



## C<sub>3</sub> News

Spring 2007

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### Executive News

Since the last newsletter, we have a new addition to the executive: Brad J. Pavelich from Medicine Hat College in Alberta. We are still looking for a Quebec regional director. If any member from Quebec would like to come forward to act as the regional director, please contact Bill or Brad.

### Student Scholarships

C<sub>3</sub> has several student scholarships available. Information about these and other awards can be found on the website by clicking on "awards." The direct link is <http://www.c3.douglas.bc.ca/pages/awards.html>. Currently the deadline for student scholarships is September 30.

### President's Message

By Bill Blann

When I first joined C<sub>3</sub> (at the NAIT conference in 1986) I was working solo in a remote place. With the next nearest chemistry instructor 320 km away in Athabasca, my courses transferred to the U. of Alberta 480 km down the road, and I had spent four years with no immediate chemical colleagues. (Not a few members, including the one at Athabasca and Louis Schilder in Whitehorse, have been just as remote soloists as I have been.) With C<sub>3</sub> I found my first real peers, and for the first time had some experienced brains to pick. Now, twenty years later, the next nearest person that knows what I'm doing is only 320 km away in Athabasca and my courses transfer to the U. of Alberta 480 km down the road. But in C<sub>3</sub> I feel like part of a community out there, and I've got a lot of mileage, and many good teaching ideas, out of that relationship as time has gone by. I salute you, folks: that has to speak well for the organization.

I remain perplexed after all these years by the numbers of students that would rather quit than face the challenges of a course in which they are expected to learn to "work things out," or to practice approaches independently without being given explicitly detailed examples of every possible angle on each type of problem to be encountered. Maybe it is more noticeable in an institution this small. Keyano has the smallest university transfer program in Alberta, and I usually start with only 40 or so souls in general chemistry. This year the 18 that never got as far as the final exam were almost 50% of 38 starters.

Is it a general phenomenon, that a larger percentage of students cannot (or *will not*) read and understand sequences of instructions in a lab manual; cannot write an explanatory statement to save their lives - at least in their lab reports and exams; cannot invert an algebraic equation to express it in terms of an unknown? (When it happens in algebra, do we call it illiteracy, innumeracy, or some combination of both?)

One advantage of the small institution is that, while I may have no local peers in Chemistry, colleagues across the program are close enough that we can compare notes across students' whole programs to help assess their abilities, and in this year's group the attrition has been a problem right across the board.

Of course, there is still the smattering of students-that-can. Those happy few that survived the Christmas finals and have the tenacity to stay in for the second semester course should make it through to the end (joined by two repeaters from last year, both of whom have a totally different attitude this time; the extra bit of maturity helps). Even so, I'm not so sure: it wasn't so much the three second termers who insisted on thinking that log 8 divided by log 2 is 4; I think it was the engineer on Friday who proved unable to read her stopwatch, which made for the strangest set of kinetics data.

At least the Volleyball Three, who were quite capable but only squeaked through in December, decided to forgo the workload and concentrate on their more important volleyball this time... (Did I say that?)



## Pacifichem 2005 —Exploring Chemical Education in Paradise

by Dietmar Kennepohl

I recently had a chance to take a break from our Alberta winter to enjoy some sand and surf in Hawaii at the Pacifichem conference. Together with my colleagues Erwin Boschmann (Indiana University) and Tony Patti (Monash University) I organized a symposium entitled *Breaking Down Barriers in Chemical Education*. This symposium provided a forum to discuss connections between the student and the study of chemistry with emphasis on our changing society and availability of emerging technologies. In what ways are we breaking down barriers between students and learning chemistry? There were two general themes:

Rejuvenating chemistry which included teaching of students in other disciplines to attract them into chemistry, providing useful chemical knowledge while impressing on them the importance of chemistry for their own discipline, and redefining traditional divisions to cross discipline boundaries while keeping chemistry as the central science.

Bringing chemistry to the student in a flexible and accessible manner that reflects the needs of a more mobile society seeking continuous education. This would involve delivery methods, as well as a more inclusive approach in reaching the non-traditional chemistry student.

The symposium was kicked off by our keynote speaker Stuart Bennett from the Open University in the United Kingdom who pointed out that chemistry is extremely unpopular and is seeing a dramatic decline in enrollments. Are we in fact teaching inappropriate things to a majority of students? As you can imagine, this immediately caught everyone's attention. Stuart went on to challenge us to think about fundamentally

changing the nature of chemical education, so that rather than trying to get more students into existing chemistry programs we should strive to encompass a greater range of students.

