



QChem Chronicles

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Alumni Weekend

This past Alumni Weekend saw the Department of Chemistry host a catered reception in the Department. It was a wonderful opportunity for those who attended to catch up with old friends and meet some of our newer Faculty members. It was also an excellent opportunity for the Department to "show off" some of our newer technology. A demonstration was held to illustrate the use of the World Wide Web in teaching applications for our undergraduate programs.

This year we hope to expand on the theme and be able to demonstrate more of what we are doing with our undergraduate programs. As well as having a catered light buffet, we will also have displays of the Department of Chemistry and its Faculty over the years, and newer and more advanced demonstrations of our undergrad labs, hopefully with some current students to tell you what's new in Chemistry. We look forward to sharing our experiences with you at the next reception held October 18, 10 a.m. in F407.

New Faculty

Natalie Cann is a native of Campbellton, New Brunswick, and obtained an Hon. B.Sc. in mathematics and chemistry at the University of New Brunswick. Natalie did her doctoral studies at Dalhousie University with



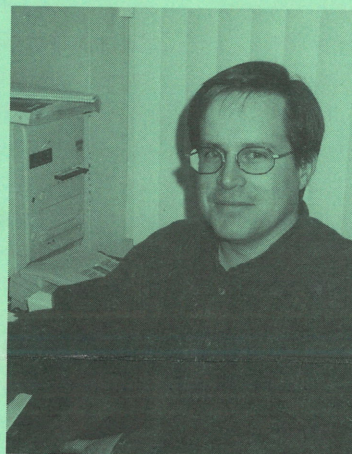
Natalie Cann joins the Department as a Queen's National Scholar this July.

From Rick Boswell

The Department of Chemistry has started many long term projects that will improve efficiency and increase awareness of safety issues. The most important of these is the implementation of a Chemical Inventory System that will allow the tracking of all chemicals and produce MSDS data for those products.

The past year has seen the consolidation of the stores operation into one area and the construction of a level loading bay adjacent to stores. A large liquid nitrogen tank was installed as well as a new dry ice maker.

The Department has been very active in lobbying for space renovations. A Space



Administrative and Technical Supervisor, Rick Boswell is always working hard to keep Chemistry a Department that is in forefront of technology, and a Department that we can be proud of.

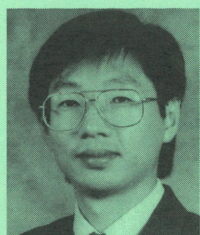
Needs Analysis document was produced and forwarded to the Administration. In January, a committee selected an architectural firm, which was approved by the Board of Gover-

nors. Plans are under way to do a complete analysis of all teaching and research functions in the Department over the coming months. The renovations will cover the entire complex, and labs will be designed that will reflect the work being done there. Tentative plans call for Gordon Hall to be office and classroom space, Gordon Annex to be Undergraduate Teaching space, and Frost Wing to host the research.

R.J. Boyd and A.J. Thakkar and is currently a postdoctoral fellow at the University of British Columbia with G.N. Patey. Her doctoral and postdoctoral work has been supported by NSERC and the Killam trust. She joins our department as a Queen's National Scholar. Natalie is interested in modeling the behaviour and solvation properties of fluids using both classical and quantum mechanics. Specifically, she plans to examine the thermodynamics of solvation in supercritical fluids and the factors which influence chiral selectivity.

Gang Wu obtained his B.Sc. from Peking University. He received his M.Sc. at York University, and his Ph.D. at Dalhousie University with R. E. Wasylishen. He was awarded the NSERC Doctoral Prize (1995) by the Natural Sciences and Engineering Research Council (NSERC) for producing one of the most outstanding doctoral theses in Canada. In 1994-96, he was an NSERC Postdoctoral Fellow at the Francis Bitter Magnet Laboratory of the Massachusetts Institute of Technology with R. G. Griffin. He has already

published over 40 scientific papers and book chapters in the field of nuclear magnetic resonance (NMR) spectroscopy. His research interests are the development of novel NMR techniques in studying molecular structure, dynamics, and chemical bonding in chemical and biological systems. He is actively involved in the development of quadrupolar NMR spectroscopy for studying solid materials.



