

CHEM CLUB ACTION – ALIVE AND WELL:

BY ADAM

JAMES

2005 has kicked off with a bang for the Chemistry Club, with several lunchtime barbecues, the overwhelming Societies Day membership rush, and then the AGM on Friday the 25th of February.

Societies Day, on the 23rd of February, and the rest of O' Week saw no less than 157 inductees join the hallowed ranks of the Chemistry Club. Most celebrated their induction with two choice beverages, be they a shot of Fruit Tingle, Cowboy or Tequila, or perhaps a happy combination of the two. Seven lucky inductees found themselves in possession of a brand spanking new lab coat and safety glasses combo, the safety gear of choice for all self-respecting chemists, and sure to help out any student. The lucky few were Matthew Jacques, Sascha Wise, Caragh Hen, Susan Halliday, Chris Edgar, Lila Landowski and a Mr P. Carroll.

A big thanks to the kind folks at the Zinifex Hobart Smelter for donating these wonderful items of safety equipment, sure to keep these lucky recipients alive and healthy during those dangerous titrations...

The Annual General Meeting of the Chemistry Club was held in the Chem. Pit on Friday the 25th of February with the obligatory cheap (CHEAP!) drinks, and value for money barbecue... ah... meat products.

MC Elijah did a great job filling positions for the 2005 Chem. Club, and the results follow:

1 st Year Rep:	Ben Arthur	2 nd Year Rep:	Ben Sheedy
3 rd Year Rep:	Sam Karpiniec	Post-Grad Rep:	Roderick Jones
Staff-Rep:	Jarrod Coad	President:	Adam James
Vice President:	Oscar Potter	Secretary:	Katrina Bolton (ably assisted by Kara Johns)
Treasurer:	Tom Kazarian (despite being somewhat festive, and absent at the time)		

Please feel free to contact anyone of us if you have any queries. Emails of the executive are as follows: Oscar Potter (Oscar.Potter@utas.edu.au), Kara Johns (kfjohns@utas.edu.au), Katrina Bolton (kfbolton@utas.edu.au), Tom Kazarian (ak@utas.edu.au), and Adam James (anjames@utas.edu.au).

Thanks must go to all those who helped out, whether it be cooking a BBQ or manning the Societies Day Stall or something in-between.

Looking forward to another great year in the Chemistry Club, with many exciting events to come, from the Quiz Night, to the Cocktail Night, to the always entertaining Dinner, and much much more!!!

WELCOME TO:

• **Honours Students:**

Katrina Bolton	(Supervisors: main sup'r Dr Jason Smith, with Dr Rosanne Guijt and Dr Thomas Rodemann)
Jeremy Deverell	(Supervisors: main sup'r Dr Rosanne Guijt, with Dr Jason Smith and Dr Thomas Rodemann)
Jessica Gathercole	(Supervisor: Dr Michael Breadmore)
Adam James	(Supervisor: Dr Michael Gardiner)
Kara Johns	(Supervisor: Dr Emily Hilder)
Tom Kazarian	(Supervisors: Dr Emily Hilder and Dr Jason Smith)
George Lane	(Supervisor: Dr Trevor Lewis)
Russell McGifford	(Supervisors: Dr Trevor Lewis and Dr Andrew Seen)
Sarah Ng	(Supervisor: Dr Jason Smith, where Sarah is continuing her enrolment commenced in mid-2004)
Oscar Potter	(Supervisors: Dr Michael Breadmore and Dr Emily Hilder)

• **PhD students:**

Brendon Gourlay	(Supervisor: Dr Jason Smith)
Roderick Jones	(Supervisors: Prof Allan Canty and Dr Michael Gardiner)
Bryce Lockhart-Gillett	(Supervisors: Dr Michael Gardiner and Assoc Prof Brian Yates)
David Schaller	(Supervisors: Prof Paul Haddad and Dr Emily Hilder)
Damien Stringer	(Supervisors: Dr Michael Gardiner and Assoc Prof Brian Yates)

Yates)

- **Dr Philip Doble** who is visiting from University of Technology Sydney until the end of March.
- **Dr Rosanne Guijt** who has joined the School as an ARC Australian Postdoctoral Fellow for four years, funded by a grant awarded to her by the ARC.
- **Dr Robert Shellie** who has joined the School as a Postdoctoral Fellow supported by Prof Paul Haddad's ARC funding.
- **Dr Ali Reza Fakhari Zavareh** who is spending sabbatical leave from Shahid Beheshti University, Iran, for nine months in ACROSS.

