

**The Chemical Institute of Canada
Chemical Education Division**

Minutes of the Annual General Meeting of the Chemical Education Division, 85th CSC Conference and Exhibition, UBC (Room 100, Buchanan A), June 3, 2002 5:30 pm

Present: Sudhir Abhyankar, Margaret-Ann Armour (chair), Leslie Barton, Sharon Bennett (vice-chair), Lew Brubacher (past chair), Kathy Darvesh (secretary), David Ford (treasurer), Geoff Rayner-Canham (past chair and representative on the CSC board), Susannah Scott, Peter Mahaffy, Patrick Draper, Jim Carroll, Eric Mead, John Woollard, John Olson, Dietmar Kennepohl, Catherine Edgar

Regrets: Gale Thirlwall-Wilbee

The minutes were accepted as circulated.

1. Welcome and Introductions

Attendees introduced themselves.

2. Minutes, Montreal May 27, 2001

The minutes were accepted as circulated (Leslie Barton, Sudhir Abhyankar)

3. Business arising from the minutes

(a) Chemical Milestones

a) Chemical Milestones: This is the series of posters prepared by Martha Langford and Hugh Anderson for the Calgary meeting in 2000. We took action that those posters should be entrusted to the CED. Our concern was that they not languish somewhere, nevermore to be seen.

- with the help of the Calgary Science Centre, a CD has been produced*
- the CD has been licensed to the CIC*
- CIC will likely put the posters, on their website, although they do not appear to have done so*
- These posters will be exhibited at the IUPAC*
- the actual posters are stored in the Chemistry Department at Uof Calgary, and are available for display at conferences. There are about 80 posters. Anybody can ask for them, and they are available as long as the requester pays the freight*

(b) Murray Brooker memorial

It has been passed unanimously by the executive that the award at the Atlantic Student Chemistry Conference be renamed the "Murray Brooker award". The terms of reference for this award should be revisited, because it is an award currently based on "their work as an undergraduate and as it relates to an educational aspect of their chemistry, chemical engineering or chemical technology studies".

(c) At the ChemEd 2001 conference, an exhibit booth was rented. Lots of ACCN's and posters were distributed. There seemed to be a lot of interest in the exhibit booth.

4. Reports

(a) Chair's Report (Margaret-Ann Armour)

A special thanks goes to Gordon Bates and Bob Perkins for organizing the Chemical Education portion of this conference. The chemical education division program at the Vancouver CSC conference is a joint program between the Chemical Education Division of the CIC and College Chemistry Canada (C₃). Bob Perkins has been our liaison with C₃ and has encouraged C₃ members to participate actively by: organizing some of the symposia, presenting talks (invited and contributed) and posters, and helping to judge the undergraduate poster competition. The level of participation is high this year. We are simply delighted that C₃ members are taking part in these conferences. There are 73 members of C₃ here at the conference. This level of collaboration is important for both groups. Geoff Rayner-Canham will convey this to the CSC board

Of the 46 presentations in ChemEd this year (37 oral, 9 poster), 14 will be presented by members of C₃. There will be one graduate oral. The undergraduate poster competition will consist of 32 presentations. There will be a \$200 prize for best poster in each of the 5 divisions.

Post-conference note:

We had a total of 8 winners (out of 32 posters) in the 5 divisions of the undergraduate poster competition. In 3 of the areas, the judges went with two winners. Each winner received a cheque for \$100. In addition, draw prizes of periodic table t-shirts and chemistry textbooks donated by the publishers were handed out at the student awards ceremony.

The winners (of \$100 each) were:

- J. Thomas - University of British Columbia
- C. Seitz - University of Regina
- K. Fritz - University of Toronto
- K. Atwal - University of Western Ontario
- R. Paproski - University of Alberta
- B. Demko - University of Western Ontario

C. Lewis - University of Alberta
E. Elliot - University of Alberta

For the oral presentations by undergraduate students, we had two winners of the Reg Friesen Award:

1st place (\$350) - Catherine Edgar (a graduate student at McGill University) "Getting Rid of the Gag Reflex" - paper #403

2nd place (\$150) - M. Thompson (an undergraduate student Trent University) "Determination of the Effective Force Constant for Stretching Modes of Organic Molecules" - paper #497

