Pour un avant-goût du programme, je vous invite à consulter notre site web à l'adresse suivante : <http://plato.acadiau.ca/courses/educ/reid/cmescg/2004cmescg/index2004.html>

Je vous rappelle que, comme à chaque année, une séance sera prévue pour permettre aux personnes qui ont récemment obtenu un doctorat de présenter leurs travaux de thèse. Si vous avez soutenu votre thèse récemment, ou si vous connaissez des gens qui l'ont fait, veuillez s'il vous plaît me contacter (si vous ne l'avez pas encore fait).

Lajoie.caroline@uquam.ca

## **CMESG Annual Meeting** Caroline Lajoie

Hello all,

As you all know, our next CMESG/GCEDM meeting will be held at Université Laval, Québec City, from May 28 to June 1 2004. For an outline of the program, please consult our web site at <http://plato.acadiau.ca/courses/educ/reid/cmescg/2004cmescg/index2004.html>

I would like to remind you that, as usual, there will be sessions for new PhDs to share their work with us. If you have recently completed a PhD, or know of those who have, please contact me (if you have not done it already).

Lajoie.caroline@uquam.ca

## Québec vous attend!

☞ Frédéric Gourdeau et Bernard R. Hodgson

C'est avec un vif plaisir que nous vous accueillerons à l'Université Laval pour la rencontre annuelle du GCEDM/CMESG, du 28 mai au 1<sup>er</sup> juin 2004. Nous travaillons fort afin de faire de cette rencontre une réussite et nous espérons que vous serez des nôtres.

Nous attirons votre attention sur le fait que notre rencontre sera précédée par celle du GDM, le Groupe de didactique des mathématiques du Québec, les 27 et 28 mai. Nous espérons que plusieurs d'entre vous voudront prendre part aux deux rencontres. Nous travaillons de concert avec le GDM sur le plan local pour que le tout soit aussi bien coordonné que possible.

## Invitation from Québec

☞ Frédéric Gourdeau and Bernard R. Hodgson

We are delighted to be hosting the 2004 annual meeting of CMESG/GCEDM in Québec, at Université Laval, from May 28 to June 1. We are working hard to make this a successful meeting and we hope that you will attend.

The meeting of GDM, the *Groupe de didactique des mathématiques du Québec*, on May 27 and 28 will precede our meeting. We hope that many of you will want to attend both meetings. We are working together locally to ensure that our activities are coordinated as well as possible.



## WHAT'S HAPPENING IN MATH EDUCATION / CE QUI SE PASSE EN DIDACTIQUE DES MATHÉMATIQUES

### Members' Activities

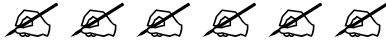
#### Reviewing the Ontario Mathematics Curriculum

☞ Ann Kajander, Lakehead

I was invited by the Ontario Ministry of Education to take part in the Technical Review of the Ontario Mathematics curriculum. I was excited about this opportunity, especially as a way to promote the aims of the math curriculum working group with Walter Whitley and Brent Davis in 2003. Amazingly, the other teachers and consultants in the group were very like-minded with our goals, and the group was very united in purpose. Everyone agreed we needed a shorter 'list' and more built in messages about problem solving and what kinds of problems are useful to learn mathematics. While we realise that not all our suggestions will be used, the spirit of the session was so strong I feel it can't be completely ignored in the process of curriculum revision in Ontario.

Also, my book "Big Ideas for Small Mathematicians" is still available through [www.zephyrpress.com](http://www.zephyrpress.com), even though Zephyr Press has been bought out by Chicago Review Press.

kajander@tbaytel.net





## Education Session at Summer CMS

☞ Richard Hoshino, Dalhousie

For your information, the Canadian Mathematical Society will have its summer meeting in mid-June, and John Grant McLoughlin and I will be co-organizers of the “Education” Session. Please see

<http://www.cms.math.ca/Events/summer04/index>



## Reports and Reviews

### History and Philosophy of Science and Science Teaching—and Math!

. Ralph Mason, University of Manitoba

The Seventh Congress of International History and Philosophy of Science and Science Teaching was held this summer in Winnipeg, hosted by the University of Manitoba and the University of Winnipeg. The 200 academics and teachers who participated represented more than 20 countries.

The intertwining of the history of mathematics with the history of science ensured that mathematics and mathematics education had significant profiles at the conference. CMESG members with presentations included Paul Betts (“Between absolutism and relativism via epistemological viability” with Warren Wessel), Medhat Rahim (“Mathematical, scientific, and social contributions of Babylon to world civilization”), and Ralph Mason (“Will the real Isaac Newton please stand up? Toward an effective use of the historical icons of science in classrooms”).

