President's Message

Congratulations to the Mathematics Leaders' Symposium planning team! On May 23, more than 80 mathematics leaders from across Alberta spent the day at the Calgary Winter Club engaging in dialogue at "Continuing the Conversation: Mathematical Literacy." Participants listened to, discussed and reflected on presentations given by four of our key mathematics leaders. Geri Lorway opened the day with a perspective from her district. Evelyn Sawicki shared information about the "Nelson Professional Learning Program for Elementary Mathematics." Dale Burnett described the Count Me In Too program widely used in New South Wales elementary schools. And Betty Morris discussed the "Principal Presentation" available from Nelson Mathematics. Texas Instruments provided lunch, and Wanda Lloyd, Bob Berglind and Helen McIntyre highlighted the professional development packages that Texas Instruments and their district have completed. All in all, participants found the day very worthwhile!

The Mathematics Council of the Alberta Teachers' Association (MCATA) will not be sponsoring a fall symposium this year. The MCATA/National Council of Teachers of Mathematics (NCTM) regional conference runs November 20–22, and the executive felt that most teachers would not be able to leave their schools for any longer. However, the National Council of Supervisors of Mathematics (NCSM), under the direction of Florence Glanfield, will offer a day for mathematics leaders on Wednesday, November 19. For more information, e-mail Florence at florence.glanfield@usask.ca.

I strongly encourage everyone to attend the MCATA/NCTM regional conference in Edmonton in November. The program committee has done a fantastic job of gathering renowned speakers from far and wide. Take advantage of these speakers' expertise and attend the full conference. NCTM has reorganized its conference department, so it is unlikely that we will see another local conference of this magnitude soon.

Enjoy the summer. We all deserve a much-needed break!

—*Cynthia Ballheim*

From the Editor's Pencil

In April, I attended the NCTM's 81st Annual Meeting, "Building Mathematical Communities," in San Antonio, Texas. This amazing conference included more than 1,200 sessions offered in the span of four days and was attended by more than 18,000 teachers from around the world.

In his address, NCTM president Johnny Lott asked, "Can mathematical communities be built?" The answer, of course, is yes, and the way to do so is by engaging in dialogue with the diverse members of the math community. This includes talking with parents about math in a way that they will understand and giving them real-life examples to use; sharing with colleagues ideas gleaned from professional development opportunities and regional conferences; and applauding good efforts, offering constructive criticism and listening to others. We can build mathematical communities when we are all committed to the best teaching of the best mathematics to all students.

The conference provided many opportunities to discuss with other teachers mathematics teaching and difficult conditions. In many ways, we are fortunate to work in Alberta, where all classroom teachers must be certificated and have more than three weeks of teacher training.

—*Anne MacQuarrie*

Annual Representative Assembly

The Annual Representative Assembly (ARA) was held May 24–26 in Edmonton. Approximately 450 representatives from ATA locals attended, along with observers from specialist councils and members of Provincial Executive Council and ATA staff.

Eric Mokosch, retired dean of the University of Lethbridge's Faculty of Education, was presented with an honourary ATA membership for his work in instituting the university's teacher practicum.

Many resolutions were debated. Among them was a motion to pay for the Association to update its computer systems. Another resolution that was passed stated that the ATA is opposed to teacher involvement in diploma exams that do not have a written component.

The discussions also included information on political action that the ATA is planning for the next year.

The Albertans Promoting Public Education and Learning (APPEAL) parents group made a presentation indicating the need for more support for public education.

ARA offered an interesting opportunity to see democracy in action.

—*Elaine Manzer*

Council of Ministers of Education Report

The Council of Ministers of Education, Canada (CMEC) recently released its follow-up report to last year's very positive mathematics School Achievement Indicators Program (SAIP) results, in which Alberta and Quebec scored the highest in the country. The report studies the relationship between SAIP scores and other factors, such as class size, number of specialized teachers, classroom-awarded marks and the use of provincial testing.

The highlights sheet and a link to the full report are available at www.cmec.ca/saip/math2001/public/context.highlights.en.stm.

A Few Good Books

In Code: A Mathematical Journey, by Sarah Flannery
Chapel Hill, N.C.: Algonquin Books of Chapel Hill, 2001
This award-winning book describes the adolescence of Sarah Flannery, a girl who won Ireland's Young Scientist of the Year award in 1999 for her extraordinary research and discoveries in Internet cryptography. Spectacular!

