

C₃ Conference is Coming!

A Taste of Chemistry, June 10-13, 2004 Okanagan University College, Kelowna, BC

Some of our speakers:

Nigel Eggers; Chemistry Dept. OUC,
will describe his research into the identification and synthesis of a class of terpene alcohols known as C13-norisoprenoids, which contribute to the aroma profile of Chardonnay wines.

Howard Soon; Master Winemaker, Sandhill Vineyards,
will discuss aspects of the biochemistry involved in the fermentation process.

Tilman Hainle; Winemaker, Hainle Estate Winery,
will describe the chemical basis for the matching of particular varieties of wine to specific foods.

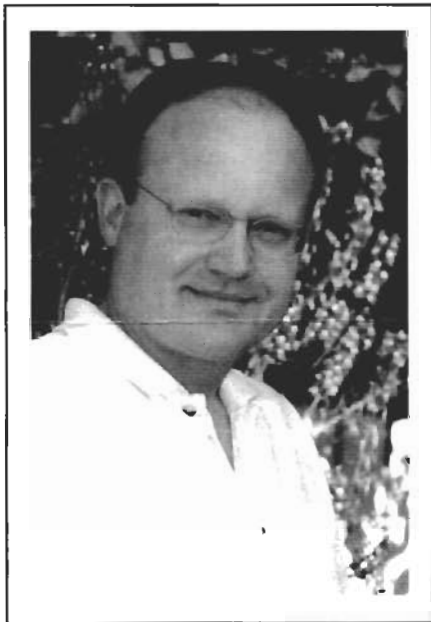


a taste of... CHEMISTRY



President's Message

C₃ NEWS



The greater part of the semester has already slipped by and most of us are starting to see those early signs of spring fast approaching. Institutional administrators emerging from committees are seeing their own fiscal shadows, there seem to be more publishing reps on campus flogging textbooks for next year, and of course our previously dormant students are blossoming with questions like "Will this be on the final?"

Spring is also a time to start thinking of travel plans to head out to Okanagan University College for our 2004 C-3 Conference. Pat

and Steve together with their OUC colleagues have been working hard, and their conference theme of wine chemistry is proving to be a popular one. Although no two C3 conferences have been the same, I have always found them to be not only informative, but also the best value for money and fun chemistry conferences I have seen anywhere. It really is a great opportunity to meet and socialize with friends and fellow chemists from across Canada. I hope to see many of you there to take in some presentations and workshops, catch up on events of the past year, and perhaps just share in a glass or two of that "Taste of Chemistry."

I also want to mention that as a result of past efforts by Bob Perkins and Geoff Rayner-Canham, C-3 members are eligible to become Affiliate Members of the Chemical Education Division of the Chemical Institute of Canada (CIC) and therefore attend CIC annual conferences at a substantially reduced rate. (More details under "News from CIC" in this issue.) This affords a great opportunity for more cooperation between our two organizations and the possibility of a joint conference in the future.

In the meantime, keep an eye out for those signs of spring, enjoy the rest of the semester, and I look forward to seeing you in Kelowna!

Dietmar Kennepohl



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The Teaching Corner

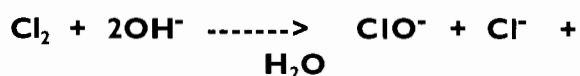
with Bob Perkins, Kwantlen University College

Low Cost Chemistry Experiments

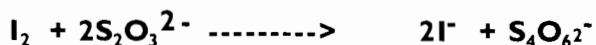
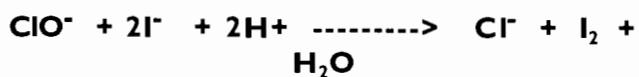
Analysis of Unknowns using a Spectronic 20

Volumetric Analysis of "Cl" Content

One of the important by-products of the industrial production of chlorine gas (via the electrolysis of salt water) is aqueous sodium hypochlorite (NaOCl), sold under various trade names such as **Javex** and **Chlorox**. Javex solution is an effective bleaching agent as the hypochlorite ion is a strong oxidizing agent, coloured organic compounds can be readily oxidized to colourless products. The effectiveness of this bleaching solution is a result of a disproportionation reaction of the chlorine in basic solution:



In this experiment, a student can determine the "Cl content" of a commercial sample of bleach. During the course of the analysis, the hypochlorite anion in the bleach is used to oxidize iodide ion to elemental iodine, which is then reduced back to iodide ion using the reducing agent thiosulfate ion. The end point of the titration involves the disappearance of the blue-black coloured complex formed between elemental iodine and starch.



