

C₃ News



Newsletter of College Chemistry Canada / La Chimie Collégiale au Canada

Loyalist College: the place to be

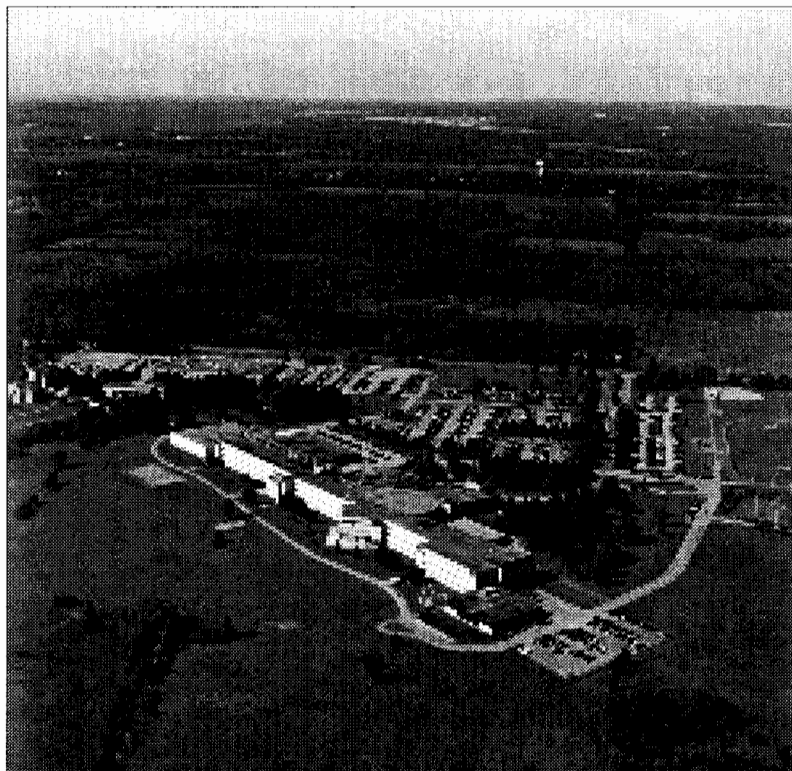
Time is drawing near for the 26th College Chemistry Canada Conference, to be held at Loyalist College in Belleville, Ontario June 3 to 6. The organizing committee would like to invite you to visit our campus and experience the down home hospitality the surrounding area has to offer. This issue contains all the information required to register, arrange transportation and accommodations. Belleville is situated in eastern Ontario, on the shores of the Bay of Quinte, a mere two hours drive east of Toronto.

The conference will highlight presentations from local industry, and from C₃ members on chemical education. The program on Saturday will include some hands-on seminars.

Social activities include, a wine and cheese reception, fun run, and a field trip to the 1000 Islands area. A registration form has been included with this issue and delegates are asked to return it as soon as possible. For conference information, please see page 3.

We look forward to seeing you in eastern Ontario this June.

Reg Vinnicombe
Don Todd



Belleville College in Ontario plays host to the 1999 C₃ Conference.



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C₃ 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 3.5" disk, Mac or IBM format using Microsoft Word 6.0, or IBM format using WordPerfect 6.0 or lower, or any word processor producing ASCII output.

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Designed by R. Franchuk

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President's message

It is week seven here at Kwantlen as I type this report, halfway to the end of the teaching semester. The stress level in the hallways is high as the results from the first midterm exams have been released; some students have done much better than they expected, others... well you are all aware of the others as you are probably experiencing the same thing at your institution. Some of our students will be able to recover/re-group/re-focus in time to pull it off for the finals and others will not. It is always a difficult time as we want all of our students to succeed to the best of their abilities.

