

ChemNEWS

Newsletter of the University of
Sydney Chemistry Alumni

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The University of Sydney
Australia

School of Chemistry

Welcome from the School of Chemistry

Welcome to the inaugural newsletter for Chemistry Alumni. We are pleased to be able to convey to you things that are happening within the School and to discuss ways in which you may wish to renew your interactions with the School. Despite the doom and gloom stories about the University system, the School of Chemistry has been going from strength to strength in its teaching and research irrespective of continuous cutbacks to recurrent funding.

In teaching, we are experiencing growth in the quantity and quality of both DEST-funded and fee-paying (local and overseas) students. This has been achieved by diversifying into new areas, e.g., the Molecular Biology & Genetics, Molecular Biotechnology, and Nanoscience Degree Programs, as well as Intermediate and Senior Years of the Medical Science Degree. We will reintroduce a Summer School and begin teaching at the Orange Campus in 2003. More and more we are attracting the top students in the state (and the country) to our special programs, e.g., we had to double the number of student places in our Special Studies Program this year to accommodate the large number of gifted and talented students that we attract. This is in no small part due to our highly successful high schools' program.

In research, we continue to excel, taking 20% of the University's ARC funding. This is even more remarkable given that our University was first on the list of ARC recipients. We have been clearly

the top Chemistry School in ARC funding over a number of years, but have also seen a rapid growth in research funding from other sources, including industry, to the extent that we have had an increase in research funding of the order of \$3M in 2003 (and growing) over that in 2002. Our growth in teaching and research has been required to maintain a sustainable budget because, as most of you will be aware, the University system has undergone enormous changes over recent years with the withdrawal of Federal Government funding in favour of user-pays systems. Within the University of Sydney only 30% of income is now derived from recurrent Federal funding, the rest is derived from HECS, local and overseas fee paying students and a variety of other private and public sources. To compensate for reduced recurrent funding, Chemistry has made large reductions in continuing academic and general staff positions (~30%) over the past decade even though the effects of budget cut-backs have been cushioned appreciably by the diversification of our income. In this regard, we would be pleased to talk to any of you who may wish to enter collaborative research projects or consultancies, as well as to discuss bequests or other matters in which either we can promote Chemistry or where you may be able to help us.

We look forward to continued interactions with you and to keep you up to date with events and changes in Chemistry in future newsletters.

Peter Lay
Head of School

CHEMISTRY ALUMNI REUNION BAR-BEQUE

Sunday, 13 October 2002
Invitation enclosed



Staff Members

(as of 1 September 2002)

Head of School

Professor Peter A. Lay

Deputy Head of School

A/Prof. Margaret Harding

Head of Teaching

A/Prof. Greg Warr

Head of Research

A/Prof. John Mackie

First Year Director

Dr Adrian George

Second Year Coordinator

Dr Robert Baker

Third Year Coordinator

A/Prof. Scott Kable

Honours Coordinator

A/Prof. Damon Ridley

Postgraduate Coordinator

Dr George Bacskay

The School of Chemistry Building



Academic Staff

Crossley, Prof. Max
Field, Prof. Les
Hambly, Prof. Trevor
Gilbert, Prof. Robert
Lay, Prof. Peter
Lindoy, Prof. Len
Beattie, A/Prof. James
Harding, A/Prof. Margaret
Harrowell, A/Prof. Peter
Kable, A/Prof. Scott
Kennedy, A/Prof. Brendan
Mackie, A/Prof. John
Masters, A/Prof. Anthony
Ridley, A/Prof. Damon
Warr, A/Prof. Greg
Fenton, Dr Ronald
George, Dr Adrian
Dickson, Dr Noel
Clarke, Dr Ronald
Codd, Dr Rachel
Eastoe, Dr Julian
Fellows, Dr Christopher
Hutton, Dr Craig
Jolliffe, Dr Kate
Jordan, Dr Meredith
McLeod, Dr Malcolm
Bacskay, Dr George
Baker, Dr Robert
Kepert, Dr Cameron
Lacey, Dr Anthony
Sherburn, Dr Michael
Schmid, Dr Siegbert
Zhu, Dr H. Y.