FAREWELL TO:

- Completing PhD students **Joseph Hutchinson** and **David Vercoe** who have obtained positions as a postdoctoral fellow at the University of Waterloo (Canada) and as Account Manager, Paper Process Chemicals, Functional Polymers, with BASF Australia, respectively.
- **Ann Parkin** who has left the School after four years as Office Manager, and has commenced employment with the Tasmanian College of English. We thank Ann for her contribution to the School, Faculty and University, and wish her well for the future.
- **Vicki-Anne Tolhurst** who has completed her appointment as an ARC Australian Postdoctoral Fellow. We thank Vicki for her contributions, and wish her well in her new employment as a Customer Services Manager with Ausindustry in Hobart. Vicki continues her term as Tasmanian Branch President of the RACI, and is also an Honorary Associate of the School and is helping with supervision of PhD student Roderick Jones.
- **Jessica Toohey** who has completed her period of training and who has obtained a continuing position in the School of Medicine. We thank Jess for her help during the past year, and are delighted that she has been successful in her career development.
- **Dr Jun Wang** who has completed his appointment as a postdoctoral fellow with Michael Gardiner after 18 months (formerly, Jun was a PhD student in the same group). Jun is now working as a postdoctoral fellow at Monash University with Prof Glen Deacon and Assoc Prof Peter Junk.

CONGRATULATIONS TO:

- Recipients of UTAS Teaching Development Grants for 2005:
Dr Adrian Blackman, Dr Jason Smith and Assoc Prof Brian Yates, "Drug Discovery in the Undergraduate Laboratory", \$3,260 for 2005.
Dr Michael Breadmore, Dr Greg Dicinoski, and Dr Emily Hilder, "Making Instrumental Analytical Chemistry More Instrumental", \$3,000 for 2005.
Dr Michael Gardiner and Assoc Prof Brian Yates, "Undergraduate Experiments in X-ray Crystallography", \$3,869 for 2005.
- **Prof Allan Canty** for appointment to the **ARC College of Experts** as a member of the Physics, Chemistry and Geosciences panel; and appointment as the 2005 **Royal Society of Chemistry Australasian Lecturer**.
- Recipients of UTAS Research College Board grants:
Dr Michael Gardiner, "Conformational Constraints in Organolanthanide Chemistry: Exploring their Utility for Improved Non-participative Ligands and Forcing Catalytically Relevant Metal-Ligand Interactions", \$15,000 for 2005.
Dr Thomas Rodemann, Dr Rosanne Guijt, and Dr Jason Smith, "Microreactors for Organic Synthesis", \$15,000 for 2005.
- **Dr Michael Gardiner, Assoc Prof Don McWilliam and Brian Yates** who have been awarded Teaching Merit Certificates.
- **Dr Michael Gardiner** for success as a member of the ARC Research Network Scheme grant, "Molecular and Materials Structure Network", \$1,500 for 2004-08.
- **Dr Rosanne Guijt** for success with an ARC Discovery Grant to support her appointment in the School of Chemistry (see *Welcome To*, above).
- **Dr Karen Stack**, who have been invited to attend the First Applied Pulp and Paper Molecular Modelling Symposium at McGill University in Montréal, Canada.

- **Dr Brian Yates** for the award of the **M.R. Banks Medal** for 2005. The Medal is awarded by the Royal Society of Tasmania to a scholar who is not more than 45 years of age who has carried out work largely in Tasmania. The citation for Brian stated that he *has an outstanding international reputation and stature in computational chemistry. His work in this area has covered several fields of science, including applications in understanding organic reactions, applied chemistry for the pulp and paper industry, and homogeneous catalysis and fundamental organometallic chemistry. His research in understanding catalytic reactions is profound, published in the most prestigious journals for chemistry and subsequently attracting significant citations from major international research groups. He is an excellent teacher, and contributes to societies related to his discipline.*

SIEMENS SCIENCE EXPERIENCE

In January, high school students visited the School of Chemistry in Hobart and in Launceston as part of the Siemens Science Experience organised by the Faculty of Science, Engineering and Technology. The students spent an enjoyable afternoon in the lab exploring the smelly (esters), slimy (polymers), colourful (chromatography) and crystalline (crystal garden or aspirin) sides of chemistry. We are extremely grateful to Andrew Grosse and Graham Meredith in Hobart and Barclay Sayer in Launceston who prepared activities, and to Eli Marshall, Rosanne Guijt, Oscar Potter, Brendon Gourlay and Ataches (Tom) Kazarian (Hobart), and Nathan Newman and Daniel Southam (Launceston) who led the students through each exercise. Much fun (almost too much???) was had with red and green blobs of slime...



In Launceston, a second half-day session was organised by Andrew Seen and the people from Waterwatch. The students were taken to Cora Lynn Reserve on the North Esk to sample and test the waters using a range of simple, user-friendly equipment - a wonderful opportunity to get the group outside and involve in hands-on chemistry-in-the-paddock.

The School would like to thank Assoc Prof Brian Yates, Dr Andrew Seen and Dr Trevor Lewis for co-coordinating these events.

ANTARCTIC EXPEDITION

By Bronwyn Wake

Mid December saw me packing up and heading west to embark on my summer cruise, V3, onboard the Aurora Australis. After some time in Perth soaking up the sun in my only possible summer, it was time to depart at 5pm 23rd December; only someone had forgotten to tell the guys responsible for taking the ropes off. So after a small wait we headed out to sea.