Time to start thinking of those travel plans to head out to Loyalist College for the 1999 edition of the C₃ Conference. Don and Reg have been working hard and the preliminary program looks excellent. I hope to see many of you there, a chance to catch up on the past year or two and recharge the batteries with some stimulating presentations/workshops. The great thing about our conferences over the years has been the fact that even though no two have ever been the same, each one has had a great collection of people, all enthusiastic about this enterprise that we do, the teaching of chemistry.

You may be thinking, "what can I do to help this great collection of educators?" Well have I got a deal for you. At the AGM to be held during the Loyalist Conference, we will be electing a President-Elect, Secretary, Treasurer and Editor. In addition, Regional Directors for the five regions of the country will be needed along with several liaison individuals. The continued success of the C₃ organization depends on contributions from across this great country of ours (the last three Presidents have been from British Columbia) and now is the time to begin thinking about individuals that you may wish to nominate.

Enjoy the rest of the semester and I'll see some of you at Loyalist College. If you cannot make it to the conference, please send in your renewal cheque to our treasurer (Jacky McGuire) in order to continue supporting the organization.

Bob Perkins

Ten things to visit or do in and around Belleville

(see conference details, next page)

In Belleville

1. Pinnacle Playhouse
2. Fishing. The Bay of Quinte is designated "The Walleye Capital of the World"
3. Farmer's Market
4. Corby Rose Garden
5. Glanmore House, a National Historic Site
6. Golf
7. Boating
8. Reid's Dairy (home of the loonie milkshake and petting zoo for the kids)
9. Fine dining (e.g. Dinkel's Restaurant, Paulo's Italian Trattoria and the Limestone Cafe)
10. Parks (Zwick's Island, Riverside and Victoria)

Around Belleville

1. Provincial Parks (Presqu'ile, Sandbanks and Lake on the Mountain)
2. RCAF Memorial Museum (CFB Trenton)
3. Shannonville Motorsport Park
4. Loyalist Parkway
5. Cheese Route (Hastings County, the Cheese Capital of Canada)
6. Brighton Applefest
7. Tyendinaga Mohawk territory
8. St. Lawrence River and 1000 Islands
9. Upper Canada Village
10. Old Fort Henry

As an added bonus, Belleville is centrally located between Toronto (2 hours to the west) and Ottawa (3 hours to the east).

Conference information

Transportation

By air

There is no regional service from Toronto's Pearson International Airport to Belleville at the present time.

Official Carrier

Air Canada has been chosen as the Official Carrier for the Conference. Air Canada Convention Services will guarantee you up to 35% off the full Hospitality Class fare. Delegates are asked to contact the Convention Services toll-free at 1-800-268-0024 and **quote the College Chemistry Canada Event #CV 991218 when making reservations.**

Trentway-Wager Bus Lines offers a direct link from Pearson International Airport to Belleville. Trentway-Wager has agreed to make an unscheduled stop at the campus if you inform the driver of your destination upon boarding. A one-way bus ticket costs \$38 and can be purchased from the bus driver. See the registration form for departure times, or for more information call Trentway-Wager directly at 1-800-461-7661. Please indicate on the registration form if you plan to use this service to help Trentway-Wager determine if additional coaches will be required.

By Road

Belleville is situated on the MacDonald-Cartier Freeway (Highway 401) about two hours drive east of Toronto. The college campus is situated just south of the 401 highway, on Wallbridge-Loyalist Road (Exit # 538) and is well sign-posted. There is ample parking available on campus at no charge. If you are planning to stay at the conference hotel, take Exit #543 south into Belleville. The Quality Inn is on your immediate left.

Accommodation

Two types of accommodation are available for conference participants: student residence on campus and hotels off campus. The organizing committee would strongly recommend that participants stay on campus since the campus is located outside of the city limits and all events will be held on

campus. The Loyalist College Student Residence is \$16.80 per night (tax included) for a single accommodation or \$78.34 per night (tax included) for the apartment. Registrants will have a private room in a six-bedroom unit that includes 2 bathrooms and a common area. There are also four "efficiency" apartments that have four single beds and one queen size bed that can be booked on a first come basis. The "efficiency" apartments are the same price as the normal six-bedroom apartment. The flexibility in accommodations should meet all registrants' requirements. Please note that, except for conference events, there is limited food service on the campus during the weekend. Reservations should be requested on the Conference Registration Form.