Susannah Scott will tell us about the CSC2003 program shortly. The organizer for the ChemEd program at the 2004 CSC will be Colin Baird. Ideas for this conference should be forwarded along to Colin. Our treasurer (Dave Ford) is to be thanked for firming up the guidelines for appropriate use of funds from the Division to student conferences. It is clear that the student organizers from some of the regional conferences need greater support in order to apply for the money in a way that clearly indicates that they understand what it is to be used for. The organizers of future student conferences are on the CSC website. MAA will contact Gale Thirlwall-Wilbee and the organizers. At one time, there was a faculty advisor's handbook with useful information and deadlines. Kathy Darvesh revised a student conference handbook originally prepared at Acadia. This handbook was for student conferences. KD could revive that, or at least check on its status. (subsequent note: I am preparing copies of this handbook for the executive, and I have sent a copy to Dale Keefe, faculty advisor, UCCB for ChemCon 2003 and to Cory Pye, SMU for ChemCon 2004)

The Chemical Education awards at the CSC need more publicity. SB suggests sending letters to universities, to companies that hire coop students. At the Montreal conference in 2001, the CSC website had the undergraduate poster competition information posted early. She advised that someone should be delegated to handle the undergraduate poster competition separately, because it involves a lot of last-minute work.

There will be a two-day national workshop in Ottawa in November, where the CIC will be looking at its structure, finances, and time constraints. This will be an opportunity to find ways of attracting more people to the chemical Education division.

(b) Treasurer's Report (David Ford)

The treasurer's report will be discussed under item 6. All attendees were invited to peruse the budget analysis, which was circulated.

(c) Task Force Coordinators' Reports

(i) National High School Chemistry Examination (Sudhir Abhyankar and Leslie Barton)

Sudhir Abhyankar presented his report on the high school chemistry exam. Sudhir reminded us that, as per last year, the organization of the exam has been split into two parts. Leslie Barton sets the questions and Sudhir administers the exam including the organization of the regional coordinators and the National judge and distribution of the exam. The 2002 exam was held on Tuesday April 23. The number of students who wrote the exam was 1415 from 236 schools (3044 schools were notified). The participation rate was up by 4% from last year. The average on the multiple choice questions was 8.7/25 (in 2001 the average was 7.8/25; in 2000 the average was 8.7/25; in 1992 the average was 14.2/25). The number of schools who have students take the exam is about 10% of the schools who are notified.

More schools were notified, and this may lead to increased future participation.

Sudhir thanked Leslie Barton (National Examiner), and all the Regional and District Coordinators for their time, efforts, dedication and help.

Various points were made concerning this exam:

- The average for the Atlantic region is up substantially (8.3/25, c.f. 6.6/25 last year), but is still less than the average. With 326 students participating, as compared with 219 students participating in Ontario, one has to wonder if this means that Ontarians are more selective about who is writing the test
- The idea is that the students in the top 10% write the exam
- Old exam questions are on the web in both French and English, but only the English version has the solutions posted. LB will explore the possibility of securing funding from CETF in order to support translation of the answers. Another possible alternative is the University of Ottawa, where translation services are frequently employed. Questions and solutions from old exams should help to build a mini-curriculum, getting students and teachers more involved.
- Are the part A questions too hard? There seems to be a strong teacher effect, whereby certain classes will do ok. (Note added by KD: I have heard from others that there were a few questions that nobody got correct. Some kind of beta-testing of questions could help to prevent this).
- The Chemistry Olympiad causes decreased participation in our exam: it creams off the best students. Hopefully, future dates will avoid a conflict with the da Vinci contest (Our exam will be on April 15, 2003)
- Essay questions are always tricky to deal with – the questions have to be sufficiently broad such that students from various curricula can work with them
- Due to photocopy costs, the test is limited to 2 sides – the font is small, the use of tables and figures is necessarily restricted. What goes out to teachers in terms of publicity is hard to read
- It was proposed that an additional \$350 be allocated to the budget of the NHSE so that the test can use more paper. It was also proposed that we change the type of certificate of merit. (Currently the certificates are around 7 x 5 inches in dimension, and they are made of cardboard so thick that it is impossible to feed them into a printer). The suggestion is to change to an 8 x 11 inch paper format so that district coordinators, who actually send out the certificates, can more easily bring the names of the top students

onto the certificates. (Note: Some district coordinators elect to give certificates of participation to all students in their district. These certificates can be purchased from any office supply store).