Procedure:

1. Pipet 10.00 mL of your unknown bleach sample into a 100 mL volumetric flask and fill to the mark with distilled water.

2. Pipet 10.00 mL of this diluted bleach sample into an Erlenmeyer flask into which 10 mL of sulfuric acid (1 M) and 10 mL of potassium iodide (0.5 M) solution have

been placed. The solution should now be a deep reddish-brown colour due to the presence of iodine (I₂).

3. Titrate this solution against the 0.1 M standard solution of sodium thiosulfate. Take no more than 50 mL of this solution from the side bench and **be certain to record its exact concentration from the bottle**. As the sodium thiosulfate solution is added, the reddish-brown colour in the flask fades to yellow. When it is a pale yellow, add 3 drops of starch indicator solution (or a couple of starch pellets). This will make it easier to observe the end point which occurs when the blue-black colour of the iodine/starch complex disappears completely giving a colourless solution.

4. Repeat the titration as many times as you feel is necessary.

5. Determine the density of your **undiluted bleach sample** by transferring a 10.00 mL portion to a previously weighed (analytical balance) 25 mL Erlenmeyer flask. Be sure to keep your bleach sample covered with parafilm while weighing as it has a strong odour.

Calculations:

1. Determine the number of moles of iodine (I₂) in each titration run.

2. Determine the number of moles of hypochlorite ion (ClO⁻) in your 10.00 mL diluted sample of bleach.

3. Determine the molarity (in terms of ClO⁻) in the 10.00 mL sample of the original undiluted sample of bleach.

4. Using the measured density of your bleach sample, determine the % (by mass) of NaOCl in your original undiluted sample of bleach.

Feel free to try either of the above experiments and e-mail me if you have any questions:

Bob.Perkins@kwantlen.ca

Conference Guide

About Kelowna:

Kelowna is a city of about 100,000 people located in the heart of the Okanagan Valley.

The first European settlement took place in 1859 by missionaries. Father Pandosy is credited with setting up the Okanagan Mission to convert natives, traders and new settlers and laid a basis for other missionary efforts.

Kelowna boasts of having wonderful weather, beautiful scenery and world-class amenities. Kelowna has an agriculturally rich landscape known for its gardens, fruits and world class wines. The Okanagan Lake and Monashee Mountains provide the scenic backdrop for a wide range of outdoor activities. Kelowna is often called the four seasons playground.

Okanagan Lake is home to a legendary lake monster called "Ogopogo".

Call for papers:

Program Coordinator Stephen McNeil invites the submission of abstracts for the 2004 C3 Conference. The conference theme is "A Taste of Chemistry", examining the role of chemistry of the wine industry. Abstracts related to this theme and to all aspects of chemistry are welcome. Stephen can be contacted by e-mail at smcneil@ouc.bc.ca or by phone at 250-762-5445 Ext. 7573. Abstract submissions deadline April 15, 2004.

Abstract should include:

Full name, Institution and Department, Email address, Mailing address, Phone and fax numbers, Title of Presentation, Abstract (<250 words)

List of specialized equipment for presentation

Some of our speakers:

Nigel Eggers; Chemistry Dept. OUC,

will describe his research into the identification and synthesis of a class of terpene alcohols known as C13-norisoprenoids, which contribute to the aroma profile of Chardonnay wines.

Howard Soon; Master Winemaker, Sandhill Vineyards,

will discuss aspects of the biochemistry involved in the fermentation process.