The official conference hotel is the Quality Inn, which is offering a group rate of \$88.50 per night (tax included). The price quoted is for two adults, and children can stay for free. The hotel has a heated pool, sauna, Jacuzzi and a licensed restaurant. The hotel is also home to the newly opened Don Cherry's Grapevine Bar

and directly across the road from the area's largest shopping mall. For reservations please call the hotel directly at (613) 962-9211. Be sure to indicate that you are attending the C₃ Conference to get special pricing. Also, note that if you phone the toll free number you would be quoted normal room rates instead of the conference pricing, which is why the hotel wishes to be contacted directly. All major credit cards are accepted. Taxi fare (Central Taxi) from anywhere in Belleville to the campus is \$8 one way.

The Comfort Inn (this is a motel & lacks the amenities of the Quality Inn) is located in the same area as the Quality Inn and the rooms are prices slightly lower than the Quality Inn. The group rate allows for one to four people per room. To inquire about conference pricing and reservations please call the motel directly at (613) 966-7703.

There are other hotels in town: the Best Western (1-800-528-1234 or 613-969-1112); the Ramada Inn (613-968-3411) and the Clarion Inn & Suites (1-800-383-4963 or 613-962-4531).

Social Program

Wine and Cheese Reception, Thursday June 3rd, 7:00 p.m. at the college

Loyalist College extends a warm welcome to all conference participants by hosting a wine and cheese reception immediately following registration. Come and meet new friends and renew old acquaintances.

Conference Banquet, Friday, June 4th 6:00 p.m. at the college

A time to sit back and enjoy good food and stimulating conversation. The conference banquet will feature carved prime rib of beef and lemon pepper chicken.

Fun run/walk, Saturday, June 5th 7:00 a.m. at the college

The annual fun run/walk will take you on a 5 km circuit from the College, through the adjacent Moira River Conservation Authority trails and finally back to the college.

Field trip, "1000 Islands Boat Cruise," Sunday, June 6th, 8:00 a.m.

The bus will leave the campus with "Lake on The Mountain" as our first stop. Here we will have breakfast while enjoying the picturesque view of the lake. We then cross back over the Bay of Quinte, on the Glenora ferry and make our way to the 1000 Islands Skydeck, at Lansdowne. The Skydeck is 400 feet above the St. Lawrence River and provides a spectacular view of the 1000 Islands. Lunch will be provided at the restaurant before continuing to Gananoque. The three hour tour of the 1000 Islands plus a two hour stop over at Boldt Castle on Gananoque Boat Line's Triple Decker vessel. NOTE: Citizens of Countries other than Canada or USA require a passport to disembark at Boldt Castle.

Women chemists: a historical perspective

Marelene F. Rayner-Canham, Sir Wilfred Grenfell College

When asked to name a woman chemist from the past, most people have heard of Marie Curie but few can name any other individual. Yet women have participated in chemical activities since the beginning of documented history. One of the first truly chemical tasks was the extraction of perfumes from plant material using distillation procedures, work that we could identify as natural products chemistry. From the Babylonian times of about 1200 B.C., clay tablets have been found noting that two women, Tapputi-Belatekallim and (—)-ninu (the first half of her name was lost) were engaged in these tasks.

During the classical period of Greece and Rome, we know of a few women alchemists, the most famous being Maria Hebraea. It was to Maria that the invention of the water bath was ascribed (still called bain-marie in French and Marienbad in German). The Far Eastern civilizations tend to be forgotten in historical surveys, yet throughout the millennia of Chinese alchemy, we find the names of women alchemists. The earliest of these was Fang (only her family name is known) who lived about the first century B.C. She claimed to have found a way of converting mercury into silver. This was possibly the method of silver extraction first discovered in the West about 1570 A.D., whereby mercury was (and still is) used to extract silver from its ores, the mercury being boiled off to leave the silver residue. Her husband tortured her to obtain her valuable secret, but she never told, finally killing herself after going insane (possibly from mercury poisoning).

