



## CLASSROOM TECHNOLOGY:

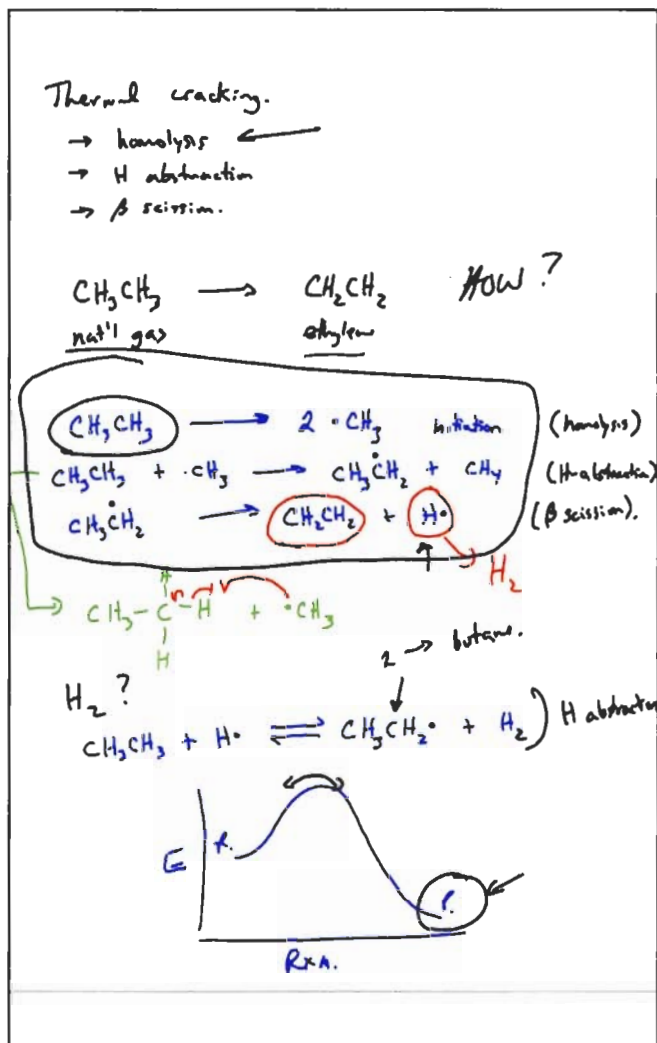
### A Personal Journey from Skepticism to Sheer Joy to Disappointment

By Lawton Shaw, Mount Royal College

Okay, this is my last issue as Editor of C3 News – I have finished the two year term I volunteered for. I would have continued, but I resigned from Mount Royal College to take a job at Athabasca University, starting in July. So, it made sense for me to back away from things like editor positions so I can focus on what I really need to do in the next year or two – get a handle on teaching chemistry at a distance and start a research program. Mount Royal has been an amazing place to learn how to teach in a classroom, which is something I love. I agree with Bob Browne, who once said to me, “The classroom is my place – safe from all the bull\*\*\*\*.” (Well, he said something like that.) Distance education will have different challenges and rewards but I am going to miss being on stage, teaching my way. Given the situation of leaving the classroom and the editorship, I felt I’d take the opportunity to share with C3 members my personal views on classroom technology and the experience I had this semester with a wonderful little thing called a Sympodium.

I’ve always been cautious, if not skeptical, about education and technology. While most colleagues in my age group have stampeded to use powerpoint in the classroom, I have always preferred a piece of chalk. This is probably because my most memorable chemistry professors all employed a piece of chalk or an overhead pen, and used the absolute minimum of notes to go from. In my first year of teaching, I had a student tell me that I was best when I was winging it. I took his advice and I must say that there is nothing like going into a classroom with a half page of notes to teach from and just winging the rest.

*continued on page 3...*



Part of a Sympodium lecture file from industrial organic chemistry.