Academic Research Staff

Bilic, Dr Ante
Bonin, Dr Antonio
Cai, Dr Zheng-Li
Cheng, Dr Ming-Chu
Cheong, Dr In Woo
Cohen, Dr Scott
De Bruyn, Dr Hank
Dillon, Dr Carolyn
Djerdjev, Dr Alex
Fellows, Dr Chris
Ferguson, Dr Chris
Hawckett, Dr Brian
Hibbs, Dr David

Hughes, Dr Robert

Jamie, Dr Ian
Jolliffe, Dr Kate
Levina, Dr Aviva
Li, Dr Hsiu Lin
McDonald, Dr James
Nauta, Dr B. Klaas
Pham, Dr TT Binh
Reimers, Dr Jeff
Sortais, Dr Benoit
Thompson, Dr Keiran
Vonwiller, Dr Simone
Weeks, Dr Colin
Williams, Dr David
Zeng, Dr Heping
Zhou, Dr Qingdi

Honorary Staff

Armstrong, A/Prof. Robert
Aroney, Dr Manuel
Barnes, Dr Craig
Bishop, Dr Michael
Burns, Dr Michael
Chia, Dr Peter
Eckert, Dr Jim
Freeman, Prof. Hans
Haymet, Prof. Tony
Hidi, Mr Peter
Hunter, A/Prof. Robert
Hush, Prof. Noel
James, Dr Julia
Messerle, Dr Barbara
Montiero, Dr Michael
O'Brien, Dr Richard
Pierens, Dr Ray
Pinhey, Prof. John
Radford, Dr Don
Sangster, Mr David
Starling, Dr Scott
Sternhell, Prof. Sev
Swaine, Dr Dal
Taylor, Prof. Wal
Wei, Dr Gang
Wilkinson, Dr Matt
Williams, Dr Alan
Wormell, Dr Paul

New Staff



Dr Noel Dickson

Dr Noel Dickson has been appointed on nomination for one year to a Lectureship at the University's campus at Orange, while a three-year position is being advertised. Noel has major UK and EU teaching awards and is spending second semester of this year teaching in First Year in preparation for transferring the program to Orange. He will also be involved in our High School's program and the running of our Summer



Dr Kate Jolliffe

Dr Kate Jolliffe is a QEII Fellow in the School who has accepted a deferred position as a Senior Lecturer to be taken up at the end of her Fellowship. Her research interests are in peptide synthesis, particularly in the preparation of molecular receptors and enzyme mimics. Kate is already performing a limited amount of undergraduate teaching.



Dr Siegbert Schmid

Dr Siegbert Schmid has been appointed as a Senior Lecturer and Deputy Director of First Year Chemistry. A native German presently at Tübingen, he has ten years' experience at the Australian National University. His research interests include chemical education and the analysis of modulated and incommensurate crystal structures.



Dr H.Y. Zhu

Dr H.Y. Zhu has accepted a joint Electron Microscope Unit/Chemistry lectureship in Nanoscience. Dr Zhu is currently a QE II fellow at The Nanomaterials Centre of the University of Queensland where he is working on porous clay heterostructures for which he holds two ARC Large/Discovery grants. He has interests in the synthesis and characterization of pillared clays, aluminas, MCM-41 and porous clay materials.

Recently Retired Staff



ASP Prof. Robert Armstrong

Associate Professor Robert Armstrong has fully retired after several years on a fractional appointment. However, he continues to supervise research students and staff, conduct research with a number of externally funded grants and manage his very well equipped Vibrational Spectroscopy Facility.



Dr James Eckert

Dr James Eckert has fully retired but continues to participate in the supervision of the Chemistry 2 Analytical Chemistry laboratory, endeavouring to maintain standards and contributing his customary elegant and clear whiteboard explanations.



Dr Julia James

Dr Julia James has retired and finds that she is busier than ever, supervising her completing research students and with her many external and international activities. She continues her research program in speleochemistry.



Dr Don Radford

Dr Don Radford has retired and the School is finding that several people are required to complete the tasks that he used to do as Deputy Director of First Year Chemistry. He continues to contribute to a number of computer-aided learning projects.

Unreliable Memoirs

by
Dr Bob Hunter

It's easy enough to pinch Clive James' title but not so easy to emulate that writing style, so I won't try.