The challenges facing women who wanted to pursue chemical careers are often overlooked. The Western university system derived from religious orders and deliberately excluded women from participating in higher education. In Britain, it was Queen Elizabeth I who restated the complete ban on women from universities. The one bright era was that of the pre-French Revolutionary Period, when some of the rich and educated women of Paris society

organized salons for intellectual discussions. Among the participants were Marie-Paulze Lavoisier (1758-1836) and Claudine Picardet (1735-1820), spouses of two of the greatest chemists of their day, Antoine Lavoisier and Bernard Guyton de Morveau. Both of these women actively participated in the laboratory work of their husbands and played particularly important roles in the translation of relevant sources into French, often adding annotations identifying errors in the author's research.

In the nineteenth century, women started to play a more active role in the sciences. As science was often an amateur activity, it was comparatively easy for a woman to acquire a microscope or telescope and pursue an interest in biology, geology, or astronomy. Chemistry, however, required a laboratory. Thus aspiring women chemists tended to be assistants of famous male chemists, these women included Sofia Rudbeck, assistant to, and later wife of, Svante Arrhenius; Emilie Woehler, sister of Friedrich Woehler; Lionie Lugan, spouse of Henri Moissan; and Anna Sundstrom, maid-assistant to Jacob Berzelius. This has continued to more recent times.

The first recorded independent woman chemistry researcher was Elizabeth Fulhame (late 1700s). We know little about her except that she wrote a book based on her research into reduction and oxidation. In the introduction to her book, she feared for its reception. In fact, the book was well regarded and a German and American edition followed. She received great acclaim in the United States, being elected a corresponding member of the Chemical Society of Philadelphia.

The most famous "independent" was the German scientist, Agnes Pockels (1862-1935). Pockels developed a passion for the physical sciences. At the time, women were still excluded from universities but she was able to acquire her knowledge from her brother, who became a professor of physics. Pockels had to stay home to look after her ailing parents and it was in the family kitchen that her investigative work took place.

Pockel's saviour was to be Lord Raleigh to whom she wrote of her discoveries. Raleigh encouraged her and, after translation into English by Lady Raleigh, submitted her work for publication in *Nature*. Pockel's contributions to surface films have been immortalized by naming the minimum area of a unimolecular surface film as the Pockels point.

The opening of the universities to women was a slow process, with the inevitable accompanying backlashes. One former professor at Harvard Medical School wrote a much-reprinted book in which he described the histories of many girls whose health, he claimed, had been severely damaged by education. In Britain, the medical establishment mounted an equally fervent attack against higher education for women during the 1870 to 1900 period. Even the professional societies opposed admission of women. The American Chemical Society organized a Misogynist's Dinner in Boston in 1880 while the battle for the admission of women to the Chemical Society raged from 1880 through to 1920.

Women tended to be attracted to the fields of biochemistry, crystallography, and radioactivity. These subjects had common features: they were new topics outside the traditional realms of chemistry, and the leaders in each field were particularly supportive of women scientists. For example, the pioneer women biochemists were clustered about Frederick Gowland Hopkins at Cambridge and Lafayette Mendel at Yale University. Among the women biochemists at Cambridge were Marjory Stephenson (1885-1948), who opened up the field of bacterial biochemistry and Dorothy Jordan Lloyd (1889-1946), who became renown for her work on leather chemistry. The most famous of Mendel's graduates was Icie Macy Hoobler (1892-1984), who spent much of her life studying the changes in women's biochemical processes during the reproductive cycle.