- The extremely low marks for Quebec may be due to the fact that some of the material covered by the exam is only seen in CEGEP. Students who write have only one year of Chemistry

(ii) **Affiliates Report:** Although Bob Perkins and Gordon Bates were unable to attend, a report was submitted.

Last year we had 60 C₃ members who opted to become Chem Ed Affiliate members. This year the total is 98 and the feedback from the C₃ delegates at the Montreal conference was very positive. (Of the 220 paid affiliate members, 122 are high school teachers, and 98 are from C₃). Affiliates get the Education issue of ACCN, plus a reduced conference rate.

(iii) **History of Chemistry (Geoff Rayner-Canham)**

There are no symposia this year. We should not push this if there is no groundswell of interest; however, we should keep anniversaries in mind.

(iv) **Women in Science Task Group (Margaret-Ann Armour)**

Thanks to Ann Alper and Susannah Scott for their presentations at last year's meeting. It was an excellent event. This year, we'll meet for dinner off-site. People want to be kept informed of our activities. On Monday at 6:30, we'll meet near the registration desk, then go on to an informal business meeting and dinner. There are funds allocated for this (\$300). Unfortunately, there is a conflict with the C₃ banquet

(v) **ACCN/NCS Education Issue (Gale Thirlwall-Wilbee)**

Gale was unable to attend, but her report was presented. The Education and National Chemistry Week Issue of ACCN is scheduled for March publication. One point that was brought up was the issue of graduate education, which does not appear in the planning notes. People were encouraged to forward any comments or suggestions to MAA or GT-W.

(d) **National Chemistry Week, October 19 – 26, 2002 (Gale Thirlwall-Wilbee)**

The launch for NCW is to take place October 18 at the CSChE in Vancouver. There is a strong team of organizers in place. An issue of Discover Canadian Chemistry will be published. There is a good NCW website, which is being updated. The Dow sponsorship of Discover Canadian Chemistry will end next year.

(e) **Report on NCW for 2002 (Gale Thirlwall-Wilbee)**

National Chemistry Week will take place October 19-26, 2002 with a national launch in Vancouver on October 18, at Science World. The NCW website is being redesigned to become a CIC outreach site

www.cheminst.ca/new. Any ideas or feedback from our division on this newly designed site would be greatly appreciated. Discover Canadian Chemistry is put out every year.

5. Future Conferences

(a) CSChE 2002 – Vancouver

There will be no ChemEd symposia at this conference, despite Lew's efforts to find some organizers.

(b) CSC2003, joint with IUPAC, Ottawa (Susannah Scott)

Susannah presented a report concerning the planning of the chemical education program. This conference is to take place August 10-15, 2003. The meeting is being held jointly with the 39th IUPAC Congress, at the Ottawa Convention Center/Westin Hotel. With the IUPAC component, higher attendance and greater international participation than usual are anticipated. Unfortunately, C₃ will not be participating in the organization of the program

Three full-day symposium proposals were approved by the program committee:

- 3M teaching fellows symposium, organized by J. Poë
- Public Image of Chemistry/Flow of chemical ideas through the media, organized by P. Mahaffy (confirmed invited speaker: Madeleine Jacobs, editor, C&E News)
- Women Chemists: Past, Present and Future, organized by G. Rayner-Canham and M. Chan

In addition, the following sessions are anticipated:

- Green chemistry symposium (to be organized by the Analytical division)
- (possible reallocation of second half-day session to New Curriculum Initiatives)
- a full-day general program of oral presentations

Various remarks:

- 50 years of DNA may be featured in a symposium, but not from our division
- keynote speakers have to be announced by July 15
- the theme of the Ottawa conference is Chemistry at the Interface: how that is interpreted may depend on the symposium...whether it be flow of ideas at the interface between the public and the media, or the interface between industry and chemists
- for every full day symposium granted, the organizers are given access to \$1000 cash and two free registrations
- if attracting speakers from developing countries, the CSC may chip in
- there is a list of past donors: 3M and Union Carbide were identified as potential donors