# PRESIDENT'S MESSAGE

# C3 NEWS



Hi, Lawton -

As I mentioned on the phone the other day, I've been having a bit of fun with the "contest" you put in the last "C3 News". I still have not visited the website you mentioned (I didn't want to be unduly influenced).

At first, I just played around with words and letter combinations, trying to work in things like U, Es, and No as much as possible. I thought I was doing "all right" if I got a score of over 300, although I knew I'd have to step things up a bit because "unostentatiousness" is worth 629 according to my calculations. So, when, all by myself, I hit upon "inauspiciousness" (539), I was pretty pleased! If I can pluralize it ("inauspiciousnesses"), I've got 638!! (I will admit to being somewhat influenced -- inspired -- by "unostentatiousness"!)

Then I went prospecting in the dictionary and came upon "unceremoniousness" (599), which, if it can be pluralized ("unceremoniousnesses") gets me up to 698!

And then I hit upon an idea that blows the lid off the whole thing! What about a polypeptide? Only certain amino acids work, and only certain combinations (sequences) work, but a not-too-repetitive tetrapeptide scores 969 (Methuselah's age!) ... or even 1089!! The tetrapeptide is "threonylarginylasparagylarginine" (or "threonylargininylasparagylarginine").

Although I've tried to be careful in calculating all these numbers, I'm not prepared to guarantee that they are error-free! If you want to check them, here's how I broke them down:

U No S Te N Ta Ti O U Sn Es S

I N Au S P I C I O U Sn Es S (Es)

U N Ce Re Mo N I O U Sn Es S (Es)

Th Re O N Y La Rg I N (I N) Y La S P Ar Ag (I N) Y La Rg I N I Ne

U Rg Es

On a totally different matter ... do you need another President's column?

- John



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## CLASSROOM TECHNOLOGY...cont from page 1

For me, it's invigorating in a thrill seeking kind of way and the ad lib aspect keeps it fresh for my students. Why would I give that up so I can use a laptop and VPU? That would take more preparation time anyway! And, one main argument for using powerpoint is that it helps the students because they don't have to write as many notes – an argument that many of us would find dubious.

Technology does have a place, of course. For example, online resources and quizzes are a great educational tool. And, computer simulations in chemistry can be wonderful way to enhance the laboratory component. But, for me, keep it out of the classroom.

So, it was with some irony that during this last semester, I stumbled on a piece of classroom technology that I fell head over heels in love with. Yes, it was passionate. In the last three years, Mount Royal and its venerable IT department have spent a fortune putting "SMART cabinets" all over the place. These are just fancy cabinets with a computer, VCR, and a flat screen monitor on a swivel bracket, all connected to an equally expensive VPU hanging from ceiling. Okay, big deal. Well, I happened to have a tutorial scheduled in a room with a SMART cabinet, but because I don't normally use one, it took me about 3 weeks to notice that the monitor was much beefier than usual and it had a stylus attached to it. When I finally took a moment to examine it and read the label, I realized that this was one of the "Sympodium" units I had heard about. Basically, it's a normal monitor, but the flat screen works as a writing tablet and the stylus is the pen. There are several buttons across the top that allow you to change the colour of the pen or make it act as an eraser. Everything you write on the monitor can be projected with the VPU.

The possibilities for this little unit got me really excited. I could use it like a white board. But, I would never have to permanently erase anything because a new page can be added using the Sympodium software, which is equivalent to scrolling an overhead roll upwards. All lecture notes one makes "on the fly" can be exported as a pdf file which can be uploaded to a course web site for students to view later. Your actual lecture notes are saved, including any tangents you take or questions you answer on the spot. How can you beat that? It was a miraculous conversion for me. I moved one of my

lecture sections to that room so I could use the Sympodium. I threw away the chalk and picked up a stylus. I used the different colours just like overhead pens. I uploaded the real time lecture notes to my Blackboard site after every class. Students came to class, took their own notes, and downloaded the lectures from home. I told students I could write a paper on how good this is. It was fun. I was happy. It lasted the whole month of February.