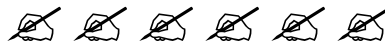
Generous sponsorship made a huge difference to the conference. A variety of Canadian and international participants received travel support. Special gatherings of interest groups received financial assistance. Some Canadian graduate students received travel assistance, and all participating Canadian graduate students and teachers received full refunds of their conference fees. On behalf of all participants and the hosts, I would like to express my gratitude to the universities, the school divisions of the Winnipeg region, the Social Sciences and Humanities Research Council, Western Economic Diversification Canada, and Manitoba Education and Youth for their generosity and vision. The generosity of publishers allowed for a rich display of texts and other materials, many of which were distributed to conference participants: thanks go out especially to Kluwer, Penguin, Corwin, and University of Chicago Press.

What influence might this conference have had on mathematics and mathematics education in Canada? I believe that a strong theme of the conference was that there is a *story* of mathematics (and science, of course)—that mathematics is a still-growing part of human culture and history. There is hope that we can engage our students in mathematics more richly by perceiving mathematics (like art or political systems or literature) as a product of particular people doing their best in a given time and place. How that should be reflected in our curriculum and our classrooms, however, is not a simple matter, and in my opinion should be addressed only with the direct involvement of mathematics teachers. On a different plane, the place of mathematics among and alongside the sciences came into view from a variety of perspectives.

Follow-up of three kinds is taking place. One, along with the release of the proceedings on CD this January, special editions of *Interchange* and *Science & Education* are planned for selected papers from the conference. Two, the Manitoba subset of IHPST are hosting workshops and in-classroom support for teachers using historical elements in their mathematics and science lessons. Three, a group of Canadian and international educators and scientists are applying for further funding for research on the effectiveness of different uses of units of historical presentation in mathematics and science courses.

The next meeting of IHPST will be in Leeds, England, in 2005.

[masonrt@ms.umanitoba.ca](mailto:masonrt@ms.umanitoba.ca)



### **Patricia Fara's *Newton*: A Nutshell Review for Mathematics and Mathematics Education**

. Ralph Mason, University of Manitoba

Fara, Patricia (2002). *Newton: The Making of Genius*. New York: Columbia University Press.

This book is *not* another biography to add to the long list of biographies of Isaac Newton now available. Rather, it is an attempt to make sense of that long list of biographies! “Rather than searching for more facts about Newton himself, this book explores how he became celebrated as a national hero and a scientific genius—a secular saint for our modern society” (p. 3). The actions and choices of historians and biographers of science and mathematics provide fascinating evidence of how we have perceived and portrayed science and mathematics over time.

Because Fara writes simply and clearly, readers might delight in the accessibility of the text. However, they might emerge slightly disappointed that there isn't more substance in the way of examples. Details of note are the evolution of terms such as *scientist* and *genius* in ways that illuminate images of the related ideas in history. Using Newton as her singular example, Fara makes very clear that our images of historical figures are constructed *with purpose*, and our purposes match the times and perspectives we occupy.

For me, Fara's *Newton* offered comfort and support as I sort out the various and incredible and too-often-politically-correct stories and histories of mathematicians such as Archimedes, René Descartes, Isaac Newton, and Sophie Germain. I am interested in the uses of role models and process models in mathematics classrooms, and Fara advances a strong and coherent argument that there is little use for (or possibility of finding) an objective 'factual' representation of the persons who now serve as historical role models. Fara's well-developed position on the cultural relativity of all work in the history of mathematics invites us to see Cicero and Asimov as masters of the same craft, representing and illuminating their own social environments by writing biographies of our mathematical predecessors.

[masonrt@ms.umanitoba.ca](mailto:masonrt@ms.umanitoba.ca)

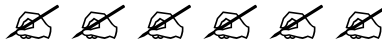


# MORE UPCOMING PROFESSIONAL MEETINGS / AUTRES RENCONTRES À VENIR

## PME-NA 2004

We are thrilled to host the Psychology of Mathematics Education – North American chapter (PME-NA) in Toronto October 21 to 24, 2004. The conference will be held at the Delta Chelsea hotel and will host speakers from Canada, United States and Mexico (as well as some international members). The deadline for submission of research and short oral proposals is January 30, 2004. We look forward to a large Canadian representation in presenting papers and attending the conference.

