

Gary Wilson: Our newest Lifetime Member

by Bob Browne, Douglas College

Gary Wilson's association with College Chemistry Canada extended from its inception in 1976 to his last official duty as Conference Coordinator for the 2001 Montreal Conference. In between, he made some very significant contributions to our organization. To recognize these contributions, C₃ has made him an honorary lifetime member, and awarded him a travel grant to attend the 2005 St. John's conference.

If it can be said that one person, or region, dominated during each of the three decades of the C₃'s existence, then the 1980s belong to Gary Wilson and John Abbott College. Gary joined John Abbott in August of 1973, and his involvement with C₃ started immediately. At the time, the only organization providing professional development for Canadian college chemistry instructors was the 2YC₃, the Two Year College Chemistry Conference in the USA. In fact, all of Canada was one region of that organization. That, however, all changed at the 1976 conference at Cégep du Vieux Montréal where the "Canadian Section" of 2YC₃ met and decided to become a separate organization called College Chemistry Canada. Why should we, the arguments went, send our money south of the border when it might be better kept in Canada. And with that C₃ was born.

Gary Wilson's influence on C₃ really started in 1980, when he held the position of Vice President, a position which he himself would later eliminate. That year the conference was held at Algonquin College in Ottawa, and it was here that the topic of incorporation was first discussed. "The idea was to have legal recognition, similar to the CIC, with a view to making us eligible for government subsidies" Gary recalls. "The strange part is that we've never applied for any!"



Gary Wilson

Before applying for incorporation, an organization must have a constitution duly approved by the membership, so this was initially where all activity was directed. In the summer of 1980, after the Algonquin conference, Gary and Norm Webster (later to become President) sat down in Gary's backyard in Montreal to discuss what should be in the constitution. Gary recalls that it was a sunny day, and the two of them sat for hours debating the issues. One particular problem was what would constitute a quorum at the annual AGM. Norm, who was a strong democrat, argued that it be 50% of the membership, while Gary, worried that we'd never get a quorum if that were the criterion, wanted "a

majority of the executive members plus three members in good standing". Gary prevailed, and that is what is in the constitution today, much to the relief of many presidents ever since.

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PRESIDENT'S MESSAGE

C₃ NEWS



How is your "homework" coming along?! In my last message I asked you to consider doing three things for College Chemistry Canada: (1) Start planning to attend the St. John's conference (June 16 - 19); (2) spread the word about C₃ (the existence of C₃ seems to be a well-kept secret!); and (3) contribute ideas for the benefit of C₃.

We've got a great little organization here, and to keep it alive and thriving it needs to continue to have active, involved members. C₃ has benefitted immeasurably from the likes of Bala, Bill, the Bobs (B. and P.), Dietmar, Gary, Geoff, Jacky, Max, the Pats (B. and D.), Peter, Suzanne ... to name a few (in alphabetical order); as members retire (see the article on Gary Wilson elsewhere in this issue), younger members need to take up the reins. Anyhow, one thing I'm leading up to

here is that we'll be looking for a President-Elect and an Editor at the St. John's conference. And, another thing I'm leading up to is that women are seriously underrepresented on the Board and Executive right now.

And speaking of well-kept secrets ... how 'bout those scholarships, eh? C₃ gives out (or, tries to give out) three scholarships each year. (1) The high-profile award is the Host-institution Student Scholarship (\$400), given to a worthy recipient by the institution hosting the annual conference. (2) The recipient of the General Student Scholarship (also \$400) is determined by the Executive on the basis of nominations received from C₃ members by September 30. (3) The recipient of the Award in Chemical Education (\$600) is a C₃ member in good standing (for at least five years) who has been nominated by January 1; the decision is again made by the Executive. For information on these awards, please visit C₃'s website: <http://www.C3.douglas.bc.ca/pages/awards.html>.

