



## CONFERENCING IN THE FAST LANE

By Bob Browne  
Douglas College

For the past two weeks I've been attending a conference sponsored by the ACS Division of CHEM Ed's Committee on Computers in Chemical Education. It has been moderated by Tom O'Haver of the University of Maryland, and attended by a few hundred chemical educators from all over the world; the UK, Netherlands, Norway, South Africa, Thailand, Canada, and of course the US, were all represented. And here is the best news: travel, accommodation, and registration cost absolutely nothing. You see, the whole conference took place on the Internet, that vast sprawling network linking computers all over the world.

Actually, this was more of a trial conference. The main conference will take place from June 14 to August 20 this year, and will focus on "Applications of Technology in Teaching Chemistry". While forums and discussion groups are not new to computer networks, this is the first time an actual conference, complete with presentations, questions, and discussions of each paper has been attempted. With no previous experience to draw upon, and suspecting that the rules for running conventional conferences might not apply, the organizers wisely decided to mount a

mini-conference starting on February 5 and running for three weeks.

Three papers were presented: 1. "How to Make Computer-Assisted Instruction Fail" by Steve Lower of Simon Fraser University, (Steve has been a presenter at more than one C3 Conference, if memory serves), 2. "Windows and Networks: Lowering the Activation Energy for a Chemistry Department Microcomputer Facility" by T. C. O'Haver of the University of Maryland, and 3. "Some computer Graphics Examples", compiled by Tom O'Haver. This last paper was a compilation of figures and graphics to allow participants to test their decoding and displaying capabilities.

Here's how the system works. The papers are "broadcasted" to all registered members of the conference from the host computer, in this case located at the University of Maryland. Discussion, questions, and comments which you want the entire conference to read are sent to an address on the Internet (CHEMCONF@umdd.umd.edu) which forwards them to all participants. The "list" of conference members is

maintained by another software device call a "listserver" which looks after registration and keeping track of participants.

The first week of the conference was set aside for reading the papers and asking questions of clarification of the authors. Periods for discussing each paper were set aside in the second week, and that's when the messages really started to fly. Discussion "threads" soon evolved, with some participants discussing the merits of laboratory simulations and their effectiveness, and others discussing whether CAI was really the best way to teach certain topics.

In the third week, discussion of papers continued but in addition, there was an exchange of ideas on how to solve the problems which surfaced. For example, although two days were set aside for discussion of each paper, comments and questions came in over a period of four days, resulting in a lot of overlap. When respondents are located all around the world, you have to be precise about dates and times (ie. GMT? EST?). When the cutoff time arrives in

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## NOTICE OF BUSINESS MEETINGS

### College Chemistry Canada, Inc.

**Location:** Community College  
of Rhode Island,  
400 East Avenue,  
Warwick, Rhode Island

#### *Joint C<sub>3</sub> Executive and Board Meeting*

Thursday, June 3, 1993, at 2:00  
pm

#### *Annual General Meeting*

Friday, June 4, 1993, at 5:00  
p.m.

## CALL FOR NOMINATIONS

### College Chemistry Canada, Inc.

Nominations are invited for the following  
positions on the College Chemistry Canada  
Executive:

President Elect

Editor

Treasurer

Regional Directors: two each from the  
following five regions —

B.C. and Yukon

Saskatchewan, Manitoba,

Alberta, NWT

Ontario

Québec

Atlantic Provinces

Please send nominations to the Secretary of  
College Chemistry Canada:

Dr. Robert Perkins

Kwantlen College

P.O. Box 9030

Surrey, B. C.

V3T 5H8

Nominations will also be received at the  
Annual General Meeting on June 4, 1993 at  
the Community College of Rhode Island.

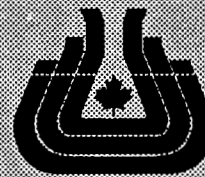
*Continued from page 1*

Maryland, it may still be yesterday in Taiwan. Here are some other issues which emerged. How do you send graphics which can be decoded and displayed on many different computer platforms? This appears to be a major issue, with no resolution in sight. How does the conference coordinator keep discussions on track? It's not like he's sitting there to tell you you're out of line. How do participants deal with the flood of mail which comes in when they may only be interested in discussion of one or two papers? How can responses be kept in sequence? Although messages travel almost instantaneously on the Internet, different routing paths can result in a response arriving before the question, a problem which is more conspicuous the further away you are from the broadcasting computer.