Tilman Hainle; Winemaker, Hainle Estate Winery,

will describe the chemical basis for the matching of particular varieties of wine to specific foods.

Accommodation:

The North Kelowna Campus of Okanagan University College is where the sessions for the C3 conference will be held. Our beautiful retreat-like campus is conveniently located just minutes away from the Kelowna International Airport and many great golf courses. The closest hotels are approximately 10 minutes away. We recommend staying on campus. The rooms are modern and very affordable. It is the most convenient accommodation for conference delegates and provides a better opportunity for networking with colleagues.

For OUC Residence Reservations please refer to attached reservation form:

The cost to stay in residence is as follows*:

Single Room, 1 single bed, shared washroom	\$29.25pp/night incl/tax
Quad Apartment, 4 bedrooms, kitchen, private bath	\$117.00/unit/night incl/tax
One Room Studio, 2 singles or 1 queen, private bath	\$70.20/unit/night incl/tax
One Bedroom Apt, 2 singles or 1 queen, kitchen full bath living room has fold out couch that sleeps 2	\$93.60/unit/night incl/tax

Basic contact info outlined below:

OUC Conference Center
3180 University Way, Kelowna, BC. V1V 1V8
Phone 250-470-6055
Toll free: 1-877-589-6073
Fax: 250-470-6051
Website: www.ouc.bc.ca/conference

An alternate accommodation is the Sandman Hotel, Kelowna, which is about a 10-minute drive to OUC. You can access group reservations and rates by asking for Group reservation # 101-644. This will entitle you to a price of \$99.00/ night plus tax. *

For Hotel reservations:

Sandman Hotel Kelowna
2130 Harvey Ave.,
250-860-6409
Toll free 1-888-526-1988

*Both the OUC residence and Sandman Hotel reservations and rates are being held until May 10, 2004.

Various accommodations can be located by checking with www.totabc.com including camping, Bed & Breakfast or four star hotels.

Conference Program (Tentative)

Thursday, June 10

- Registration Check - in
- Welcome Wine and Cheese

Friday, June 11

- All day sessions
- Dinner: Delegate free time or sign up for the "Dine around"

Saturday, June 12

- Fun Run
- Sessions
- Wine tasting workshop
- C3 AGM
- Conference Banquet at Gray Monk winery

Sunday June 13

Two activities are planned.

Winery tour and Lake Cruise.

We plan to start the day by 9:00am and take a scenic drive to Summerhill Winery where we will tour their facilities and taste their wines. By noon we board the Fintry Queen, Kelowna's historic paddle wheel boat and cruise north on Okanagan Lake, home of Ogoogo. While on board, they will host a BBQ lunch. If time allows, we can visit the spectacular Mission Hills Winery. Return to OUC by 4:00pm.

Cost per person \$65.00

KVR cycle and winery

We plan to start our day by 8:00am and drive to Chute Lake Resort, located in the hills above Kelowna. We will bicycle south on the historic Kettle Valley Railway line, which has a slight downhill grade (2 %) and the rails have been removed. This is one of the most scenic sections of the Trans Canada Trail, however, the first km or two will be through the fire-ravaged area. The path is easy riding for the most part, about 36-km, which is a three- or four-hour ride. We will see rock ovens built by the crews during the construction of the railway between 1912-14 and wonderful valley and lake views. We will finish the ride at the Hillside Estate Winery where we will have lunch and a tasting.

Return to OUC by 4:00pm.