In crystallography, it was the Braggs - William Henry Bragg and his son, William Lawrence Bragg - and later J.D. Bernal who provided the mentoring role. The most

famous of the women crystallographers were Kathleen Lonsdale (1903-1971), Dorothy Hodgkin (1910-1994), and Rosalind Franklin (1920-1958). Lonsdale showed the planarity of benzene while Hodgkin, Nobel Laureate, determined the structures of penicillin, vitamin B12, and insulin. Many consider that Franklin played a major role in the discovery of the double helix structure of DNA, her contributions being minimized by Watson and Crick.

The three main mentors in radioactivity were Marie Curie (1867-1934), Ernest Rutherford, and Stefan Meyer. Among the many women from the Paris school were Curie's own elder daughter, Irène Joliot-Curie (1897-1956) and Marguerite Perey (1909-1975), discoverer of francium. Rutherford's first research student was the Canadian, Harriet Brooks (1876-1933), who first observed the recoil of the radioactive atom. Lise Meitner (1878-1968) was a graduate of the Vienna school of Meyer. Many consider that Meitner should have been awarded a Nobel prize for her co-discovery of nuclear fission.

Among many other notable women chemists were the physical chemist, Katherine Blodgett (1898-1979), and the Canadian biochemist Maude Menten (1879-1960). Following in the footsteps of Pockels, Blodgett worked on thin films, and her name has been immortalized in the term Langmuir-Blodgett film that is sometimes used to describe a monomolecular layer. Menten's name is known to all biochemists in the Michaelis-Menten equation.

The inroads that women made into science in the early part of this century has been long forgotten. For example during the decade of the 1920's, women earned 12 of every 100 Ph.D's in science and engineering, but this was a higher proportion than they ever would again until 1975. The peaking of women's participation in science (including chemistry) during the 1920s was as pronounced in Britain as it was in the United States. There seem to be a number of reasons for this. First, the First World War opened many opportunities for women chemists but equally, for the first time, the returning servicemen realized that women were a threat to their own employment. Second, there was a change

in society's image of women from that of the independent "flapper" of the 1920s to the dependent "moppet" of the 1930s. Third, women were now looking to their academic training as a career rather than the degree being a goal in itself. Arts degrees led into a wider range of professions. Governments, too, played their part, encouraging women to return to the home to contribute to an increased birthrate and to reduce the unemployment among males. Also a change in the nature of the scientific enterprise from the collegial model of the early part of the century to a more competitive environment.

When we look at the pioneering women chemists, apart from the congregation in certain fields, we find some striking generalities. Many of them were only children, others being eldest daughters. Religious affiliation is noteworthy, for women of Jewish faith or Quaker and other non-conformist Christian sects predominate, probably because of the assertive role played by women with such beliefs. The majority of the women remained single "married to their work" while those who married, usually married a chemist. Few of those who married and remained active chemists had children. One noticeable feature is the longevity of most of the women. For example, the pioneer of gas chromatography, Erika Cremer (1900-1996), lived to 96 years of age while the biochemist, Helen Dyer (1897-1998) survived to 102. Those who worked on radioactivity tended to die relatively young, though Meitner lived to 90 while two of Curie's former researchers, the Norwegian Ellen Gleditsch (1879-1968) and the Swede Eva Ramstedt (1879-1974) had similarly long lifespans. Though these women were among the extreme longevities, the number of women chemists surviving into their mid-80s is remarkable.

Throughout many years of research on the history of women in chemistry, there are three factors that became apparent time and time again. First, the enthusiasm of the women researchers comes through extremely powerfully. Secondly, the crucial role of the (usually male) mentors appears frequently. Finally, a sense of community was very important to the women researchers and this usually took

the form of a tea-social. The tradition was often handed down to the next generation of supervisors. Dorothy Hodgkin had become used to the tea-socials during her time with J.D. Bernal, and she maintained the tradition when she had her own research group. The Bulgarian scientist Elizaveta Karakihailova (1897-1968) provided the most poignant example. In Sophia during the hardships of the 1940s, she insisted on providing tea, biscuits and jam to her students, assuring them that this was the essence of life at Cambridge (with Rutherford) and Vienna (with Meyer) where she had performed her own research in radioactivity.