Although the problems are obvious, there are many advantages to this type of conference. The very fact that you can be read but not seen gives you a certain courage to state your views in a setting. Everything is in print, so you have time to think about a discussion, and refer to it many times before responding. If you have no interest in a presentation, you can delete messages immediately, since they are all identified as to the paper under discussion.

There is no doubt that computer conferences are the way of the future, once the problems are resolved. In terms of the stage of development, we are about where the radio amateur operators were in the 1920s, with no protocols or rules yet in place to govern communication. But it's coming. However, as good as computers are at simulations, and even at simulating conferences, I still have a few reservations. I can't help but wonder how they can possibly simulate that deliciously delinquent feeling you get when you skip out of a session and go for a beer!

If your college has a link to the Internet and you want to register for the June conference, simply send the message "SUBSCRIBE CHEMCONF <your name>" to listserv@umdd.umd, before June 1, and you'll receive a complete set of instructions for participation. Have fun.



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

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Articles of any length will be gladly accepted. Please send typewritten copy to the Editor at the above address or send by fax. Copy can also be sent on a 3 1/2" disk, MAC format using Microsoft Word, or any wordprocessor producing ASCII output.

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## TRAVEL TIPS AND INFORMATION

Providence, RI, is located 70 km south of Boston, and 480 km southeast of Montreal. Coming from the north by car you can bypass Boston on Interstate 95 or, may we suggest, spend a day or two in Boston with its marvelous museums and seafood restaurants. You can also take one of the bridges over to Cape Cod which, in the beginning of June, is delightfully free from those tourists, who later in the summer tend to turn route 6 on the Cape into an endless parking lot.

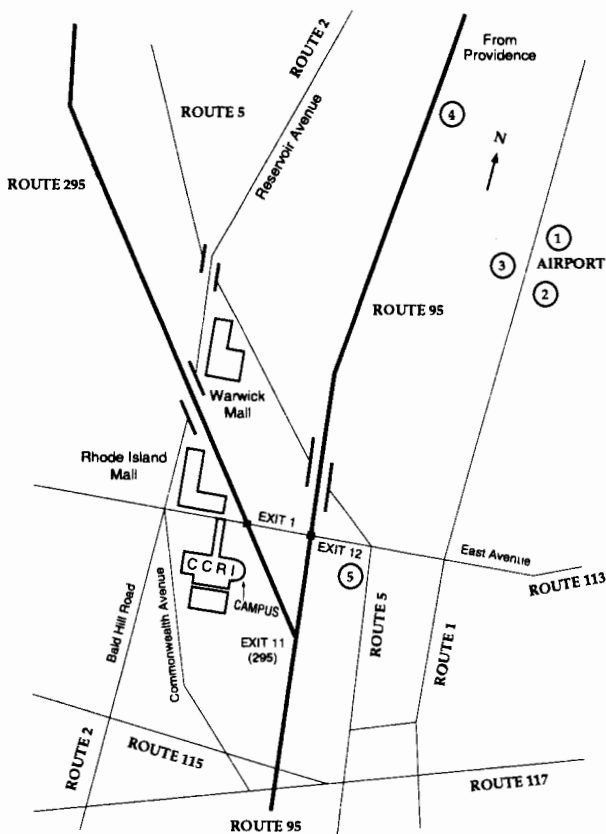
If you are flying in from western or central Canada we suggest you check the rates directly to Boston where you can rent a car. Delta Airlines has connecting flights to Providence from La Guardia (New York City) and Boston, and US Air flies to Providence from Syracuse (New York), but those fares are substantially higher. For example, recently the unrestricted return fare Montreal to Providence was \$520, compared to Montreal to Boston \$289. The corresponding restricted fares (pre-booked, Saturday stay-over, etc.) were \$258 and \$166 respectively.

There will be cars going down to Providence from Montreal and Sherbrooke so contact Anne-Marie Weidler-Kubanek if you are interested in car-pooling.