Cost: \$86/person with Giant suspension bike, guide, helmet, lunch, transportation to trail head and return from winery

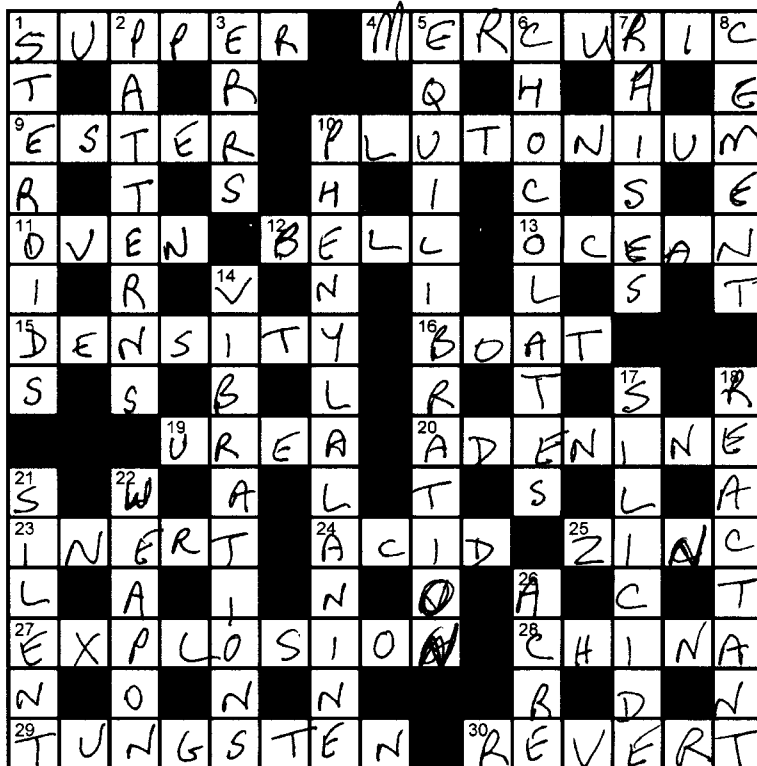
: \$75/person if you have your own bike.

Continued on page 8

College Chemistry Canada Cryptic Crossword

Fax the editor your correct solution to the puzzle. Each correct solution will be entered into a draw for an unspecified prize to be given out at the C3 conference in Kelowna in June. One entry will be accepted per person per puzzle. Fax this page to (403) 440-6095.

Across



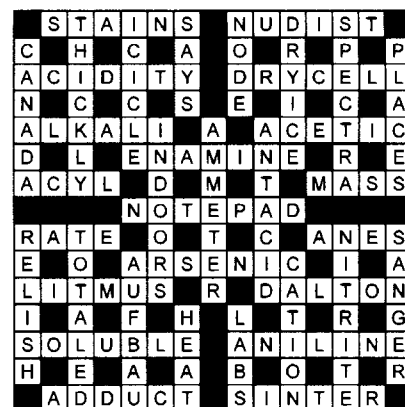
- ~~1~~ Ruthenium peeps for dinner (6)
- ~~2~~ Speedy divalent? (8)
- ~~3~~ Dead tree's functional group (5)
- ~~10~~ Planet revolved in, um, '94. (9)
- ~~11~~ Witch group's carbonless heating chamber (4)
- ~~12~~ Ring the phone man? (4)
- ~~13~~ Canoe capsizes on the high sea (5)
- ~~15~~ Specific gravity (7)
- 16 What cyclohexane and sailors have in common (4)
- ~~19~~ Wohler's compound discovered in impure amounts (4)
- ~~20~~ Badly need lan to go into DNA (7)
- ~~23~~ Impure nitre is unreactive (5)
- ~~24~~ Maniac Idahoan has a potentially dangerous chemical (4)
- ~~25~~ Element sounds like it belongs in the kitchen basin (4)
- ~~27~~ Energetic reaction with a bang (9)
- ~~28~~ Aldrich, in a search, finds a new country for marketing chemicals (5)
- ~~29~~ Compound W? Not quite. (8)
- ~~30~~ Turn back nasty privateers at Pisa (6)

Down

- ~~1~~ Asteroids emit a number of cyclic compounds. (8)
- ~~2~~ Trends failed ten parts (8)
- ~~3~~ Mistakes ventilations, I hear (4)
- ~~5~~ Coming to rest, chemically (13)
- ~~6~~ Silly school teacher loses her sweets (10)
- ~~7~~ Lifts up Rae into International Space Station fiasco. (6)
- ~~8~~ Ace mentioned having a binder (6)
- ~~10~~ On paper, the longest amino acid? (13)
- ~~14~~ Shakes trivia snob violently (10)
- ~~17~~ Silicon anion rearranged, sliced elemental iodine (8)
- ~~18~~ Impure ten carat starting material (8)
- ~~21~~ Broken sulfur inlet is quiet (6)
- ~~22~~ An arm on a pew is impolite. (6)
- ~~26~~ Sumac researcher owns some land (4)

Handwritten scribbles and notes, including "SILICIDE" and "RVR".