I hope this issue of C₃ News finds your winter semester progressing smoothly (our sympathies to those of you stuck in the middle of the BC labor quagmire). Me? I'm buried under an avalanche of lab reports to mark, but before I get at them, I think I need to find out something about why a sugar cube burns readily when it's coated with ashes! (Anyone know? Check out <http://www.mrseiler.org/icap/sugarcube.html>, or http://www.saskschools.ca/curr_content/chem30/modules/module4/lesson5/sugarashes.html, or <http://129.93.84.115/Chemistry/DoChem/DoChem052.html#Description>)

Until next time ...

- John Olson



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GARY CONT...

In 1981 the first draft of the constitution was tabled at the AGM in Corner Brook where it was discussed at length. Gary wanted the membership to have time to think about it, and make adjustments, so it was left for one year. The following year, after a number of modifications, it was presented to the membership at the Camosun Conference for approval, and it is this document, with minor changes, which is our present constitution.

Now it was time to start the actual process of incorporation. The 1983 conference was to be held at John Abbott, and Gary was elected Conference Coordinator. This was to be the 11th conference, since the numbering started in 1973 while we were still a region of 2YC₃. However, the 11th conference didn't go as planned; there was a province-wide teacher's strike that year, and Gary didn't want people coming to Montreal and being faced with crossing a picket line, so the conference was cancelled. Gary says "I look at the 11 as a roman numeral II because this conference was scheduled twice."

1982 also brought changes to Gary's career. As he puts it, he "went over to the dark side" and became Dean of Sciences at John Abbott. Trying to juggle the new job, the work of the conference coordinator, and work on incorporation proved to be onerous, so Gary brought in Shahid Jalil, a chemistry instructor at Abbott, and a long-time C₃ member, to help with the incorporation. Shahid's job was to communicate with the Department of Consumer and Corporate Affairs, the agency responsible for approving incorporation applications. It was a long process, even with the help and support of the C₃ Executive, but finally, by the end of 1987, the incorporation was approved. The 1988 conference at Seneca College, which many remember as one of the more grandiose meetings C₃ has attempted, was the first one under the banner of College Chemistry Canada Inc.

As so often happens in C₃, members are rewarded for a job well done by being given another job, and in Gary Wilson's case, the new job was President, an office he held from 1990 to 1992. As past president in 1993, he was asked to create a membership brochure, and after some prodding, produced a beautiful three-fold pamphlet extolling the benefits of membership in C₃. An unfortunate typo offered prospective members a free copy of C₃ News "including and latest

conference information". Of course he was teased about the typo, especially since he had printed hundreds of the things. His response? He got up in a meeting and, completely dead-pan, used the word "including" in a statement, as if it was a real word. Notwithstanding the typo, however, it was this brochure in which Gary coined the phrase "Your Canadian College Connection" which has been used ever since on our web site and many publications.

His last official duty for C₃ was as Conference Coordinator for the joint CSC-C₃ conference held in Montreal in 2001. This was another ground-breaking event, being the first time our organization linked with the CSC, and Gary and his people from John Abbott did a marvellous job organizing the social events. Always one to embrace new technology, all his files, pictures, and reports were handed over to the executive on a CD ROM at the end of the conference. And those who participated in the fun run that year (from the bottom of Mount Royal to the top!) were presented with photographs the following day thanks to Gary and his new digital camera.

Asked if he had an overarching philosophy about C₃, Gary replied, "My philosophy was that we needed to design conferences which would make people realize that what they do is important, that would recognize their contributions to the teaching of chemistry, thank them, and to make them feel that we want to see them again."

Although he retired from John Abbott in January 2004, Gary Wilson has hardly stopped moving. An avid skier, he coaches and instructs skiing at Mount Habitat, outside Montreal, he plays rhythm guitar in a blues band once a week, and he started teaching a 5-week digital photograph course at the John Abbott last fall. He is also preparing to sell his house and move to the Courtney-Comox area on Vancouver Island, where he'll be close to powder skiing on Mt. Washington.