- the ChemEd division supplies a loan that is supposed to be repaid. Past organizers found this to be a useful thing to have, as some funding comes at the last minute, and this can help to guarantee a registration to someone

(c) CSChE 2003, Hamilton, ON

Enno Agur, CSChE Director, Student Affairs and Education will be organizing the ChemEd program. Mohawk College is planning on holding a CSCT symposium at the conference, as was done in London in 1998. Tom Sutton will be the contact for this symposium. He has met with Enno Agur about possible joint student activities

(d) Pacifichem 2005, Hawaii (Josef Takats)

Possible topics for the ChemEd portion are: Chemistry and the Community, the Public Image of Chemistry, and Industry. JT encourages the division to think about/volunteer to organize a symposium. Note that each organizer must have a co-organizer from 2 other pacific rim countries. The website for this conference is www.pacifichem.org

(e) CSC 2004, London, ON

Colin Baird will organize the ChemEd program at the 2004 CSC. Ideas for this conference should be forwarded along to Colin.

6. Division Financial Statement and Budget (David Ford)

Dave presented his report. The Division's monies are in 3 funds, Operating (31 December 2000 balance \$579.77), NHSCE -high school examination (balance \$397.36) and Designated - awards for student oral presentations (balance \$12,199.58). The cheque for this year's operating grant has not yet arrived.

- (a) discussion of student conference awards criteria: USCA's of \$100 were available to students presenting at each of the six annual undergraduate student conferences. Only two of those conferences met the requirements to request and receive funding:
 - a. 19th SOUSCC, 24 March 2001 winner: Derek Patenaude (Western)
 - b. ChemCon 2001, 18-20 May 2001 winner: Krista Hawco (MUN). This award has been increased to \$200. The division will work hard at getting it awarded in future years. Concerning the top award for the High School exam, it was agreed that a top prize of \$1000 would be nice. Sudhir will follow up on attempting to increase the award from \$800 to \$1000.

We are going to try to initiate contacts with the various conference organizers, so that this award can be taken up by each of the undergraduate conferences. We do need to make sure that the students are aware of the use of the money.

David listed the annual awards that involve the Chemical Education Division:

- a) Poster/Paper Presentation at Regional Undergraduate Student Conferences (6)
- b) Undergraduate Poster Competition at the national CSC conference
- c) Student Paper Presentation at the national CSC conference (i.e. the Reg Friesen Award) 2

prizes were given out at the CSC, but the CSCChE haven't been able to award it yet, although they do list it on their website.

d) National High School Exam (NHSCE) (We give out \$4850 worth of awards for the NHSCE).

- (b) signing authority: Motion: signing authorities for the division can be any two of: past president, president, vice-president, treasurer, secretary, 2 reps from CIC national office, supported by written/e-mail confirmation of approval, kept in the division's financial files. Subject to monthly review of the account by any 2 of the signing officers. Local banks want a picture ID and a signature . seconded by Sudhir .

Passed Unanimously at the Exec. meeting

- (c) support for student travel: there is a travel grant of \$200 to support student travel. Moved that the ChemEd Division establish a travel award for graduate or undergraduate students presenting a paper in the ChemEd program. Second:GRC .

Passed unanimously at the Exec. meeting

Peter moved and Geoff seconded the acceptance of the financial reports.

CARRIED

A unanimous vote of thanks followed by a round of applause took place. We are all very grateful to Dave for his excellent work.

7. Other Reports.

The schedule for the Vancouver meeting is as follows:

Sunday, June 2

The Research Experience in Undergraduate Laboratories

Organizer: R. Perkins

Invited Speakers: Brian Woodfield (Brigham Young) – The Virtual Chem Lab Project, Andrew Mosi (Langara) – How much research can a second year college student be expected to perform?

Chemical Education Executive Meeting (Sunday, 12:00-13:30)

Undergraduate Poster Session (Sunday afternoon, 16:30 – 18:00)

Organizers: G. Bates, R. Perkins

Chemical Education Poster Session (Sunday, 16:30 – 18:00)

Organizers: G. Bates, R. Perkins

Monday, June 3

a.m.