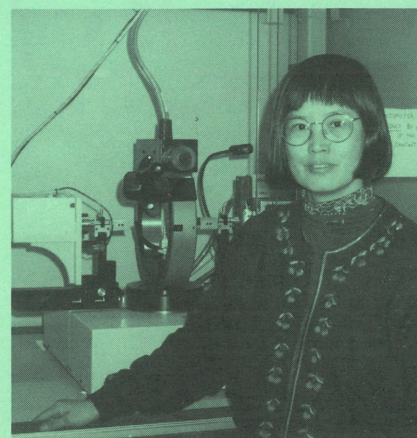
Gang Wu joins the Department of Chemistry this July as an Assistant Professor in Experimental Physical Chemistry.

Research News

Donald Weaver (Winner of the "1997 Merck Frosst Centre for Therapeutic Research Award" and the "40 under 40" Award)

Chemists are the most fundamental researchers in the process of drug discovery. New drugs are designed and discovered first in chemistry laboratories. With this philosophy firmly in place, we have set out to develop drugs for two important neurologic problems: epilepsy and Alzheimer's dementia. Epilepsy affects 1.3% of the general

population; currently available drugs are effective in fewer than 65% of patients. Using synthetic chemistry in a multidisciplinary environment, we have developed novel classes of both dioxapiperazine and derivatized amino acids as potent new anticonvulsants. These compounds are doing well in pre-clinical development. Alzheimer's disease affects 15% of people over age 70 yrs.; there are no proven therapies. In collaboration with Dr. W. Szarek (Chemistry) and Dr. R. Kisilevsky (Biochemistry) the resulting research team has devised exciting new therapies targeted against the beta-Amyloid protein which may cause Alzheimer's Disease. The success of this research has resulted in the formation of Neurochem Inc. – a vibrant, new Canadian biotechnology company. In designing these drugs for both epilepsy and Alzheimer's, we have made extensive use of molecular modelling and computer aided drug design. To facilitate the utility of computer-assisted drug design, we are actively involved in developing new computational methods for drug discovery. For instance, we have devised a novel Genetic Algorithm for calculating the shape of proteins. The Department of Chemistry, existing within the multidisciplinary environment of Queen's University, affords favourable opportunities for meaningful drug discovery.



Professor Wang joined the Chemistry Department last July.

Suning Wang (Queen's National Scholar)

Professor Wang was an Associate Professor at the Department of Chemistry, University of Windsor prior to coming to Queen's. Her research area is synthetic inorganic/organometallic chemistry, solid state chemistry, and advanced materials. One direction is the development of solution chemical precursor systems for the high temperature copper oxide based superconductors. Amino alcohols as the cross-linking agent for superconductors have been used to produce high quality superconducting films. Wang's group is also investigating the synthesis of molecular magnetic compounds which have long range ferromagnetic orderings. By using both covalent and hydrogen bond linkages it is possible to convert a two dimensional insoluble phase to a soluble phase and vice versa without changing the magnetic properties of the system. The most exciting research project is the development of blue luminescent materials. They are among the most sought-after materials because of their potential applications in electroluminescent displays and blue lasers. Several new types of blue luminescent compounds have been discovered. Their properties are being optimized and electroluminescent devices are being developed in collaboration with Canadian industry.



Professor Weaver and some of his research group (L to R)(front) Christopher Tan, Don Weaver, Angela Barkley, Heather Gordon, Oreola Donini (L to R)(back) Guilin Duan, Sandra Marone, James Clark, Albert Jin

Multimedia Development

Michael Mombourquette invites you to a general tour of our department's web site. You can click on the "Tour" button (<http://www.chem.queensu.ca/ugrad>) or simply go directly to <http://www.chem.queensu.ca/private/tour> to start the tour. You will need a Java-enabled browser like Internet Explorer 3.0 or Netscape 2.0 or greater to view this tour.

Many of our undergraduate classes now have their own web sites under the departmental banner. The content of these sites ranges from general class outlines and information to actual course notes, chat areas and tutorial/homework areas. This phase of development is now well underway.

We are now developing new ways of delivering course content. In the next few months, we will be developing training videos and interactive learning centres (starting this summer with the first-year undergraduate laboratories). Interactive content will be added to the Department's Web site which will allow the students to more thoroughly prepare for experiments at their leisure using their home computers or a computer in one of the computer clusters located around campus. We plan as well to distribute some of this content and more through the use of CDs which the students will receive with the purchase of their laboratory manuals.