Gary Wilson will be officially recognized for his many contributions to College Chemistry Canada at the 32nd conference in Saint John's Newfoundland. It promises to be fun, and we'll be celebrating the accomplishments of one of the founders of our organization. Don't miss it!

REMOTE ACCESS TO INSTRUMENTAL ANALYSIS

by Dietmar Kennepohl, Athabasca University

During my twelve-year tenure at Canada's Open University, I have always been keen to find out as much as possible about useful and practical distance education methods that would allow me to teach chemistry remotely. I soon found out that one of the key challenges to teaching a successful chemistry course at a distance is delivering an engaging and sound laboratory component. Over the years, Athabasca University has used a combination of computer laboratory simulations, home-study microlab kits, and face-to-face sessions to achieve this goal. I am now in close collaboration with Ron Currie, Jit Baran, and Kieron Quigley at the Northern Alberta Institute of Technology (NAIT) to explore another promising approach to laboratory delivery.

We have recently shown through a pilot project supported by the Learning Enhancement Envelope (Alberta), that it is possible to control analytical instruments in real-time and carry out computer-interfaced instrumental chemistry experiments remotely via an Internet

connection. Selected project students in the Chemical Technology Program at NAIT carried out experiments remotely on FTIR and GC instruments, while several first-year Athabasca University chemistry students used the UV/VIS spectrophotometer to analyze their samples at a distance. In addition, we had occasional chemistry colleagues around the globe, including a lecturer from the Chemistry Department at the University of Otago in New Zealand, access and physically control the spectrophotometer in Edmonton to carry out real experiments.

I tend to describe these "remote" experiments as real only to differentiate them from "virtual" experiments or computer simulations that are becoming increasingly available over the Internet or as stand-alone programs. It is also interesting to

note that (excluding the longer Internet connection) the setup and procedure to control an instrument remotely from either the next room or half-way around the world are identical. Yet, having someone who is seventeen hours in a future time zone control an instrument right in front of your eyes still feels more impressive. However, we are not doing all this work in remote control to technologically astound either our colleagues or our students.



Dr. Allan Blackman controlling a UV/VIS instrument in Edmonton from the University of Otago in New Zealand.

So, why exactly are we so interested in remote access to analytical instruments? I have already alluded to its potential in delivering chemistry courses at a distance. However, that is only a part of it. Modern instrumental methods of chemical analysis involve the computer in four major roles: (1) to control instrument setpoints, (2) to acquire data, (3) to analyze data, and (4) to present data. These operations are all controlled using software provided specifically by the

instrument manufacturer. Since virtually all chemical instrumental analysis in industry now uses devices operated in this manner, remote control of instrumentation not only enhances the opportunity to learn the subject matter, but also provides direct practical experience with instruments in exactly the manner they are operated in a modern laboratory. Education considerations aside, another promising and more practical feature of remote access is the ability to either make better use of existing instrumentation within an institution or share expensive instrumentation between institutions.

In 2002-2004 our initiative received \$199,000 in funding from Office of Learning Technologies (OLT) under the New Practices in Learning Technologies to develop the more pedagogical aspects of remote access to both analytical

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WHAT AM I? – An Open-Ended Problem Solving Exercise

by Bob Perkins, Kwantlen University College

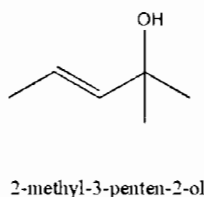
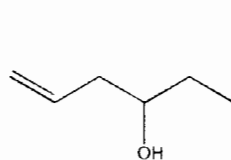
Most introductory chemistry courses contain a section devoted to organic chemistry. In addition to the recognition of simple organic functional groups and the IUPAC nomenclature of small molecules, instructors at many institutions introduce some simple functional group chemical transformations. Here at Kwantlen University College, we also use this section on organic chemistry to improve the critical-thinking and problem-solving skills of our first year students through the use of open-ended questions.