I've been associated with the School of Chemistry here for about half a century, first very tenuously as an undergraduate in Armidale when New England was still a college of Sydney and we sat for Sydney University examinations. I came down in my honours year in 1953 for a closer look and a brief stint with Professor Arthur Birch in Organic before throwing in the towel and retreating to a teaching job in Orange in July. Those few weeks introduced me to people like J.J. Broe who ran the First Year teaching unit and Jack Smith and Colin Thompson in the Store but I had little contact with anyone else, save a few senior organic graduate students whose names I only dimly remember. One was Ken 'Popeye' Martin who had also done his early work in Armidale and another was Roger Brown. I think John Pinhey was there at that time too.

When I returned to take up a CSIRO scholarship in 1957 I was one of a group of research students brought in by Alex Alexander when he moved over from the University of NSW to take up the Chair of Physical Chemistry vacated by David Craig. Alex was interested in applying his science (of surfaces and colloids) to practical situations so June Griffith from the CSIRO was working on wool dyeing and I was studying

soil development. A swag of others (like George Hibbard) were fiddling about with Langmuir troughs. The other Physical chemistry staff members, Ian Ross and Lawrie Lyons, had research going in spectroscopy and similar areas with students like the elegant Darryl Freeman and the boisterous Graham Hunt both of whom, like many before them, would spend the rest of their careers in the US.



The Head of School was R.J.W. Le Fevre who ran a stable of research students in his favoured field of dipole moments and from which he was to provide many of the future staff members of the department: Manual Aroney, Bob Armstrong, Ray Pierens, Dick Roper and later Don Radford and Alan Williams to name a few. A similar group of future stars was beginning research training in

physical chemistry at the same time: John Mackie, Don Napper and Tony Lacey and pharmacy people like Doug Moore.

Dave Alderdice and Julian Brown were more like physicists, studying the very new field of n.q.r. spectroscopy under the occasional eye of the celebrated Tommy Iredale, who patrolled the corridors with hands clasped behind his back, stopping now and then to accost some hapless student with an indecent question about his sex life. Lecturers don't do that sort of thing any more but lots of things were different then.

One big difference was the 6 o'clock rule. All pubs had to shut at six in those days to force recalcitrant workers home to the bosom of the family whilst they were still mobile. For us it meant if you wanted a drink after a hard day in the lab you needed to get across to the Lalla Rookh soon after the teaching labs finished at five. The Rookh stood on the corner of City Road and Codrington Street and was demolished in the 1960s to make way for the Wentworth Building. I've long since forgotten the romantic legend which stood behind that exotic name but I shall never forget the ambience: none of your snug English pub atmosphere here. It was pure Aussie chunder territory with tiled walls and cement floor, one three-way bar, a couple of beer taps and a dubious selection of spirits on the wall at the back.

But it had one feature which rendered it unique: the clientele included some of the most interesting of the young lecturing staff from chemistry. I know I gained immensely from the many conversations I had with people like Ian Ross and Ern Ritchie and it served as our informal gathering place before the nightly onslaught on the city's eateries. I know Ian was particularly upset by the demise of the Rookh. When it disappeared he procured a large pewter tankard and had it inscribed with the dedication: "The Lalla Rookh Valedictory Vessel..... destroyed by vandals. 1966". Future PhD graduates in Phys. Chem. had their names recorded on it and were required to down that mug of best draught beer as one of the rites of passage.

Before we were summarily evicted from the Rookh shortly after six we would have decided on which of the small European style cafes or restaurants we would grace with our custom that night. It was a time when Sydney's new immigrants were setting up restaurants everywhere and we saw it as a duty to sample the latest and to maintain an entree into the ones with the best value for money. The Veneziana in Stanley St (later No Names) was very popular for a long time and no wonder: 6/6 (65c) for a Steak Diane and even less for the pasta dishes. Chicken in a basket for 11/3 (\$1.15) in a little place on Cleveland St over the hill from Elizabeth St. The Glebe Point Rd had not developed at that stage but there were always good cheap places in Newtown and Surrey Hills. The main problem was that almost as soon as we had discovered a great little eatery we would see it invaded by some well-dressed eastern suburbs types who would rapidly drive prices beyond our budgets and we'd have to fossick for the next good deal.

Even after the introduction of ten o'clock closing the ritual didn't alter much because in those early days we were still thrown on the streets for

the hour between six thirty and seven thirty. The polities had evidently decided that we could not be trusted to eat if we were not forced to do so.