PME-NA <http://pmena.org>  
PME-NA 2004 conference <http://pmena.org/2004>



## Mathematics Education into the 21<sup>st</sup> Century Project Conference 2004

The Mathematics Education into the 21<sup>st</sup> Century Project has just completed its sixth successful international conference in Brno, Czech Republic, following conferences in Egypt, Jordan, Poland, Australia and Sicily. The next conference will be in Ciechocinek, Poland, June 26 – July 1, 2004. The conference will be held in one of the most beautiful spa towns in Poland and will open with dinner on Saturday, June 26<sup>th</sup>. The last working day of the conference will be the 30<sup>th</sup> June, and the conference finishes with breakfast on July 1<sup>st</sup>. Side tours and trips can be arranged to Krakow, Warsaw and other places in Poland and on the way to ICME 10 in Denmark. It should be an ideal chance to relax before the rigours of the big ICME conference if you are going there!

The title of the conference is “The Future of Mathematics Education”. Papers are invited on all innovative aspects of mathematics education. There will be an additional social programme for accompanying persons. For ALL further conference details please email [arogerson@vsg.edu.au](mailto:arogerson@vsg.edu.au).



**SMC:** June 13-15, 2004. Dalhousie University. **CMS:** Du 13 au 15 juin 2004. Université Dalhousie. [www.cms.math.ca](http://www.cms.math.ca)

**ICME – 10 :** Du 4 au 11 juillet 2004. Copenhagen. **ICME – 10 :** July 4-11 July 2004. Copenhagen.

**PME – 28 :** July 14-18, 2004 Bergen. Norway **PME – 28 :** Du 14 au 18 juillet 2004. Bergen, Norway [www.pme28.org](http://www.pme28.org)

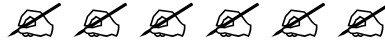


## CONTACT INFORMATION / COORDONNÉES DES PERSONNES À CONTACTER

### CMESG Editors / Les Éditeurs du GCEDM

Proceedings editors / Les éditeurs des Actes: Elaine Simmt ([elaine.simmt@ualberta.ca](mailto:elaine.simmt@ualberta.ca)), Brent Davis ([brent.davis@ualberta.ca](mailto:brent.davis@ualberta.ca))

Webpage editors/Responsables du site sur l'hypertexte: David Reid ([david.reid@acadiau.ca](mailto:david.reid@acadiau.ca)), Nathalie Sinclair ([nathsinc@math.msu.edu](mailto:nathsinc@math.msu.edu))



### Newsletter Editor / Editeur du Bulletin

Please submit contributions to / Veuillez envoyer vos contributions à:

**Doug Franks**  
Faculty of Education  
Nipissing University  
North Bay, ON P1B 8L7

Phone: (705) 474-3461 ext. 4457

email: [dougf@nipissingu.ca](mailto:dougf@nipissingu.ca)

Fax: (705) 474-1947

I would like to thank Frédéric Gourdeau for his major contribution as translator and editor of all French language text. - Doug Franks



## L'EXÉCUTIF DU GCEDM/CMESG EXECUTIVE 2003-2004

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.

**Malgorzata Dubiel**, President

Department of Mathematics and Statistics  
Simon Fraser University  
Burnaby, BC V5A 1S6  
email: [dubiel@cs.sfu.ca](mailto:dubiel@cs.sfu.ca)  
Fax: (604) 291-4947

**Ralph Mason**, Recording Secretary

Curriculum, Teaching & Learning  
272 Education Bldg.  
University of Manitoba  
email: [masonrt@ms.umanitoba.ca](mailto:masonrt@ms.umanitoba.ca)  
Fax: (418) 656-2817

**Luis Radford**, Member at Large

Pavillon Alphonse Raymond  
935, chemin du lac Ramsey  
Sudbury, ON P3E 2C6  
courriel : [lradford@laurentienne.ca](mailto:lradford@laurentienne.ca)

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.

**Olive Chapman**, Treasurer & Membership Secretary

Faculty of Education  
University of Calgary  
2500 University Drive NW  
Calgary, AB T2N 1N4  
email: [chapman@ucalgary.ca](mailto:chapman@ucalgary.ca)

**David A. Reid**, Vice-President

School of Education  
Acadia University  
Wolfville, NS B0P 1X0  
email: [david.reid@acadiu.ca](mailto:david.reid@acadiu.ca)  
Fax: (902) 585-1071

**Caroline Lajoie**, Co-Conference Coordinator

Département Mathématiques  
Université du Québec à Montréal  
CP 8888, Succ. Centre Ville  
Montréal, PQ H3C 3P8  
courriel : [Lajoie.caroline@uqam.ca](mailto:Lajoie.caroline@uqam.ca)