The following question is one example of the many variations that we have used; it deals with the results of three sets of reaction conditions: reaction with Na (positive for alcohols and carboxylic acids), reaction with H_2 in the presence of a Pd catalyst (positive for alkenes, aldehydes and ketones) and reaction with $KMnO_4$ solution (positive for alkenes, aldehydes, primary and secondary alcohols).

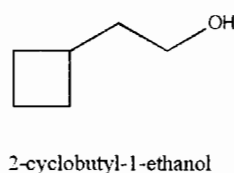
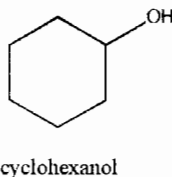
There are many possible structural isomers of formula $C_6H_{12}O$. Provide the structures (and IUPAC names) of compounds that will satisfy each of the following requirements. Note: There will be several correct answers for each unknown compound.

The formula $C_6H_{12}O$ contains one unit of unsaturation; therefore, each structure must either contain a double bond ($C=C$ or $C=O$) or a ring. I have provided two possible structures for each of the unknowns.

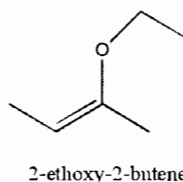
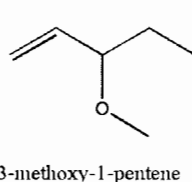
Compound A reacts with Na, H_2/Pd and $KMnO_4$
Possible structures must contain an alcohol (primary, secondary, or tertiary) and an alkene.



Compound B reacts with Na and $KMnO_4$, but not H_2/Pd
Possible structures must contain an alcohol (primary or secondary) and a ring.



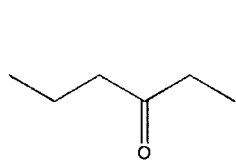
Compound C reacts with H_2/Pd and $KMnO_4$, but not Na
Possible structures must contain an ether and an alkene.



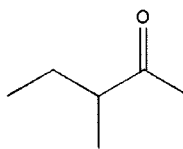
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WHAT AM I? CONT...

Compound D reacts with H_2/Pd , but not Na nor $KMnO_4$
Possible structures must contain a ketone



3-hexanone

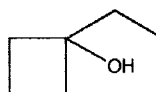


3-methyl-2-pentanone

Compound E reacts with Na, but not H_2/Pd nor $KMnO_4$
Possible structures must contain a tertiary alcohol and a ring.

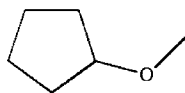


1-methyl-1-cyclopentanol

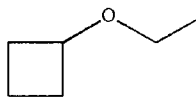


1-ethyl-1-cyclobutanol

Compound F does not react with any of H_2/Pd , $KMnO_4$ or Na
Possible structures must contain an ether and a ring.