Tuesday, June 4

a.m.

Computer Aided Instruction

Organizer: G. Bates

Invited Speaker: Geoff Herring (UBC)

Clara Benson Award (16:20-17:00, Kim Baines: Yellow Fever: The Germasilene Story)

Chem. Ed. Awards Reception 16:20 – 18:20

Wednesday, June 5

Introductory Organic Chemistry is Different. How Do We Get Students to Accept This Idea?

Organizer: G. Bates

Invited Speakers: Mike Pungente (UBC) – Teaching Introductory Org Chemistry: “Blooming” Beyond a Simple Taxonomy, Bob Perkins (Kwantlen) – How Can There Be More Than One Correct Answer?

We are grateful to the following institutions for sponsorship of the Chemical Education division program: McGraw-Hill Ryerson Limited, Pearson Education Canada, and C₃ sponsors: Douglas College, Kwantlen University College, UBC, BC Institute of Technology, College of the North Atlantic, Columbia College, Coquitlam College, John Abbott College, Okanagan Univ. College, House of Rose Winery, and Discount Textbooks

General Session (joint with C₃)

Invited Speaker: Ariel Fenster (McGill) – The Human Side of General Chemistry: is There One?

p.m

General Session

Organizer: R. Perkins

Union Carbide Award Lecture (16:20-17:00, Mary Ann White – Educating Ourselves)

**College Chemistry Canada Annual General Meeting (17:00 - 18:00)
(Followed by the C₃ banquet, off-site)**

Chemical Education Division General Meeting (16:20-17:20) (note: we will commence after the Union Carbide lecture)

**Women in Science Task Group Business Meeting and Dinner (Monday evening)
(18:30 departure from Gage residence)**

(a) Chem Ed Web page (Peter Mahaffy)

(<http://www.kingsu.ab.ca/~chemed/welcome.htm>). The webpage is only as useful as what Peter receives from the division. Pierre Lemasson is the webmaster for the CIC. Our website should find a new home with the CIC website. Peter will work with Pierre to arrange the move. KD has agreed to take over as webmaster once the site is moved over to the CIC server

Margaret-Ann asked that there be a motion of thanks to Peter for his devoted service in this area.

APPLAUSE

(b) IUPAC Committee on Chemical Education – Peter Mahaffy

The IUPAC has as its foci the public understanding of chemistry, chemical education for development, the public understanding of chemistry. Input is sought: what should IUPAC do to advance the public understanding of chemistry, meeting diverse expectations. ICCE in Beijing, Ottawa meeting should be showcased for some of this. Also, the topic “Public Understanding of Chemistry” is one of the themes for next year’s CSC, (ChemEd) IUPAC conference in Ottawa.

(c) Chemical Education listserv – Deniz Karman

The ChemEd listserv should be integrated with the webpage. chemed-1@cunews.carleton.ca As it stands, our listserv does not get a lot of use.

(d) Liaison with College Chemistry Canada (C₃) – Robert Perkins

Unfortunately, C₃ will not participate in the Ottawa conference next year. The registration fee will be too high, and the timing will differ, due to the August date. MAA would like to thank Bob Perkins for his outstanding work in involving C₃ with our recent conferences. Dietmar Kennepohl is the new C₃ President, and Lawton Shaw is the conference coordinator for the 30th C₃ conference, which will be held the first week in June (2003) at Mount Royal College in Calgary. It is hoped that C₃ will participate in the CSC conference in London in 2004.

(e) Liaison with CSCT – Gale Wilbee

Tom Sutton (Mohawk College) will be copied on our minutes. CSCT has been organizing student symposia. Perhaps we could provide an award for a poster winner.

(f) Harris Workshops – Chuck Lucy/Margaret-Ann Armour

The Harris workshops were started in 1976 by Walter Harris to try to catalyze a combination of good teaching and good research. Topics at the workshops have included computer aided learning, safety, etc. In the 1990’s, the focus was on environmental chemistry, and the Harris workshops became associated with the CSC. However, it has since languished.