The Music of the Primes: Searching to Solve the Greatest Mystery in Mathematics, by Marcus du Sautoy
New York: HarperCollins, 2003
This history of the search for prime numbers is lyrically written.

Imagining Numbers (Particularly the Square Root of Minus Fifteen), by Barry Mazur
New York: Farrar, Straus and Giroux, 2002
This book is about imagining and imaginary numbers. Beautiful!

The Lady Tasting Tea: How Statistics Revolutionized Science in the Twentieth Century, by David Salsburg
New York: W. H. Freeman, 2001
This book contains fascinating stories about the growth of statistics in the 20th century.

The Matrix and Philosophy: Welcome to the Desert of the Real, edited by William Irwin
Chicago, Ill.: Open Court, 2000
This timely book is about not the mathematical matrix but, rather, the imaginary/virtual/real matrix. "Which pill would you choose, the red or the blue? Is ignorance bliss, or is the truth worth knowing, no matter what?"

Correction

The January 2003 issue of the *Mathematics Council Newsletter* reported the Mathematics 30 student project winners and congratulated them on their fine work. Unfortunately, Julie Heikel's project, "Overbooking," was listed as an Applied Mathematics 30 project when, in fact, it was a Pure Mathematics 30 project. We hope that Julie will accept our apologies for this error.

Diploma Exam Security

Alberta Learning will continue to secure diploma exams (except for the written-response component of the humanities diploma exams) to improve diploma exam comparability from year to year. This approach means that student results from one exam session can be compared to results from another session. A certain number of questions must remain the same from one administration to the next; therefore, not all the questions can be released. This approach should enhance fairness from year to year for students applying for scholarships and seeking entry into postsecondary programs. It will also allow Alberta Learning to more accurately measure student improvement over time.

Although complete diploma exams will no longer be released, Alberta Learning understands that teachers and students value the opportunity to review exams from previous years. To accommodate this, Alberta Learning will continue to post a representative set of diploma exam questions on its website (www.learning.gov.ab.ca) each year. The questions will also continue to be released in the exam manager's report once a year. For your information, there will also be an exam manager's report and release of questions for the achievement tests. The first scheduled release of questions will take place in early fall 2003.

Teachers will now have access to a copy of the diploma exam one hour into the administration of the exam. Once students have completed the exam, all copies, including the copy provided to teachers, must be returned to Alberta Learning. More information will be sent to principals.

MCATA Grants

Grants worth $500 each are available for mathematics education initiatives that support current learning and teaching practices and/or current priorities as outlined by or through Alberta Learning, school districts, MCATA, NCTM, the ATA or other reputable educational associations. The deadlines for application are May 1 and December 1 annually. For full details and an application form, visit www.mathteachers.ab.ca and click on Grants/Awards. Send grant applications to Lorraine Taylor, 10 Heather Place, Lethbridge T1H 4L5; fax (403) 329-4572; e-mail lorraine.taylor@lethsd.ab.ca.

Dr. Arthur Jorgensen Chair Award

The Dr. Arthur Jorgensen Chair Award is presented by MCATA to encourage students enrolled in education programs in postsecondary institutions throughout Alberta to pursue and commit to mathematics education. The award consists of a one-year term on the MCATA executive and covers all expenses (meals, travel and accommodation) associated with attending executive meetings. It also includes a three-year MCATA membership, a one-year NCTM membership and an invitation to attend two MCATA conferences with all expenses paid, including a teacher substitute, accommodation and travel. More details and an application form will be posted at www.mathteachers.ab.ca under Grants/Awards.

The Joy of Math Fairs

Last fall, elementary and junior high students and teachers were given the opportunity to be part of a collaborative project with the University of Alberta's Department of Mathematical and Statistical Sciences. The students were invited to attend a math fair at the university, hosted by Math 160 students and mathematics professors Ted Lewis and Andy Liu. The math fair consisted of approximately 30 puzzles and math problems for the participants to try to solve.

The teachers were given abundant information and resources to use in organizing math fairs in their schools. Focusing on problem solving encourages positive attitudes and creative, logical and analytical thinking. It also promotes cooperative behaviour in students. The teachers who subsequently hosted math fairs in their schools found the experience to be well received by students and parents.

Membership Update

As of May 22, 2003, MCATA has 658 members, including 439 regular members, 52 affiliate members, 26 complimentary members, 40 two-year members, 47 three-year members, 6 retired members, 31 student members, 2 staff and 15 subscription members.

Thank you to all of you who have been promoting membership in MCATA. Keep up the good work!