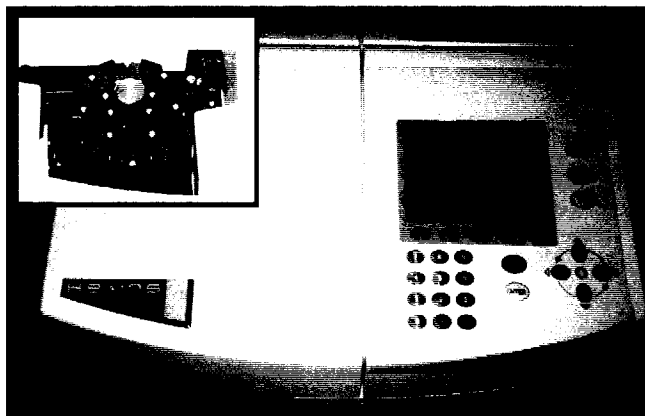
cyclopentyl methyl ether



cyclobutyl ethyl ether

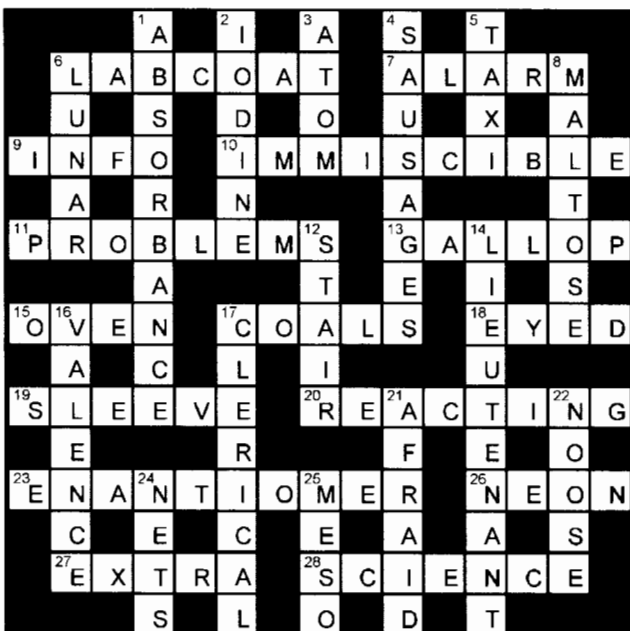
REMOTE ACCESS CONT...

instrumentation in chemistry as well as some basic physics experiments. The initial limited study through the LEE funding clearly showed that a client-server application can be achieved from a remote location, with an acceptable level of security, using the Internet. Although the LEE pilot study has shown the viability of this concept, obviously more research was required to adapt this technology to a teaching environment which would allow students both facile access to instrumental science experiments and an advantageous route to upgrade their laboratory skills at a distance. This was achieved and resulted in the development of the Canadian Remote Sciences Laboratories (CRSC) website (www.remotelab.ca). In keeping with the theme of our conference last June in Kelowna that site was expertly used by Ron Currie to demonstrate an analysis of wine live online. There is still more to be done (wine excluded) and the collaborative work between NAIT and AU continues.



Helios UV/VIS Spectrophotometer at NAIT in Edmonton (Inset is the autosampler).

Crossword Solution



Winners: Arthur Last, UCFV and Bill Blann, Keyano College

A NEW CONTEST - Atomic Symbol Challenge

In place of a cryptic crossword this month, I am providing all you chemists a more "inclusive" sort of puzzle. While surfing the web for industrial chemistry sites, I found **CEFIC**, the European Chemical Industry Council. Well, CEFIC is very good at promoting chemistry and they have a neat little outreach site: www.elements-of-life.org. Here, you can find the Elements Puzzle, a word game that sort of resembles what would happen if you played Scrabble and all of the letters were atomic symbols and the points for each "letter" were the atomic numbers. So... wait for it... the challenge is to construct an actual word using a series of atomic symbols. The word score is simply the sum of atomic numbers for all of the elements used. For example, the word "under", is U-Nd-Er (Uranium, Neodymium, Erbium = $92+60+68 = 220$). The winner of the international competition was "unostentatiousnesses". You're not allowed to submit that one. Only real words are allowed :) ALL entries will be published. Send your entries by email to the editor: Ishaw@mtroyal.ca

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ST. JOHN'S CONFERENCE UPDATE

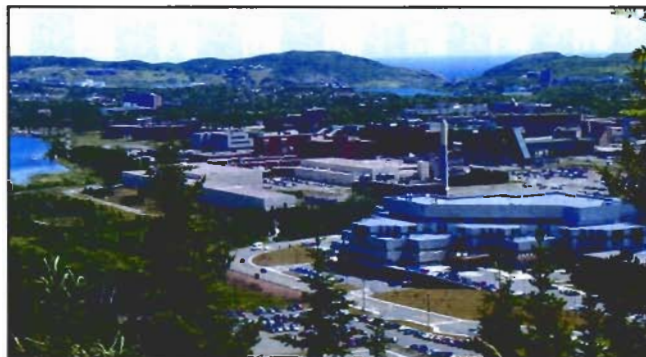
The 32nd College Chemistry Canada (C₃) conference will be held in St. John's, Newfoundland June 16-19, 2005.