The proposal:

To re-establish the Harris workshops at the U. of A. The 2 profs emeriti have volunteered to take care of logistics. Topics could include undergrad curriculum, first-year chemistry, materials chemistry. (One topic per) Invitees would lecture based on this topic. The format would be round-table and interactive. Although the discussion started to veer towards having the Harris at the CSC, the University of Alberta would like to sponsor and host these workshops. The University of Alberta is willing to support the workshops with \$3000 - \$4000 to help defray participant costs.

Our division should promote the workshops if they are held at U of A. We should also encourage lab instructors to participate, if they are included. Furthermore, the idea of a workshop at the CSC has merit.

8. Report on Chem Ed related awards (Lew Brubacher)

The award winners are as follows:

CSC

Clara Benson: Kim Baines, UWO
Union Carbide: Mary Anne White, Dal

High School Teachers

Bayer Inc. Award for HS Chemistry Teachers: John D. Burke, Stephenville, NF

College Chemistry Teaching

Nova Chemicals Ltd. Award for Chemistry Teaching: Patrick Draper, Champlain College

Note that we need nominations for these awards for the 2003 competition.

9. Report from Chem Ed CIC Representative

(Alaa Abd-ElAziz) his report was circulated. The strategic plan of the CSC was discussed. It plans to establish a "conference program of workshops for high school teachers, etc" Clearly, this would be of interest to follow. Topics discussed:

- According to the chemed div of the ACS, certain minorities are underrepresented in the profession
- Student organizers of student conferences require support from the faculty advisor, particularly on financial matters
- Geoff Rayner-Canham will replace Alaa Abd-ElAziz as the Chem Ed representative on the CIC Board, and will bring Chem Ed concerns to the Board

10. Officers for 2002-2003

The current executive continues for another year

Chair: Margaret-Ann Armour

Vice-Chair: Sharon Bennett

Treasurer: David Ford

Secretary: Kathy Darvesh

LB has found a rather antediluvian copy of the ChemEd constitution. It states that "The Officers of the Division shall consist of a Chair, Vice-Chair, immediate Past Chair, Secretary and Treasurer. In addition the appropriate director of each of the Boards of the CSC, the CSChE, and the CSCT, and one councilor of the CIC will be voting members of this executive (we don't have councilors any more). The nominating committee does not include the Chair. Several things emerged in the discussion:

- The constitution, revised in June 92, may require revision. LB will explore this
- It would be appropriate for C₃ to be part of the executive
- The constitution should go on the web
- We will try to involve CSChE, and CSCT

11. Other business

(a) Green Chemistry Award (GRC)

The U. S. has one, as do Britain and Australia. Canada, however, does not. The U. S. awards them to industry, research and education. At the recent Environmental Chemistry conference at Corner Brook, held just before ChemCon2002, we heard excellent presentations by Tracy Williamson, of the EPA, and Michael Cann. We should consider giving out a green chemistry award, particularly for Chemical Education. This matter should be taken back to the board or to the division chairs. MAA is to discuss this with the Chair of the Environmental Division, or with the CIC as a whole. The upcoming CSC board meeting is another place where this can be discussed.

(b) Undergraduate research group (KD)

A report was submitted concerning the Council on Undergraduate Research, an American organization with a mandate to strengthen the research programs of faculty in PUIs (predominantly undergraduate institutions), and to promote research by undergraduate students in all settings of science, mathematics and engineering education. The question is: should we try to develop a Canadian equivalent of this organization?

Discussion:

- NSF in the US has special grants for undergraduate colleges. In the US, the PUI is seen as an excellent training ground for graduate students
- There are problems of awareness, funding and critical mass
- C₃ would be a logical partner in this
- CIC head office could help us to identify PUIs, according to degree programs
- We could start with chemistry
- Perhaps we should not exclude the bigger institutions, because there are faculty at research intensive places whose primary goal is to work with undergraduates to enhance their research experience
- Society for Teaching and Learning in Higher Education may have something equivalent, perhaps focused on the humanities
- It would be helpful if NSERC USRA's (undergraduate student research awards) were run differently, so that non NSERC discovery grantholders could support USRA's

- This question could be posted on the ChemEd listserv

12. Adjournment

The meeting adjourned at 6:30 pm

Respectfully submitted

Kathy Darvesh
Secretary, ChemEd division