SHORT CIRCUIT—CMA 50TH ANNIVERSARY EDITION

Newsletter of
the Canberra Mathematical Association INC

VOLUME 4, NUMBER 1

MAY, 2013

Coming Events:

July 10-13	*AAMT Biennial Conference, Melbourne*
Friday August 16	*National Mathematics Day 2013*
Saturday August 17	*CMA Annual Conference. Australian Catholic University*
November 10	*The 314th day of the year—Pi day!*
November (13?)	*CMA Annual General Meeting*

PD sessions

20 May, Canberra College, 4-6 p.m.

12 Aug, Inspire Centre UC, 4-6 p.m.

28 Oct, Hawker College, 4-6 p.m.

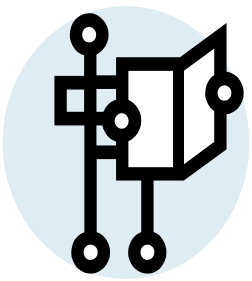
FROM THE EDITORS

On Friday 10 May, CMA held an event to celebrate 50 years of the association. Around 30 people gathered at University House in the ANU to reminisce over finger food and a round or two of cocktails .

Professor Mike Newman spoke to the assembly about the genesis of the CMA and the people involved in the early years. Several formerly active retired members were present. They lent a very welcome historical perspective to the occasion.

Two people were inducted as Life Members: Brian Goodwin and Peter Taylor, both of whom have made significant contributions to mathematics education over many years.

In preparing for this event, the CMA committee contacted former members where possible to invite them to share in the occasion. We were partially successful in this endeavour but it seems that there are retired members with whom CMA has lost contact who are still out there. We would very much like to obtain their contact details. If you can help with this, send an e-mail to a committee member.



In this edition , we have reproduced a short piece from *the first newsletter of the Canberra Mathematical Association*, written by none other than Bernhard Neumann. It was found among the archived material currently stored at Erindale College, some of which was on display at the cocktail event. What Professor Neumann wrote remains true. As he says, this newsletter depends on contributions from you its readers if it is to be a medium for the sharing if ideas and opinions.

There are many other valuable items in our archive, which members will want to see properly cared for. Let us hope that the record over the next 50 years will contain as many gems as has that of the first 50.

On page three, we continue our sequence of articles about innovations that are being tried in ACT schools. Similar pieces from readers are earnestly sought. If you have some action-research or a more established program from which others could benefit, please let us know.