Then, I came in one Monday morning for my 8:00 am lecture at the Sympodium and it wasn't responding. Nothing. The computer and the Sympodium were not talking to each other. I was powerless. IT was powerless. (No, not the Sympodium, I.T.) Two weeks later they gave up and disconnected the Sympodium from the swivel bracket. Since the first week of March, the expensive SMART cabinet has been a very expensive instructor's coffee table.

My guess is that it was sabotage, but one can't be too sure. Here's the pathetic part: I was the only instructor who used it for classes; I used it for about a month; and all of the technology in that room was worth about \$40K and now it's just sitting there. One comment: This is how people become cynical.

If I was staying in the classroom, I would joyfully use a Sympodium again given the chance. It really was a lot of fun and it was just so "clean" when it was working. But that's technology for you. It works when it works. Chalk always works.

So, as I "sign off", thanks for reading C3 News. It's been fun.

### **C<sub>3</sub> ANNUAL GENERAL MEETING** **June 18, St. John's**

**VACANT POSITIONS:**  
**President-Elect**  
**Editor**

**Get involved!**  
**Run for a position!**

# HOW CAN THERE BE MORE THAN ONE CORRECT ANSWER?

By Bob Perkins, Kwantlen University College

Most of our chemistry students have developed strategies for coping with the material presented in their first year science courses; however, these techniques often do not transfer well to second year organic chemistry where the interdependence of most of the topics makes simple memorization of limited value. I have used the following exercise for a number of years to improve the study skills of students in introductory organic chemistry.

Using the same formula  $C_5H_{10}O_2$ , give the structure (no names necessary) of a compound that will satisfy the following requirements.

Compound A ( $pK_a$  of approximately 5) reacts with  $CH_3MgBr$  to produce  $CH_4$

Compound B ( $pK_a$  of approximately 15) reacts with  $CH_3MgBr$  to produce  $CH_4$

Compound C reacts with 1 mole of  $CH_3MgBr$  to produce a 2° alcohol

Compound D reacts with 1 mole of  $CH_3MgBr$  to produce a 3° alcohol

Compound E reacts with 2 moles of  $CH_3MgBr$  to produce a 2° alcohol

Compound F reacts with 2 moles of  $CH_3MgBr$  to produce a 3° alcohol

Compound G (a saturated compound) does not react with  $CH_3MgBr$

Compound H (an unsaturated compound) does not react with  $CH_3MgBr$

Compound I is a hemiacetal; i.e., it will undergo mutarotation

Compound J is a hemiketal; i.e., it will undergo mutarotation

Compound K is an acetal; i.e., it will not undergo mutarotation

Compound L a ketal; i.e., it will not undergo mutarotation

Compound M ( $pK_a$  of approximately 15) has an IR band at  $\sim 1700\text{ cm}^{-1}$  and one stereogenic carbon atom

Compound N is a meso compound

Compound O can have cis/trans isomers

Compound P has 4 signals in the  $^1H$ -NMR (two triplets and two quartets) with a relative area of 3:3:2:2

Compound Q gives a positive 2,4-DNP test, a positive Tollens, and a positive Iodoform test

Compound R gives a positive 2,4-DNP test, a negative Tollens, and a negative Iodoform test