Handwritten initials "URB".



Solution to previous puzzle.
Winner: Arthur Last,
University College of the Fraser Valley

NEWS FROM CIC

You will note that the registration form for the London CSC 2004 Conference includes the Chemical Education Affiliates at rates of \$75 for early registration and \$95 for regular registration. All C3 members are eligible for this rate if they are registered with Chemical Education affiliates at the \$10 fee (www.cheminst.ca/division/chemed/affileng.doc). For the Saskatoon CSC 2005 conference we will follow this policy as well and C3 members will be able to attend at the affiliate member rate.

Gale Thirlwall-Wilbee
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CALL FOR ARTICLES!

C3 News is looking for articles on "green chemistry" in teaching undergraduate chemistry for a special issue. This includes green chemistry in labs, and instructing students how to apply green chemistry principles to organic synthesis and environmental chemistry. Submissions should be 400-600 words in length. Interested authors should contact the editor via email at lshaw@mtroyal.ca.

In the Press

UCFV's Arthur Last, C3 member and cryptic crossword winner, recently published a short article in the "In the Classroom" section of Journal of Chemical Education (Last, A.M., J. Chem. Ed. 2003, 80, 1403.) The article caught the attention of the editor because of the words "Canadian Tire Money" in the title. It turns out that Arthur has come up with an interesting analogy of calculations related to the titration of a weak acid with a strong base, for example in the titration of acetic acid with a strong base:



We are all familiar with the practice of calculating equilibrium concentrations of an acid and its conjugate base, and how we are often able to simplify calculations by approximating the small equilibrium shift at half equivalence, due to the back reaction, to be negligible. Well, for those students who don't seem to understand approximations (and from the editor's experience, there are quite a few), Arthur compares this with what happens at Canadian Tire. When you make your purchase, you are handed a wad of bills of colourful Canadian Tire Money, equal to 2% of the pre-tax total. So, let's say you spend \$25 before tax, and you get 50 cents handed back to you by the cashier. This is analogous to adding 25 mL of strong base to the weak acid during a titration. The back reaction is then similar to getting your 50 cents of Canadian Tire



Arthur Last shows off his fortune of Canadian Tire money. Now where is all the camping gear?

Photo: Gordon von Hollen

money — a sum so small that it can be neglected and, as Arthur points out, is often "stored indefinitely in a drawer or automobile glove-box." Ain't that the truth. The editor is going to remember this one the next time he teaches acid-base titrations — now he'll have a use for all that Canadian Tire Money sitting on top of his fridge.

It's great to see C3 members in the press.

Continued from page 5

Other activities you or your spouse may choose:

You will have to make arrangements yourself. Book early if you have definite preferences. Take a look at www.totabc.com/pg for ideas. They list major attractions, outdoor adventure, golfing, water sports, dining etc.

Golf: There are about 40 courses in the Okanagan Valley.

¥ Quail Ridge Golf Club, phone: 250-765-5955 is five minutes from OUC.

¥ Shannon Lake Golf Course, phone: 250-768-4577 is 35 minutes from OUC.

¥ Sunset Ranch Golf & Country Club phone 250-765-7700. These are reasonably priced and beautiful courses.

¥ Predator Ridge is a 20 minute drive from OUC and is a world class golf course. They can be reached at 250-542-3436 or online at www.predatorridge.com

Family activities:

Beaches, water slides, hiking, tourist attraction such as mini golf, historic museums.