Other News

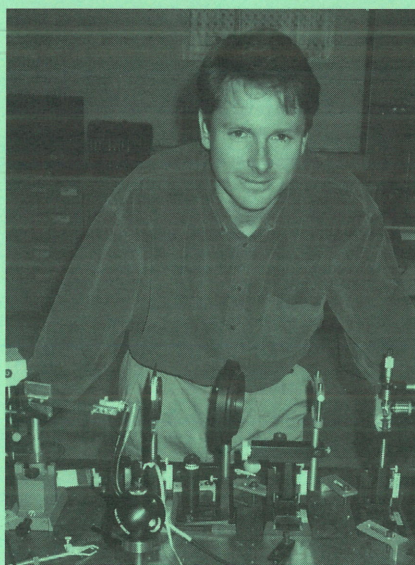
Donald Weaver received Canada's "Top 40 Under 40" National Award. The Financial Post, Canadian Imperial Bank of Commerce, Canadian Airlines International and a consortium of about 15 other large Canadian corporations contracts a group called the Caldwell Partners. The mandate of the Caldwell Partner group is to identify 40 Canadians under the age of 40 who have distinguished themselves in the areas of career success, science technology or innovation, enhanced competitiveness of Canadian business and contributions in terms of time commitment of humanitarian efforts or community groups.

Robert Campbell received the Staff Recognition Award for outstanding service to the Queen's community. Artist and sculptor of glass, called a consummate professional by his peers, and by researchers and students, for 16 years as University Glassblower, Robert Campbell has provided his essential service to the community, the University, and the Department of Chemistry. A student and a master of technique who is at the forefront of its ever-advancing application, he shares his energy, state-of-the-art expertise, and love of craft, with universities, local industries, high school groups, and artistic glass fabricators. A model of dedication, eminently deserving of recognition, unfailing giving his

time and expertise to solve problems and doing it with characteristic humility and charm, the citation says.

Bob Lemieux received The 1997 Departmental Award For Teaching Excellence and the Canadian National Committee of IUPAC Travel Award and is going to the Geneva IUPAC Congress in August.

Chris Barrett (B. Sc. 1992, M. Sc. 1994) has earned two national awards,



Here is a picture of Chris with his lasers. He has also recently won a NSERC postdoctoral scholarship, and he is very busy now finishing his thesis and pondering where to go for his postdoctoral work.

one in Physics in 1996 and one in Polymer Chemistry in 1997. To our knowledge he is the only student to achieve such an outstanding accomplishment. The Newport Graduate Award in Optical Sciences is administered by the Canadian Association of Physicists (CAP). The only annual prize consists of \$1500 as a scholarship and \$500 as a research grant. Chris received the prize from the CAP President at the 1996 Congress banquet. The next year, Chris was awarded the Graduate Prize administered by the Macromolecular Science and Engineering Division of the Chemical Institute of Canada. This prize was shared with another graduate student from McMaster and both winners will give invited presentations at the Canadian Society for Chemistry annual meeting this June in Windsor Ont.

NSERC and OGS Scholarships
Congratulations to the following recipients of NSERC and OGS scholarships for 1997-98:

NSERC: Austin Chen and Fok-Yan Leung.

OGS: Jennifer Knight (currently in B. Ed. program), Alison Borrajo, Heidi Chen, Darren Clark, David Pedersen, and Andrew Vaino.

Congratulations to Chris Barrett and Rick Lafleur for being awarded NSERC Postdoctoral Fellowships.

Chemistry Memorial Fund

The Chemistry Department has instituted a *Chemistry Memorial Scholarship* which will be used to support an annual scholarship for a student entering the fourth year of an Honours Program in Chemistry or in Engineering Chemistry. The fund will form a memorial to those who have worked and studied in the department. Donations to the fund may be made, at the request of the family, in memory of deceased faculty, staff and students in the Department of Chemistry. The first scholarship will be awarded as soon as enough capital has accumulated into the fund.