First thing on the agenda was the science meeting to discuss what would be going on and what the various projects were. No rest from here with a test CTD (conductivity temperature depth profiler) cast happening early the next day. This began the I9S transect which consisted of 69 CTDs as we headed south. Luckily we were given the afternoon off on Christmas day as we all needed it after the spread of food put on and a visit from Santa. Otherwise each day, weather permitting, was CTDs all day and night as we slowly crawled our way south.

It was a lot of hard work and very depressing to realise we had been at sea for over a week and hadn't made it south of Tasmania. Once we passed Tassie and had hit a rhythm time flew by. I sampled from every 3rd-5th CTD so was up at all kinds of crazy hours to collect samples. I then analysed these samples during the day, dependent on the amount of roll of the ship.

Towards the end of the transect we encountered sea ice, sufficiently heavy to prevent the 70th CTD being completed. So now that we were in ice and within sight of land we turned our tail and headed up to the northwest to the roughest seas in the world. The second section of work was more CTDs plus collection of 8 instrument moorings across the western boundary current adjacent to the Kerguelen Plateau, and continuing south across the Princess Elizabeth Trough to the continent. The moorings were the first task and all 8 were collected in record time (less than 4 days). Apart from an amazing storm one day (60+ knot winds and 10+ m waves), the weather was reasonably kind to us as we continued on our way. Of the expected 48 CTDs on this leg, most were completed. Only the final few had to be aborted due to very heavy sea ice that was unexpected and was said to

be the heaviest seen at the time of year in this location. This forced us across to the west to get through and on to Davis to pick up some passengers.

Due to the problems with the Antarctic resupply ship, we were hurried into Davis station ahead of schedule, that's what we get for doing such a good job on all of our work, or maybe that was luck with the weather. Once at Davis, which we had a lovely view of but that was as close as we got to solid ground, we collected 60 or so people - more than doubling the number of people on the ship, meaning shifts to cosier quarters.



With all safely aboard we turned and headed for home, with a very scenic farewell from the Antarctic with lots of bergs, ice and wildlife (including a pod of killer whales). The trip home went quickly, even after stopping to catch krill (to restock the AAD aquarium), somehow I ended up babysitting these all the way home; deploying the final few Argo floats (there were 19 in total); and one last CTD for old times sake.

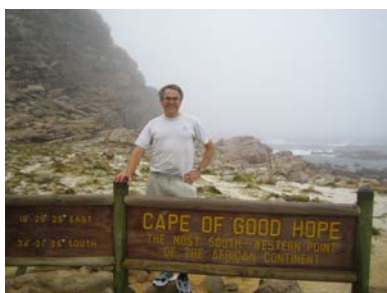
The work completed on this voyage will form a large part of my thesis – this was the first time an extensive study of Se has been carried out in the Southern Ocean. Samples were (or will be) analysed for Se⁴, Se⁶ and total Se. Data collected will be compared to the CTD data (dissolved oxygen, nutrients, salinity, temperature) and biologic information to gain an understanding of Se behaviour and cycling in the water masses sampled.

Other work completed during the voyage included CFC measurements, some O-18 and methane measurements (Japanese researchers); carbon and alkalinity (CSIRO Marine Research); biology, including high-resolution fluorescence measurements.

So 8 weeks after we sailed from Fremantle we returned to Hobart. Glad to be back on land and ready to take on all the samples yet to be analysed....

SOUTH AFRICA SAFARI

By Brian Yates



Assoc Prof Brian Yates presented an invited talk at the 2005 WATOC international meeting of computational chemists in Cape Town in January. There seems to be a tremendous amount of interest in our accurate calculation of pK_a values (currently being carried out by a vacation student, Ben Sheedy, in Brian's group) and the talk was attended by well over 150 people. Many interesting contacts were made and potential collaboration with at least one group in Europe was initiated. I had an enjoyable, if at times alarming, look around Cape Town and a wonderful trip to the Kruger National Park which certainly lived up to its reputation of being one of the best natural animal parks in the world. I was very fortunate to be able to

see 'the big five' in their natural habitat and a host of other unique animals.

THANKS TO SEMINAR SPEAKERS

Dr David Graham, University of Tasmania, "Activation of Dinitrogen via Molybdenum Complexes – A Theoretical Investigation"

Prof Keiji Morokuma, Emory University, Atlanta, Georgia, "The Quest for Accurate Calculations of Large Molecular Systems: Homogeneous Catalysis, Nanostructures and Biomolecular Systems"

Dr John O'Reilly, University of Tasmania, "Adventures in Solid-Phase Microextraction"

Lauren Wise, University of Tasmania, "N-Heterocyclic Metallocenes of the Lanthanides Based on the 4-Azapentalenyl Anion"

**Thank you for your contributions for this issue of *ChemNews*.
Please e-mail all contributions (as and when you think of them) to
Secretary@chem.utas.edu.au**