The conference site will be Memorial University of Newfoundland (MUN) right in the center of St. John's. Details of building and room location, etc.. will be given later. MUN residences are on campus and within easy walking distance to most buildings on campus, either above ground or under through a "tunnel".

GENERAL CALL FOR PAPERS: First Request

C₃ Planning Committee is now in the process of soliciting papers and posters to be presented at the conference. The theme of the conference is "Chemistry on the Rock" and for potential presenters in Newfoundland and Labrador, C₃ Planning Committee is looking for presentations related to any aspect of Chemistry in Newfoundland and Labrador, including, but not limited to, neutraceuticals and biochemicals from plants (St. John's wort) or from fish waste, topics of general interest, water and sewage treatment, air and water pollution chemistry, and topics related to chemistry teaching.

For potential presenters outside Newfoundland and Labrador, there will a general session for C₃ members

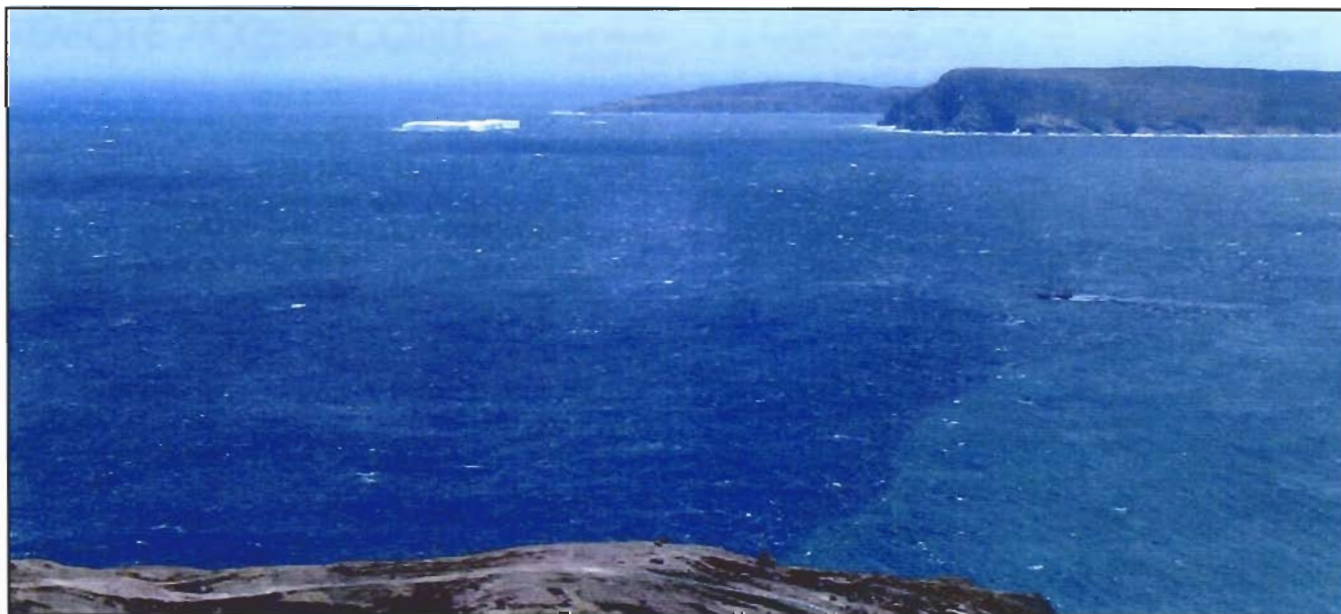


MUN Campus

(and others) to give papers of their choice in their own areas of interest, and which will benefit and be of particular interest to college and high school teachers and university professors involved with first and second year students, as well as under-graduate and post-graduate students.

Stay tuned to C₃ website for more details as they become available: www.C3.douglas.bc.ca

To submit a tentative title of your presentation or poster, please contact Ian McMaster at College of the North Atlantic (CNA) at ian.mcmaster@cna.nl.ca



Iceberg outside St. John's harbour. The most easterly point in North America is in the background.