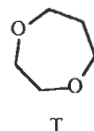
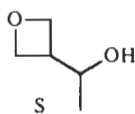
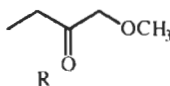
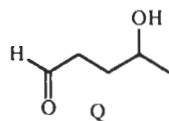
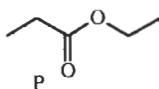
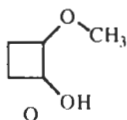
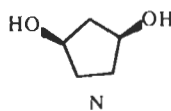
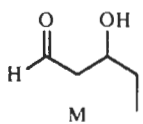
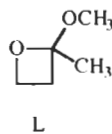
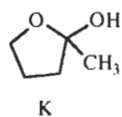
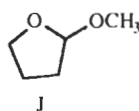
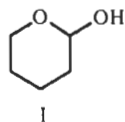
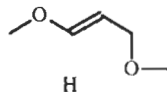
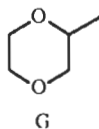
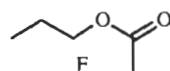
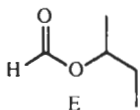
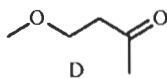
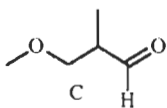
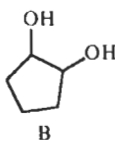
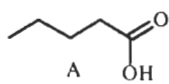
Compound S gives a negative 2,4-DNP test, a negative Tollens, and a positive Iodoform test

Compound T gives a negative 2,4-DNP test, a negative Tollens, and a negative Iodoform test

There are many correct answers, one possible set is shown on page 5.

# C<sub>3</sub> Sunshine Chemist

*A sensitive pisces, Dr. Shaw enjoys watching a Soxhlet extractor in action. He dreams of starring in his own television series.*



# CONTEST

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Seeing as C3 President John Olson is the unofficial international champion of the make-words-with-element-symbols competition (see page 2), he got to decide what this issue's contest will be. Here's the contest:

C3 News has been running a picture of John and his dog playing scrabble. (Actually, I don't think his dog really plays scrabble, but maybe that's his secret. Who knows?) The question is: Where was this picture taken?



## Where was this picture taken?

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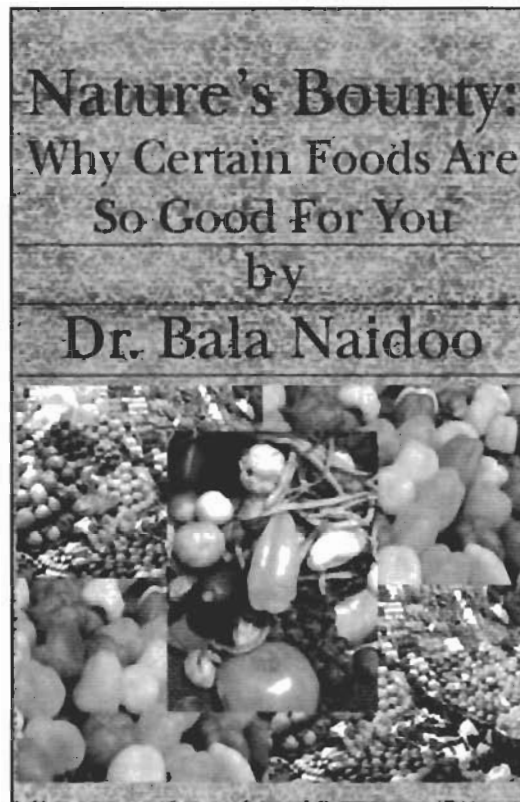
### CLUES:

- It's a public/commercial place
- Dogs are allowed.
- It's at a well known place in Alberta.

Send your answers to John  
(olsonj@augustana.ca).  
John gets to decide the prize as well.

# MEMBER NEWS

Bala Naidoo is retiring at the end of this semester and is moving to Vancouver Island. For 32 years he has been teaching Chemistry at John Abbott College and Dawson College. Recently he has published a book: "Nature's Bounty: Why Certain Foods Are So Good For You" (2004) The book is based on a weekly newspaper column Bala has been writing; more writing is his main retirement project. Bala is to be doubly congratulated!



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# CHEMISTRY ON THE ROCK: St. John's Conference Update

The 32nd College Chemistry Canada conference will be held in St. John's, Newfoundland June 16 – 18, 2005.