—*Daryl Chichak*

MCATA/NCTM Regional Conference

"Taking Mathematics to the *N*th Degree"
November 20–22, 2003
Shaw Conference Centre, Edmonton

The program committee has been working hard to create a fantastic program for the MCATA/NCTM Regional Conference, to be held November 20–22 in Edmonton. A conference-at-a-glance, which will give you a sense of the program, is available at www.nctm.org/meetings/edmonton/. The complete program book will be mailed to you when you register online. The entire program will be available online in the fall.

We are excited to offer more than 200 sessions. With the conference running from Thursday morning to noon on Saturday, you will have plenty of time to find many interesting sessions, have great conversations with colleagues and visit the display area.

The opening session will be given by NCTM president Johnny Lott of the University of Montana. His presentation is titled "Who Is the Ultimate Mathematics Teacher?"

The closing session will be delivered by NCTM president-elect Cathy Seeley of the University of Texas. Her presentation is titled "Personal Leadership to Transform Your Classroom and Your Community."

Other major sessions include the following:

- Thomas Kieren, University of Alberta, "Teaching in the Middle: Using Interactive Intelligence and Collective Understanding"
- Brent Davis, University of Alberta, "Emergent Insights into Mathematical Intelligence from Cognitive Science"
- Keith Devlin, Stanford University, "The Evolutionary Origins of Mathematical Thinking Ability"
- James Schultz, Ohio University, "Technology: The Good, the Bad, and the Ugly"
- Trevor Calkins, Power of Ten Educational Consulting, "Teaching the Big Ideas"
- David Schwartz, author, "Students, Teachers, Authors: A New Golden Triangle for Mathematical Learning"
- Kanwal Neel, British Columbia Association of Mathematics Teachers (BCAMT), "Getting Ready to Teach Math to the *N*th Degree!"
- Claire Ferguson, artist and author, and Helaman Ferguson, sculptor and mathematician, "Mathematics in Stone and Bronze"
- Dale Burnett, University of Lethbridge, "Tools and Notation: A Symbiotic Relationship for the Future"
- John Van de Walle, Virginia Commonwealth University, "Let Kids Be the Sense Makers, Not You! Planning for Problem-Based Lessons"

I would like to thank the program committee members: Elaine Simmt, Geri Lorway, Martina Metz (Schmidt), Janis Kristjansson, Gerry Varty and Mike Fulton. These wonderful people have been promoting the conference and have lined up the speakers for the more than 200 sessions.

—*Sandra Unrau*

Symposium Review: "The Science Within the Art of Teaching"

On March 7 and 8, I attended the Invitational Symposium on Instructional Intelligence: "The Science Within the Art of Teaching" at Barnett House in Edmonton.

The symposium was a wonderful experience. Speaker Barrie Bennett, associate professor at the Ontario Institute for Studies in Education (University of Toronto), discussed ways for teachers to improve their practice. He believes that many strong teachers don't know why they are strong and many weak teachers don't know why they are weak. Because many of us are unable to articulate why we are strong or weak, we never develop professionally. Bennett suggested such teaching strategies as cooperative-learning techniques that maintain the accountability of each student and concept attainment, formation and organization through data sets, mind maps and concept maps. He included examples of each strategy, representing everything from Grade 1 geography to Physics 30 and, of course, math. I found all of these suggestions very helpful.

Bennett has cowritten, with Carol Rolheiser, a book called *Beyond Monet: The Artful Science of Instructional Integration* (Toronto: Bookation, 2001). The book is well worth its price of $50, and I recommend it highly to instructors of preservice teachers and to anyone interested in improving his or her practice.

—*Shauna Boyce*

Mathematics 30 Student Projects

MCATA invites teachers of Pure Mathematics 30 and Applied Mathematics 30 to submit their best student projects. The winner of the best student project from each course will be awarded $50 and have his or her work published in *delta-K*.

Rules

- You may submit an electronic copy, but it must be accompanied by a hard copy.
- Your submission must contain the project questions and answers.
- You must include an entry/release form (available at www.mathteachers.ab.ca/m30app02.htm) that includes the student's name, home address and phone number; the teacher's name; and the school's name and address.
- The student must sign the release, making the project the property of MCATA and allowing it to be published in *delta-K*. If the student is under 18 years of age, the parents must sign the release.

The annual submission deadlines are **February 15** for first-semester projects and **July 15** for second-semester projects. Send submissions to Lorraine Taylor, 10 Heather Place, Lethbridge T1H 4L5; fax (403) 329-4572; e-mail lorraine.taylor@lethsd.ab.ca.