We've Heard From

Eric Brouwer (B.Sc. Hons 1990)

- finished his Ph.D at Carleton University (1996) with John A. Ripmeester
- is now a NSERC PDF at the University of Durham with Robin Harris
- e-mail: e.b.brouwer@durham.ac.uk

Dale R. Cameron (Ph.D. 1994)

- moved last July to Ste. Therese, Quebec
- phone: 514-979-0231 home, 514-682-4640 work
- e-mail: dandt@cam.org (home)
cameron@citenet.com (work)

R. Susan Smandych (B.Sc. Eng 1996)

- started working at Andersen Consulting recently

Peter M. Brodersen (M.Sc. 1996)

- has begun Ph.D. studies at McMaster
- e-mail: broderpm@mcmail.cis.mcmater.ca

Emily Moore (B.Sc. Eng 1992)

- defended her D.Phil thesis on September 21st, then left Oxford for a 'round-the-world' trip
- started working at the Xerox Research Centre of Canada in Mississauga, January 1997

Robert N. Clayton (B.Sc. 1951, M.Sc. 1952)

- has this to say about Queen's:
- the buildings seem to be the same as they were when I was there, but everything else has changed
- my Chemistry B.Sc. was in 1951, and M.Sc. in 1952 (with G.B. Frost), professors at that time were: G.B. Frost, J.A. MacRae, L.A. Munroe, W. MacF. Smith, R.Y. Moir, R.L. Dorrance, Paddy Doolan was there too
- professors-to-be: Breck and Wheeler were M.Sc. students with Frost a year ahead of me.
- I'm now a professor in both the Department of Chemistry and the Department of the Geophysical Sciences at the University of Chicago and have been elected FRS and FRSC, a member of the US National Academy of Sciences – research is in the study of natural variations in isotopic abundances of light elements in terrestrial and extraterrestrial materials (Moon and meteorites)

John Klassen (B.Sc. Hons 1991)

- PDF at Berkeley

Pete Leekha (B.A. 1994)

- been in Asia since 1994, now back in Vancouver and will be at SFU for the next couple of years

- was planning to do graduate work in Communications (completed a minor in Communications after graduating from Chemistry at Queen's) – instead decided to do what had intended to do years ago; become an optometrist
- e-mail: leekha@direct.ca

David Summers (B.Sc. Hons 1992)

- at the 31st International Conference on Coordination Chemistry, held at UBC, David received an award for his poster

Colleen (B.Sc. (Hon) 1986, M.Sc. 1990) and Rob Micklethwaite (Ph.D. 1990)

- Rob was given a job promotion as Area Manager for Ste Assessments and Remediations (Western Region) for Conor Pacific Environmental Technologies and started his new position in Calgary at the beginning of January 1997
- Colleen, as a result of the transfer, had to "retire" from the position as Research Chemist at Cytec Canada Inc. to become a full-time Mom for daughter Deanne, born February 8, 1995
- Colleen will remain a consultant for Cytec until main projects have reached the commercialization phase
- Rob's e-mail: rob_micklethwaite@telus-plant.net

Tim Bulmer (Ph.D. 1973)

- Post Doc Waterloo 73-75, joined Syncrude Research in Nov. 1975 in Edmonton and have been there since
- married in 1979, now have 3 kids, boy 15, girl 9, boy 8
- currently team leader and member of the management team at Syncrude Research;
- after moving out West he has lost contact and would like to hear from the rest of the class
- e-mail: tbulmer@compusmart.ab.ca

A Note from Stan Brown

As you can see after reading the news above, the Department is undergoing a period of change and restructuring and we are looking forward to having renovated facilities. All this comes at a time when the University has been hit hard by government cutbacks, so we are continually looking for ways to streamline Departmental operations and continue to give high quality programs in innovative ways. One of the initiatives to enhance the initial experiences in chemistry is the introduction of a full time person to be the Laboratory Coordinator of the first year labs. Dr. Michael Mombourquette is devoting considerable effort

toward updating the labs and instituting a multi media approach to enhance the learning experience (see above). His efforts are being greatly assisted by computer equipment specifically dedicated to the teaching programs and purchased with funds from the Chemistry Challenge Fund to which many of you have so generously contributed. This fund allows us the flexibility to undertake innovative projects entirely for the teaching effort, and we really appreciate your contributions. To ensure that your contributions reach us, please specify that donations are to be directed to the Department of Chemistry.