How do the life-experiences of women chemists of the past relate to problems faced by today's women chemists? The rigid barriers have now fallen but many challenges still remain. The "leaks from the pipeline" the higher proportion of women than men who do not continue towards postgraduate degrees is one such problem. There is also the question whether chemistry (and the other sciences) is structured in a masculine way, emphasizing competitiveness over collaboration. And common to all professional women are the difficulties of the two-career families and the balance of work and child-rearing.

It is disturbing to see on both sides of the Atlantic, even today, the very small proportion of women receiving the various chemistry awards. In the United States and Canada, there are specific awards for women (the Garvan Medal and the Clara Benson Award respectively). But does such recognition tend to send the message that women are incapable of competing for the traditional range of awards? It seems that these days, women chemists are finding the ultimate reward of a Nobel prize to be less achievable, for success now demands the management of a large research empire rather than the small personalized group of the past, where so many women flourished. Thus the conflict of total devotion to science with time for family continues to provide a challenge for ambitious women chemists.

Most of this article is summerized from M.F. Rayner-Canham and G.W. Rayner-Canham, Women in Chemistry: Their Changing Roles from Alchemical Times to the Mid-Twentieth Century. Washington, DC: American Chemical Society, 1998.

A follow-up on conceptual thinking

John Olson, Augustana University College

The Winter 1998 edition of *C₃ News* arrived about the time I was preparing the final exam for my General Chemistry course. Intrigued by Sudhir's article (Vol. 23, No. 4, page 5), I decided, with some degree of optimism but also with trepidation, to include the question "just for the fun of it" as one of nineteen multiple-choice questions on the exam. (There were many other questions on the exam as well; I actually use multiple-choice questions relatively infrequently.) I did not ask the students for an explanation.

Prior to giving the exam to my students, my Chemistry colleague at Augustana came into my office, waving a copy of *C₃ News*. He wondered if I had seen Sudhir's article and said he would not ask a question like that because it was ambiguous: There is more than one meaning of the word neutralize, he claimed. Now I was even more interested in the outcome of the question in my class!

The question was worded on my exam as follows:

Suppose 25.00 mL of a 0.1000 M solution of a weak monoprotic acid is needed to neutralize a certain mass of sodium hydroxide. Now, suppose you were given a 0.1000 M solution of a strong monoprotic acid; how much of this solution would be needed to neutralize the same mass of sodium hydroxide?

- much less strong acid than weak acid
- slightly less strong acid than weak acid
- the same amount of strong acid as weak acid
- slightly more strong acid than weak acid
- much more strong acid than weak acid
- [more information is needed to answer the question]

The outcome was disappointing to say the least: Only four students out of the class of thirty-eight answered "correctly" (10%)! Wishing to pursue this notion of ambiguity, but having run out of General Chemistry "volunteers" (!), I decided to survey my Organic Chemistry class at the

time of their final exam; the "survey" was on a separate half sheet of paper. On one side of the paper was the following introduction, followed by the question (as above):

Please consider this a "survey". Please answer the multiple-choice question [select the ONE BEST alternative] on this side of the paper to the best of your ability, and then deal with the matter on the other side. Thanks for your cooperation.

On the other side of the "survey", I tried to get at what neutralize meant to the students. Here's what was on the reverse:

Now, I'm wanting to know how you interpreted the word neutralize in the question on the other side of this half sheet. Did you take it to mean ...

- bring the reaction mixture to pH 7.00?
- find the equivalence point (react with a stoichiometric amount of?)
- something else? Please specify:

interpretation:	a	b	c	sum
alternative: i	10	4	1	15
ii	3	2	0	5
iii	4	2	0	6
iv	1	0	0	1
v	0	0	0	0
vi	2	0	0	2
sum	20	8	1	29

The over-all breakdown of responses from my Organic class is as follows:

I can't tell for sure what additional information the two respondents who selected alternative vi thought they needed, but the writing on one of their sheets suggests that the mass of NaOH was needed! (There was no additional writing on the other sheet.)