MEMBERSHIP

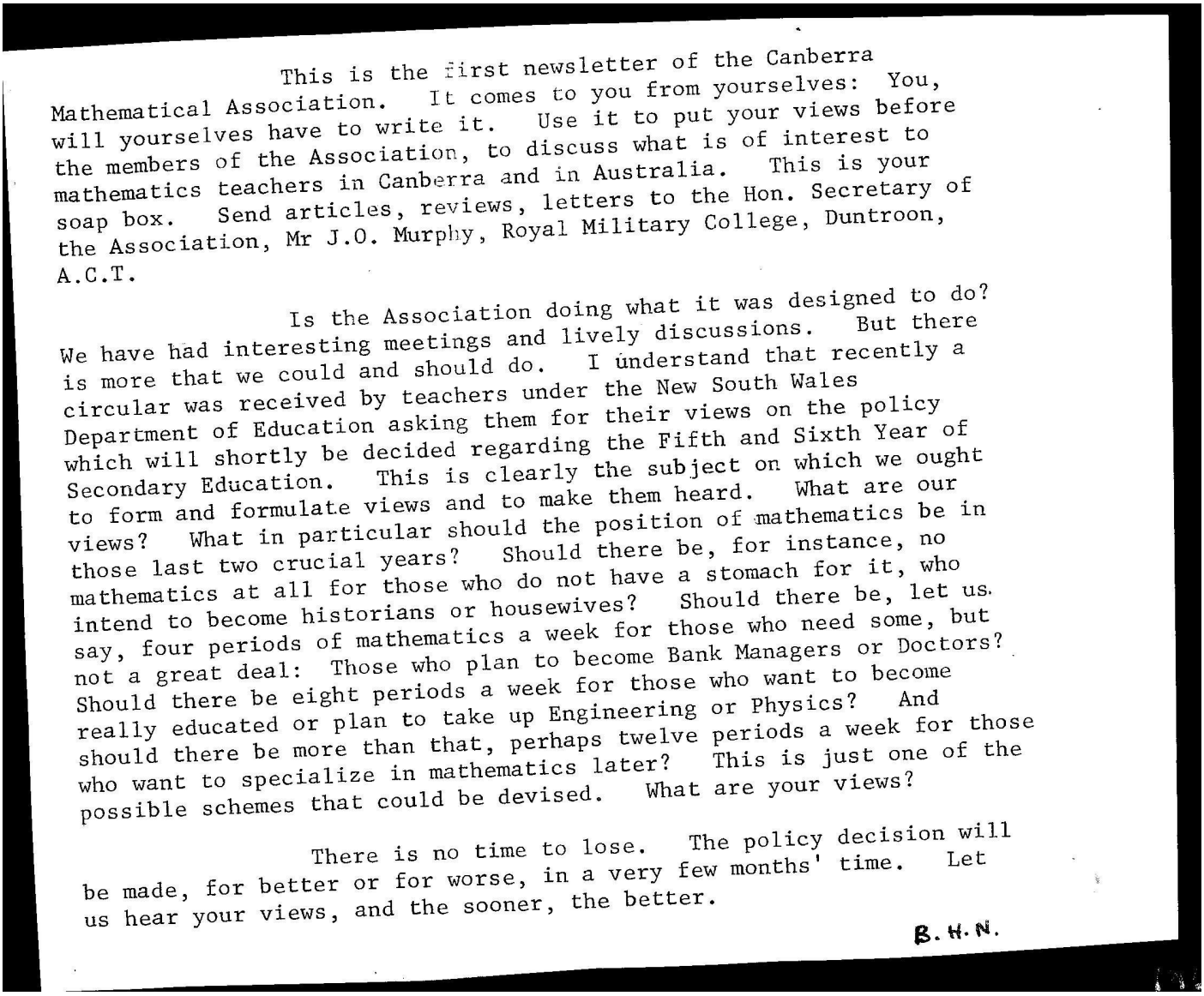
Membership of the CMA includes automatic affiliation with the Australian Association of Mathematics Teachers and a free AAMT journal.

Members are entitled to cheaper rates for CMA professional development events and the annual conference.

A membership application form for the CMA can be downloaded from our website:
http://canberramaths.weebly.com/

Note:
Receipts for membership payments are normally sent out by e-mail. If you have paid for your membership but have not received a receipt or if your AAMT journal(s) have not been arriving, please advise CMA treasurer, Paul Turner, or a committee member.

FROM THE ARCHIVE



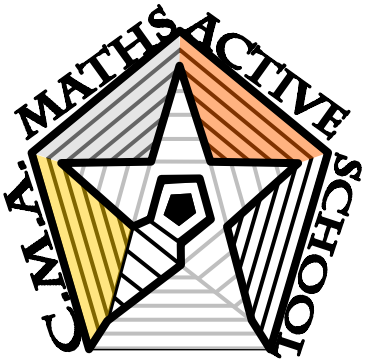
This is the first newsletter of the Canberra Mathematical Association. It comes to you from yourselves: You, will yourselves have to write it. Use it to put your views before the members of the Association, to discuss what is of interest to mathematics teachers in Canberra and in Australia. This is your soap box. Send articles, reviews, letters to the Hon. Secretary of the Association, Mr J.O. Murphy, Royal Military College, Duntroon, A.C.T.