Other presentations followed with a wide range of ideas to breaking down barriers for students in chemistry. Some solutions offered were technology-based and some were based in pedagogy. Most combined the two to offer out-of-the-box approaches to learning chemistry. We saw the developments in distance laboratories, online classes, remote instrumentation, computer simulations, and student development of their own instrumentation which were impressive and really did speak to the access of students to chemistry courses. However, many of the presentations had a more global approach to breaking down barriers to chemistry.

We heard how to increase active learning in large lecture environments by getting away from chemistry as a spectator sport, the peer led team learning model, the benefits of giving students more in-class time to solve problems in small groups rather than lecturing at them, engaging the student through report writing and working within the community, using word reduction editing to improve communication skills, online submission of student questions and answers to develop student interest and creativity, and most importantly introducing concepts and creative inquiry BEFORE plugging away at content and knowledge to foster deep learning rather than just covering material.

It was wonderful to see the wide variety of approaches. Some clever ideas I would want to try with my own students, others I have already tried myself and now felt reaffirmed to see them being tried elsewhere. Still, some of the more radical proposals presented during the day are not yet necessarily popular with the mainstream of teaching chemistry, but I think they are essential to ensure creativity and universal access to this very important central science.

With apologies to Susan Boyd at Mount Saint Vincent, who reinforces chemical principles and students alike by reviewing in rhyme:

*What matters in chemistry is often reactivity,  
a lesson we forget when we teach.  
Cramming facts as activity is not productivity,  
and hardly encourages reach.  
So if the stuffing of heads does not inspire,  
stop filling the bucket and just start a fire!*

*Editor's Note:* I also attended Pacifichem 2005, and I highly recommend this conference for chemistry educators. The conference is held in Honolulu every five years, so the next one will be December 2010.



## College Chemistry Canada

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## La Chimie collégiale au Canada

### INVITATION TO C<sub>3</sub> CONFERENCE, HELD JOINTLY WITH THE CSC CONFERENCE, 2007

Dear C<sub>3</sub> members,

The 34<sup>th</sup> C<sub>3</sub> conference, will be held jointly this year with the 90<sup>th</sup> CSC conference in Winnipeg, Manitoba from May 26<sup>th</sup> to 31<sup>st</sup>. Details concerning the conference are on the conference website at: <http://www.csc2007.ca/> or from the website: <http://sp.cusb.ca/cusb/c3conference/index.html> . [Note that the fee for early registration is \$ 80, but you have to be a C<sub>3</sub> member in good standing (\$20 renewal) and become a CSC Chem Ed Affiliate (\$10 fee)].

Details about the social events (Banquet, Fun run and Excursions), special events (Workshops), accommodations and your C<sub>3</sub> membership renewal are on the website: <http://sp.cusb.ca/cusb/c3conference/index.html>.

Enclosed are registration forms for the social events and accommodation at the Collège universitaire de Saint-Boniface residence. These must be completed and returned by mail.

The scientific program (Symposia and plenary lecture) will be held at the Winnipeg convention center.

The social and special events will take place in Saint-Boniface and at the "Collège universitaire de Saint-Boniface".

I look forward all to seeing you in May

Yours sincerely,

Lamine Diop

Conference coordinator

Collège universitaire de Saint-Boniface

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**COLLEGE CHEMISTRY CANADA  
LA CHIMIE COLLÉGIALE AU CANADA**



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**34th C<sub>3</sub> Conference held jointly with the 90<sup>th</sup> CSC Conference**  
Collège universitaire de Saint-Boniface, Winnipeg  
May 26-31, 2007

**Accommodation form**

Name: \_\_\_\_\_

Arrival date: \_\_\_\_\_ Time: \_\_\_\_\_

Departure date: \_\_\_\_\_ Time: \_\_\_\_\_

Institution: \_\_\_\_\_

Mailing address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

Sharing with: \_\_\_\_\_

Credit Card (Visa/Master) # \_\_\_\_\_ Expiry Date \_\_\_\_\_ Signature \_\_\_\_\_

The cost of a two-bed unit is \$ 50.00 per night including all applicable taxes.

Full payment must be received with this form and payment must be made by credit card.

To book a unit, please send your completed form to:

**Marianne Moquin**  
**Bureau de logement**  
**Collège universitaire de Saint-Boniface**  
**200 Avenue de la cathédrale**  
**Winnipeg, Manitoba, R2H 0H7**