The one respondent who had a different interpretation of the word neutralize specified "react with HO⁻ to form H₂O".

It seems to me that confusion over the word neutralize is not really an issue since of the six respondents who got the question "right" (21% of the class of twenty-nine), only two chose the "correct" interpretation, and of the twenty respondents who thought less strong acid would be needed (alternatives i and ii, 15 and 5 responses, respectively), six (four and two, respectively) selected the "correct" interpretation!

My Organic students, most of whom had had the General Chemistry course last year, were not, of course, expecting to be asked a question of this type; I am suspicious, however, that the results would not have been significantly different even if they had expected such a question!

I don't know where all this leaves me, other than agreeing with Sudhir: Students encounter difficulties in conceptual thinking!

C₃ - Year 2000

The 27th College Chemistry Canada Conference will be held at The University College of the Cariboo (UCC) in Kamloops, BC, from June 1-4, 2000. The UCC organizing committee invites you to visit Kamloops, situated in the Thompson River valley in south-central BC, and enjoy our spectacular setting and abundance of outdoor activities.

Visit the conference webpage at:

www.cariboo.bc.ca/schs/chem/c3conf/c3conf.htm

Women in Science - an instructor's opinion

Suzanne Pearce, Kwantlen University College

Over the past 20 years or so there have been many attempts to increase the numbers of women pursuing careers in science. There are organizations dedicated to Women in Science, there have been government initiatives, both federal and provincial, ranging from advertisements to increase awareness to specific scholarships to encourage participation from women. My question is, are these types of programs and initiatives really needed? My personal opinion, is no. I base this answer on my experiences as a female student in chemistry, and as a female instructor of chemistry.

Throughout my educational experience I did not feel that my gender had any kind of effect, negative or positive, on my success (or at times, lack or it). When I think back to my professors and fellow students, I do not recall gender being an issue. Yes, my professors were all male, but, that did not make them any less capable of mentoring and encouraging me to pursue a career in chemistry. My fellow students were a mixture of male and female, probably more men than women, but that did not prevent us from studying and socializing together, and supporting each other.

As an instructor of chemistry, I feel my role is to attempt to educate my students, to answer their questions when they start deciding what to do with their lives (translation: what should I major in when I transfer to university). I hope that through my interactions with them some of my students will decide that chemistry is an interesting enough subject that is the subject they should pursue. I do not feel my role is to be a role model for only female students; all students need to be exposed to instructors that enjoy their professions, enjoy their subject material, and can pass that enjoyment on to their students, regardless of gender.

Do we need to be encouraging more women to study sciences? No, I think we need to be encouraging more students to be studying sciences. In my classes this semester I have: 6 women out of 9, 23 women out of 33, 18 women out of 33, in all three classes more than 50% of the students are female. This also seems to be

a trend at most of the universities. I believe that this past fall at the University of British Columbia women accounted for about 55% of the first year science students. Does this distribution appear within the faculties at colleges and universities? Probably not; at my college I am the only female chemistry instructor out of seven. Is this a problem? At this point in time I would say no. The majority of the faculty within my department have been with the college for at least fifteen years. If fifteen years from now the ratio is

still 1:6 I would be very curious as to why there were so few women. But, until enough time has passed for there to be a significant turnover in faculty I would not view this as an inequality.

In conclusion, do we need to encourage students to pursue studies and careers in science? Emphatically, yes. Do we need to specifically encourage one gender of students to pursue careers in science? No. Will everyone agree with my opinion? Probably not, but isn't that what opinions are for?

A woman's views regarding women in chemistry!