Is the Association doing what it was designed to do? We have had interesting meetings and lively discussions. But there is more that we could and should do. I understand that recently a circular was received by teachers under the New South Wales Department of Education asking them for their views on the policy which will shortly be decided regarding the Fifth and Sixth Year of Secondary Education. This is clearly the subject on which we ought to form and formulate views and to make them heard. What are our views? What in particular should the position of mathematics be in those last two crucial years? Should there be, for instance, no mathematics at all for those who do not have a stomach for it, who intend to become historians or housewives? Should there be, let us say, four periods of mathematics a week for those who need some, but not a great deal: Those who plan to become Bank Managers or Doctors? Should there be eight periods a week for those who want to become really educated or plan to take up Engineering or Physics? And should there be more than that, perhaps twelve periods a week for those who want to specialize in mathematics later? This is just one of the possible schemes that could be devised. What are your views?

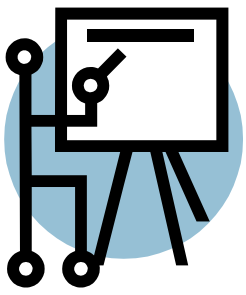
There is no time to lose. The policy decision will be made, for better or for worse, in a very few months' time. Let us hear your views, and the sooner, the better.

B.H.N.

This piece is from the typewriter of Professor Bernhard Neumann, in 1963. The policy decision he refers to was the imminent change from 5 to 6 years of secondary schooling.



Talk to Jurek Paradowski about making your school a Maths Active School.



MATHS ACTIVE SCHOOLS

INNOVATIONS

This is the second of our articles about innovative programs that are being tried in ACT schools. In this one, Ruth Edge explains what is happening at ***Erindale College****.*

The idea of the Fertile Question came to us through the Australian Science and Mathematics School (ASMS) in Adelaide. The ASMS in turn got it from the Communities of Thinking model proposed by Yoram Harpaz and Adam Lefstein at the Branco Weiss Institute for the Development of Thinking, in Israel.

A group of Erindale College teachers visited the ASMS in 2007 and observed the Fertile Question being used to stimulate enquiry based learning across all the subjects a student would study at the school. Convinced of its efficacy, we decided to make our own adaptation of the Fertile Question to promote the cognitive developments that we recognise as learning.

At first, the program we adopted applied to the Methods and Specialist courses.

For these, we assign an overarching question for each semester and write four sets of carefully scaffolded questions looking at the overarching question from different points of view. The points of view correspond loosely to students' differing thinking styles which we assess and label with a colour—red, blue, green, yellow.

Students initially complete an individual response to a question set matched to their thinking style. Then, in groups comprising all colours, they pool their understandings to make a presentation that addresses the overarching question. Students cannot answer the overarching question effectively without learning from each other in their groups.

Over the four semesters of their courses students complete question sets in each colour. In this way they learn to approach problems using a range of thinking styles and they come to appreciate that everyone can make a contribution to learning.

Students are given class time to work on their individual responses. The task of the teacher is to give guidance and encouragement with hints, in the form of questions, and explanations where needed. The one-to-one feedback from teacher to student that is possible in this process is found to be highly effective.

After students have completed their individual responses, the teacher comments carefully and constructively by writing on the submitted work. The submissions are then handed back to the students so that they can prepare their group presentations. Again, class time is allocated for this.

As mentioned, the initial implementation of the Fertile Question at Erindale was with the Methods and Specialist courses. How this was done and how the project developed subsequently is explained in detail in the book: *A handbook for the Fertile Question at Erindale College*, which is available on request. The book contains many exemplars of the question sets that have been written.

The primary purpose of the Fertile Question is to deliver the curriculum. It is not merely an assessment task. However, the fact that it is assessed tends to persuade students to take it seriously.

The modifications that were needed to adapt the program for the Applications and General courses

Convinced of its efficacy, we decided to make our own adaptation of the Fertile Question ...

included making question sets that were less abstract and more practical, in line with the nature of the courses, and putting the focus more on students learning from each other. We wished to encourage students to think about issues and procedures rather than to accept them uncritically.