### Driving to the Community College of Rhode Island and area motels

Travelling North on Route 95, take Exit 11 (295) and then take Exit 1 onto Route 113 West. Continue straight to campus entrance.

Travelling South on Route 95, take Exit 12B, bear left at fork to 113 West. Continue straight to campus entrance.



## MOTEL LIST

June 3, 4, 5 1992

The Providence Airport, also called the T.F. Green Airport, is actually located in Warwick, RI, very near the campus of the Community College of Rhode Island that our conference is being held at. Interstate 95 is adjacent to the airport (Exit 13) and the Community College is located off the next interchange (Exit 12). All of the motels listed here are within walking distance of the airport terminal or located at a I-95 interchange. We suggest that reservations be made early since a number of local colleges are holding graduations at the same time as our meeting. There may be some slight changes in the rates listed and we are in negotiations to achieve a conference rate at some of these places.

MOTEL	RATE	LOCATION
<b>Comfort Inn</b> 1940 Post Road Warwick, RI (401) 732-0470 (800) 228-5150	\$60 1-3 occupants conference rate	airport <b>1</b> on map
<b>Econolodge</b> 2138 Post Road Warwick, RI (401) 737-7400 (800) 424-4777	\$49 single \$59 double	airport <b>2</b> on map
<b>Johnson &amp; Wales Airport Hotel</b> 2081 Post Road Warwick, RI (401) 707-7400 (800) 333-2066	\$85-115*	airport <b>3</b> on map
<b>Suisse Chalet</b> 36 Jefferson Blvd. Warwick, RI (401) 941-6600 (800) 5 CHALET	\$44.70 single \$49.70 double	I-95 Exit 14/15 Jefferson Blvd. <b>4</b> on map
<b>Holiday Inn at the Crossings</b> 800 Greenwich, RI (401) 732-6000 (800) HOLIDAY	\$115*	I-95 Exit 12 <b>5</b> on map

All prices are US\$ and there is currently a 7% tax. We are attempting to get conference rates at motels marked with an \*. We are making arrangements for shuttle service from these motels to the Community College.

# REGISTRATION

COLLEGE CHEMISTRY CANADA  
1993 Joint C<sub>3</sub>-2YC<sub>3</sub> Conference  
COMMUNITY COLLEGE OF RHODE ISLAND  
JUNE 3 – 5, 1993

Name:

(Last)

(First)

Institution:

Address:

City:

Province:

Postal Code:

Telephone:

Presenter:    yes             no

Fees:

Registration	C <sub>3</sub> member	Non-Member	Amount
post-marked before May 1st –	\$30	\$50	\$ _____
after May 1st –	\$40	\$60	\$ _____
(You will automatically become a C <sub>3</sub> member for 1993–1994 by paying the non-member fee.)			
Annual Banquet (Friday night Clambake)	\$25		\$ _____
Total Fees: (All amounts quoted are in Canadian funds.)			\$ _____

Make cheque payable to “College Chemistry Canada” and mail to:  
Anne-Marie Weidler-Kubaneck, John Abbott College, P.O. Box 2000, Ste. Anne de Bellevue,  
Québec, H9X 3L9.

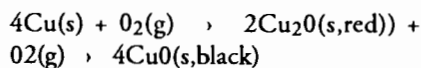
Receipts will be issued for the total amount and included with your registration package.

## FOOLS' GOLD, OR WHAT IS THE COLOUR OF COPPER?

Dan A. Morrison  
Algonquin College, Ottawa

A new periodic table of the elements has been posted in the corridor outside one of our labs. It is the kind that shows pictures of each, in glorious colour, despite the fact that most are solids (metals) and have no colour (silver). I was reading the thumbnail description of each metal the other day when I noted a curious fact: only two metals in the whole universe are coloured, and they are gold and copper! Why? is it because they are both in the first sub-group? If so, why is silver not coloured? We know the colour of gold; somehow, the electrons on the surface of the metal must be interfering with incident light so that a yellow (gold) colour is predominantly reflected. Also, we all know the colour of copper; so my first question was: why is copper not gold-coloured? A few days later, I thought of the answer: it is! They are both the same colour! For what it's worth, here is my thesis:

We all know that metals are prone to forming a near-invisible coherent oxide layer on their surfaces in the presence of air. So the colour of the oxide, be it white, grey, black or whatever tends to influence the appearance of the metal. Now copper has two oxides: cuprous (I) which is red, and cupric (II) which is black:



You often see the red oxide when copper wire is corroding in a damp environment where the supply of air is limited, inside insulation, for example. This explains the reddish-orange colour of pure copper and of bronze, an alloy of copper and tin. Since tin is more noble (lower than copper in the electrochemical or activity series), then copper is preferentially oxidized, giving the surface of bronze its reddish-brown (orange) colour.