Canadian Math Trail

The Canadian Mathematical Society (CMS) and the Natural Sciences and Engineering Research Council (NSERC) PromoScience are supporting the development of the Canadian Math Trail (CMT) on the Internet. Although the website is functional, the sponsors have delayed its official launch in hopes of receiving a math trail from each province and territory.

Mathematics teachers are needed to help generate materials for a math trail from Alberta. Interested students are also welcome to participate. Bruce Petrie, a student in the concurrent B.Sc./B.Ed. program at Brock University in St. Catharines, Ontario, will take hard copies of materials, photos, details of history and geography, math problems and solutions, and so on, and turn them into a trail. Web designers will then help him put the trail on the Canadian Math Trail website. All materials will be returned to the contributors. Examples of math trails can be found at www.brocku.ca/cmt/.

If you are interested in participating in this wonderful opportunity, contact Bruce at brucejpetrie@hotmail.com or Eric Muller, professor of mathematics and education at Brock University, at emuller@spartan.ac.brocku.ca.

Alberta Learning Update

Learner Assessment Branch

- The examination manager reports for the January 2003 diploma exams are posted on the extranet. By late September, the reports for both the January 2003 and June 2003 diploma exams will be posted on the Alberta Learning website (www.learning.gov.ab.ca). Watch for new-and-improved examination manager reports in the fall!
- Beginning with the June 2003 exam administration, all diploma exams will be secured (except for the written-response component of the humanities exams). However, teachers will have access to a copy of the secured diploma exam one hour into the administration of the exam. The teacher copy must be returned to Alberta Learning, along with all the student copies. Although complete copies of each exam will no longer be released, a representative set of questions will be posted on Alberta Learning's website. These questions will also be released in the examination manager's report once a year.
- The information bulletins for the diploma exams in both Pure Mathematics 30 and Applied Mathematics 30 were reviewed by groups of teachers in May. The bulletins will be posted on the Alberta Learning website by the middle of August. Although highlight sheets will briefly outline the changes, teachers are encouraged to review each bulletin in its entirety. The bulletins will be posted at www.learning.gov.ab.ca/k_12/ testing/diploma/bulletins/default.asp.
- The September 2003 projects for Pure Mathematics 30 and Applied Mathematics 30 will be available online by the end of August. Hard copies of the projects and teacher notes will also be mailed out to schools. The sample solution for each project will be posted on the extranet. The projects for the fall semester deal with applications of exponential growth.
- If you are interested in writing items and constructing field tests, contact Hank Reinbold at hank.reinbold@gov.ab.ca (for Pure Mathematics 30) or Deanna Shostak at deanna.shostak@gov.ab.ca (for Applied Mathematics 30). Both Hank and Deanna can also be reached by dialing 310-0000, then (780) 427-0010.

- During the 2002/03 school year, four schools were involved in field testing the Grade 9 integrated occupational program (IOP) programs of study for mathematics and English language arts. Students in these schools wrote IOP field tests in June. In the fall, field validation of the revised programs of study for Grades 8–11 IOP mathematics, English language arts, social studies and junior high occupations will take place. Teachers who take part in this validation will also field review the IOP Studio (the online guide to implementation), assist in developing test items and participate in writing the IOP math field test in June 2004. A newly authorized resource list for Grades 8–12 IOP is available at www.learning.gov.ab.ca/k_12/ curriculum/bySubject/iop/iopres.pdf. For more information, contact Betty Morris at betty.morris@gov.ab.ca or Linda Snow at linda.snow@gov.ab.ca.

Learning and Teaching Resources

- Debbie Duvall is now back with this branch working on various math projects.
- The Learning Equation (TLE) 11, a multimedia resource for Pure Mathematics 20, will be published soon. It will then be sent to the Western and Northern Canadian Protocol (WNCP) for resource approval. Once the resource is approved, it will be available through the Learning Resources Centre (LRC).

Miscellaneous

- *Alberta Learning's Update for Teachers* is an electronic newsletter designed to provide Alberta teachers with updates on issues in the news, policies, curriculum development and much more. Check out www.learning.gov.ab.ca/k_12/ teaching/update/.
- As of June 1, 2003, the Curriculum Branch and the Learning and Teaching Resources Branch will be at a new location. The new address is 44 Capital Boulevard, 10044 108 Street NW, Edmonton T5J 5E6. Telephone and fax numbers will not change. This new address is also the mailing address for all other Alberta Learning branches.

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