Beck Newbury

My friend, a writer, cautioned me that I should never express my opinion anywhere near a hardcore (or not so hardcore!) feminist. So if you are, please stop reading, or take it with a grain of salt. If you are not, here goes. In my humble opinion, I believe there are fewer women in chemistry (and all the sciences for that matter), because of human nature... women-nature to be specific. No, it's not politically correct, but in my experience to date, many women think in terms of internal creative processes, not the hard, cold logic of science. Maybe that's why women have always been more involved in biology, the one science definitely concerned with creation, albeit the external kind.

So much for my gender theories! Being a second-year chemistry student, and an obvious exception to my own rule, I have to say that as a student of the sciences, I have never experienced or anticipated any sort of "different" treatment from my peers, instructors, friends or family. After talking to a few of my fellow female chemistry students, I conclude that they too have never felt any particular prejudice or favoritism as women in science. Perhaps we are just lucky. Or perhaps, at least at an undergraduate level, gender no longer makes a difference. Now, whether you are male or female, hard work is what gains you the respect of your instructors and shows that you are serious about your studies.

I've been fortunate with my instructors; my learning style and their teaching style have usually been compatible. I ask a lot of questions, and they've always taken the time to answer! Some of my friends, both male and female, have had "difficult" instructors, but their experiences seem to have nothing to do with gender—either theirs or the instructors. Any conflict has been a matter of personalities. I do feel that the male students are perhaps better prepared (i.e., less sensitive) to deal with harsh instructors. Women, especially at "certain" times, tend to be more emotionally... volatile, shall we say. However, as some instructors have no doubt discovered, emotionally volatile women can be even more challenging than dense male students!

I do not expect that things will be quite so idyllic in the "real" world. There are still many "left-overs" from the male dominated work force of old, and it would be silly of me to think that I will escape such encounters in my working life. I do not anticipate that a chauvinistic boss will seriously hurt my career. After all, I'm twenty-something, and he's headed for retirement! And for the women that are entering the workforce now, gender is ceasing to be an issue, and performance is moving to the fore.

Beck Newbury is a second year science student at Kwantlen University College.

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If you would like to continue receiving C₃ News, please remember to renew your annual membership. Forward a \$20 cheque to the Treasurer, Jacky McGuire, payable to "College Chemistry Canada."

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College Chemistry Canada Conference, June 3rd - 5th, 1999
Loyalist College, Belleville, Ontario , Canada
Registration Form

Name: _____
 Affiliation: _____
 Address: _____

 Phone: _____ Fax: _____
 E-mail: _____

Conference Fee: Before May 1, 1999 (includes C3 membership) \$70.00
 After May 1, 1999 (includes C3 membership) \$90.00
 One Day Fee \$25.00

I will attend (please check):
 Wine & Cheese (June 3rd) No Charge
 Banquet (Prime Rib/Lemon Pepper Chicken, Student Centre, June 4th) \$40.00
 Conference Outing (Day trip to 1000 Islands, Gananoque, June 6th) \$50.00

Accommodation (please check). Residence rooms must be booked by May 1, 1999, and full payment must be submitted along with the registration form.

College Residence
 \$16.80 per night single rate (tax included) x _____ nights: \$ _____
 \$78.34 per night apartment rate (tax included) x _____ nights: \$ _____
 I will arrive on June _____ and depart _____ .

I will book my own hotel.

Total Amount (G.S.T. included in all prices): \$ _____

I am planning to use Trentway-Wager bus connection to Pearson Airport.

Leave Toronto: 2:30 p.m. 7:00 p.m. 9:30 p.m.
 Leave Belleville: 3:00 a.m. 7:30 a.m. 1:00 p.m.

Method of Payment : Cheque Visa Mastercard
 Card # : _____
 Expiry Date: _____
 Signature: _____

Please make cheques payable to: Loyalist College - C3 Conference

Send completed registration form and full payment to:
 Reg Vinnicombe
 Loyalist College
 P.O. Box 4200 Belleville, Ontario, Canada
 K8N 5B9