To see the colour of pure copper, we have to prevent it oxidizing, for example by

mixing it with a less noble (more base) metal preferably one with a white or colourless oxide. The perfect candidate? is zinc! Hey presto, the alloy brass! Zinc is preferentially oxidized in air allowing pure copper to be seen in its true colours, namely those of brass, fools' gold and gold.

## WHAT'S THE RELATIONSHIP BETWEEN THOSE TWO ORGANIC COMPOUNDS?

Bob Perkins - Kwantlen College

Students are quite often overwhelmed during their first exposure to organic chemistry. At the CCC conference at Vanier College last June, I described how I had been using the Mac program beaker in my introductory chemistry course. For the past few semesters I have also used the following open-ended question with my students after covering the various types of isomers possible for organic compounds.

Using the formula  $\text{C}_4\text{H}_8\text{O}$ , draw (and name where possible) the structures of compounds which constitute:

- a pair of positional isomers (both saturated)
- a pair of positional isomers (both unsaturated)
- a pair of functional isomers (both saturated)
- a pair of functional isomers (both unsaturated)
- a pair of skeletal isomers (both saturated)
- a pair of skeletal isomers (both unsaturated)
- a pair of geometric isomers (both saturated)
- a pair of geometric isomers (both unsaturated)
- a pair of optical isomers (both saturated)
- a pair of optical isomers (both unsaturated)

The formula indicates that all compounds will contain one unit of unsaturation, i.e. either  $\text{C}=\text{C}$  or  $\text{C}=\text{O}$  (unsaturated compound), or a ring (saturated compound). I allow the students to work in groups, and near the end of the class we place their proposed structures (and IUPAC names) on the board. I have found that at the end of this exercise most of the students have a much clearer understanding of how to draw organic structures, name them and group them according to structural similarities.

Possible answers are as follows: (NOTE — There may be more than one correct answer for each part):

- saturated positional isomers:  
1-methyl-1-cyclopropanol and 2-methyl-1-cyclopropanol
- unsaturated positional isomers:  
3-buten-1-ol and 2-buten-1-ol
- saturated functional isomers:  
cyclobutanol and methyl cyclopropyl ether
- unsaturated functional isomers:  
2-butanone and butanal
- saturated skeletal isomers:  
2-methyl-1-cyclopropanol and cyclobutanol
- unsaturated skeletal isomers:  
butanal and 2-methylpropanal
- saturated geometric isomers:  
*cis* and *trans* 2-methyl-1-cyclopropanol
- unsaturated geometric isomers:  
*cis* and *trans* 2-buten-1-ol
- saturated optical isomers:  
R and S *trans* 2-methyl-1-cyclopropanol
- unsaturated optical isomers:  
R and S 3-buten-2-ol

Feel free to use the question with your students and I think you will be pleased with the results.

April, 1993

## HOT FROM THE PRESSES

The free radical gas nitrogen oxide is the subject of an article detailing with neurotransmitters in the body. NO is known to be necessary for a wide range of neural responses. *Science*, 257, pp. 494-496, July 24, 1992.

Supercritical carbon dioxide may be able to replace the use of CFC's as a solvent for

the formation of fluoropolymers. *Science* 257, p. 945, August 12, 1992.

The smallest battery yet constructed (70 nanometres across) can produce 0.0200 volts for 45 minutes. This corresponds to the reaction of approximately 80,000 Cu atoms. *Science*, 257, p. 1207, August 28, 1992.

A ranking of the possible carcinogenic hazards of a variety of natural and synthetic

chemicals is presented in an interesting article by Ames et al. Some food for thought here. *Science*, 258, pp. 261-265, October 9, 1992.

—Bob Perkins

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