## PROGRAM

### Thursday, June 16

9:00 – 12:00	City Explorer Tour (\$30 per person)
1:00 – 4:30	C3 Executive Meeting
6:30 -	Registration
7:00 – 10:00	Wine & Cheese Reception

### Friday, June 17

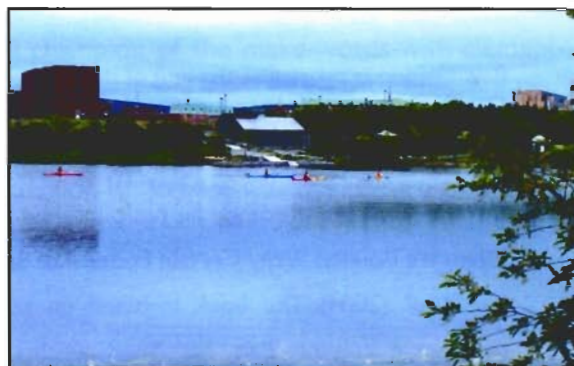
Breakfast: On your own	
8:45 – 9:05	Official Greetings
9:15 – 10:00	Keynote Speaker (INCO)
10:00 – 10:30	Presentation
10:30 – 11:00	Break
11:00 – 12:00	Memorial University President
12:00 – 1:00	Lunch
1:00 – 2:30	Presentations
2:30 - 3:00	Break
3:00 – 5:30	Presentations
Dinner: On your own	

### Saturday, June 18

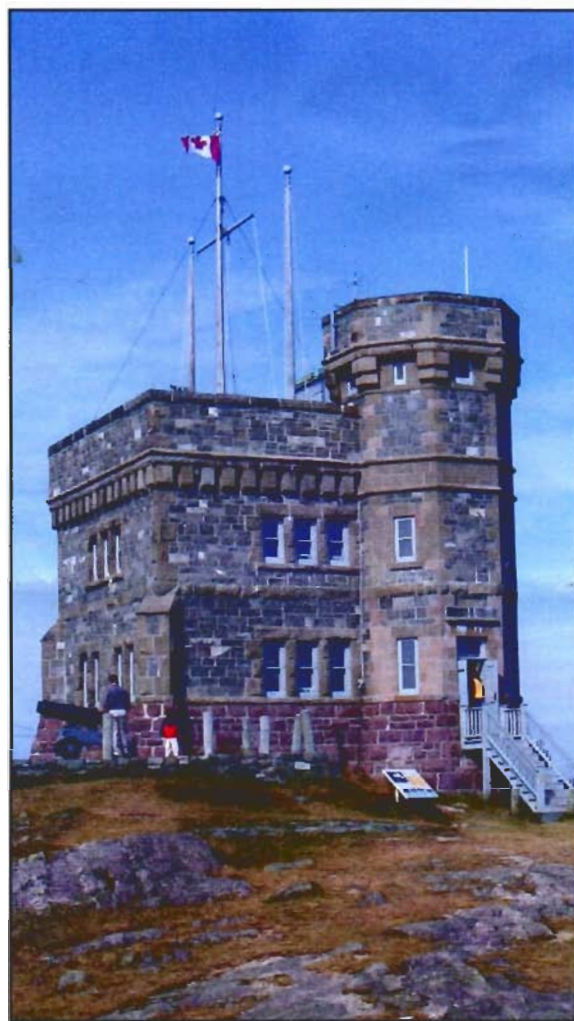
7:00	Fun Run
Breakfast: On your own	
9:00 – 10:00	Presentations
10:00 – 11:00	Poster Session & Exhibits Break
11:00 – 12:00	Presentations
12:00 – 1:00	C3 Annual General Meeting
Lunch: On your own	
2:30 – 6:30	Rum and Rascals Tour (\$50 per person)
6:30	Conference Banquet (\$50 per person)

Conference Chair:  
Ian McMaster (ian.mcmaster@cna.nl.ca)

Conference Web site:  
[www.mun.ca/c3](http://www.mun.ca/c3)



*Student Life at MUN*



*Cabot Tower*