Students in the Applications course work in groups of three, where each student in the group completes a different response. For example, during the unit on Financial Modelling students answer the Fertile Question, *Does Risk Equal Return*? One student investigates property, one student investigates term deposits and another investigates shares as means of investment. They then discuss their learning and share their findings through a group presentation which answers the overarching question.

[Continued on page 5]

NEWSLETTER OF THE CANBERRA MATHEMATICAL ASSOCIATION INC

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We're on the Web!
http://canberramaths.weebly.com/

ABOUT THE CMA

The Canberra Mathematical Association (Inc.) is the representative body of professional educators of mathematics in Canberra, Australia.
It was established by, among others, the late Professor Bernhard Neumann in 1963. It continues to run - as it began - purely on a volunteer basis.

Its aims include

* the promotion of mathematical education to government through lobbying,
* the development, application and dissemination of mathematical knowledge within Canberra through in-service opportunities, and
* facilitating effective cooperation and collaboration between mathematics teachers and their colleagues in Canberra.

THE 2013 CMA COMMITTEE

President	Erin Gallagher	Hawker College
Vice Presidents	Jurek Paradowski	Calwell High School
	Sue Wilson	Australian Catholic University
Secretary	Theresa Shellshear	Australian Catholic University
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	Bruce Ferrington	Radford College Junior School
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	Bronwyn Norrie	Canberra Grammar School
	Michael Klinkert	Dickson College

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http://www.facebook.com/pages/Canberra-Mathematical-Association/110629419011275

INNOVATIONS (Continued from page 3)

For General Mathematics, sets of questions are designed around the topics in the curriculum documents. The assignments are delivered in three large parts for completion in class over six to eight weeks. Each part has a thematic character, often with a realistic narrative thread. Students are assessed on the quality of their work and are tested through a round-table conference where they are also asked to provide feedback about the process.

As with the other courses, teachers are able to spend time giving one-to-one feedback and assistance to students. Engagement seems far better than it had been in previous models.

During 2010 we conducted a survey of Methods and Specialist students to gauge their opinions on the Fertile Question. The results were very interesting, showing that while 95% of year 12 students and 100% of year 11 students reported finding the questions challenging and 92% of year 12 students and 94% of year 11 students said that the questions made them think a lot, only 38% of year 12 students and 15% of year 11 students said that they liked doing the questions.

Evidently, the program made the students work quite hard but many would have preferred something requiring less effort.

In addition, 58% of year 12 students and 67% of year 11 found learning in groups helpful.

Requests from interested readers for further information about the Fertile Question at Erindale College, are welcome.

R.E.

CMA turns 50—Cocktail evening at ANU
More pictures next page.

i-APPS

Wolfram Alpha

Wolfram Calculus

Redshift (astronomy)

Sky View (astronomy)

FRANGO CAMERA by Michael Barnsley

PUZZLE

This problem comes from an Australian Mathematics Trust publication. What strategies would you try?

'Six people sit down to dinner at a circular table. It is soon discovered that nobody is sitting in his/her correct place. Show that, by rotating the table, it is always possible to place at least two people correctly.'

LINKS

Mrbartonmaths resources, reviews, videos

http://www.improve.edu.au/ makes quizzes and tests, useful for NAPLAN training, can be used with or without Scootle, from Education Services Australia.

http://www.aamt.edu.au/Webshop resources available from AAMT

Paul Turner, John Carty, Rhonda Faragher, Sue Wilson, Stephen Hood, Val Barker, Jurek Paradowski

Jan Bentley, Heather Wardrop

John Carty, Rhonda Faragher, Sue Wilson (hidden),
Brian Goodwin (speaker)
Stephen Hood, Val Barker, Jurek Paradowski,
Christian Tabi, Elaine Hooke, Jo Kellow(?)