There were other great drinking traditions which were confined to a different clientele. The Thursday seminar at the Governor Bourke (on Parramatta Road) was a specialty of the chemical engineers. The guiding light and supposed instigator was Sef-ton Hayman who had been seconded from the CSIRO to the Phys. Chem. department to conduct experiments in high pressure chemistry which he did by exploding devices on North Head so we had only the vaguest idea of what he was about. For some reason Sef-ton insisted the 'seminar' start at 3 pm and he was usually gone by five, but his fellow seminarians, like John (Spanner) Kenny, Dick (the Master) Bates and Geoff (the trumpeter) Whitehead, would bravely soldier on as long as possible. I was introduced to it by Dick Roper, a real devotee who was always there on the stroke of three, no doubt to encourage Sef-ton. Dick was a devoted tippler who became a permanent fixture of the first year teaching staff until he retired to

1964 Le Fevre Group

4th Row L-R: Don Radford; C.Y. Chen; John Saxby; Singh; Jeff Ritchie; Dick Roper

3rd Row L-R: Kingsley Calderbank; Dennis Izsac; Bob Armstrong; R.J.W. Le Fevre

2nd Row L-R: Manuel Aroney; Alan Williams; Victoria Ross; Ann Williams; Kathy Le Fevre; Murli



Queensland in the mid 1980s.

The White Horse Inn in Newtown was another favourite drinking spot and was famous for being the venue of the inaugural meeting to found the Alchemist's Society. In the early 1970s, Hans Freeman called together the graduate students and staff to consider the formation of a group to encourage interaction between staff and students, both graduate and undergraduate. I had the honour of being elected the first President of the Association and it got off to a good start with some assistance from the Science Students Association. It wasn't long before the first 'meeting' of each year became the unofficial welcome to new students in first year science, engineering, medicine, dentistry and agriculture combined. It has continued over the years to provide a valuable channel for friendly liaison between staff and students. Its sublime ambition, reminiscent of its mediaeval antecedents, is to perfect the transmutation of gold into alcohol. Experiments will no doubt continue as long as chemistry is pursued anywhere on the planet.

Cornforth Foundation



1975:
Sir John
Cornforth,
AC CBE
(b. 1917)

The School of Chemistry at the University is proud to announce the establishment of the Cornforth Foundation for Chemistry. Sir John is one of the School of Chemistry's most distinguished graduates

Sydney-born Cornforth, who had become completely deaf in his early twenties, was awarded a scholarship in

1939 to Oxford where he experimented with penicillin under Howard Florey. As Australia did not offer any opportunities for research chemists who could not lecture, he spent the rest of his working life in England.

He shared the 1975 Nobel Prize with Vladimir Prelog for their work on stereochemistry. Cornforth's share of the prize was for his study of enzymes, the catalysts that make possible the chemical processes of life. His wife Rita, also a brilliant organic chemist, carried out much of the experimental work.

Among many other honours and awards, Cornforth received a knighthood in 1977,

and the Royal Society's highest awards, the Royal Society and Copley medals in 1976 and 1982 respectively. He was Royal Society Research Professor of molecular sciences, 1975 - 82, and then Emeritus Research Professor at Sussex University. Sir John described the business of scientists as being "not to believe but to test, check and balance all theories, including their own".

Enquiries to:- Dr Mal McLeod, School of Chemistry, The University of Sydney, NSW, 2006, Australia, Telephone +61 2 9351 5877; Fax +61 2 9351 3320; Email cornforth@chem.usyd.edu.au. www.chem.usyd.edu.au/ ♦

Centre for Heavy Metals Research

The Centre for Heavy Metals Research (CHMR) was established within the University of Sydney in July 2000. It has as its major goal the instigation and development of a substantial research program in the chemistry of heavy metals in partnership with Australian industry, hospitals and Government institutions.

The Centre invites expressions of interest from potential research partners or clients seeking its consultancy, contracted training or diagnostic services.

CHMR is led by the School of Chemistry in alliance with the Departments of Chemical Engineering and Agricultural Chemistry & Soil Science. Other units within the University, and participating institutions both within and out-

side Australia, also are involved. In particular, this includes a partnership formed with the Centre for Industrial and Process Mineralogy (CIPM) at the University of Western Sydney (Parramatta campus), which extends CHMR's capabilities in solid-state analytical and mineral chemistry.

The Centre has three research programs in the areas of Bio-Metals, Industry-Metals and Environ-Metals, which support its Education & Training and Business programs.

The primary Aims of CHMR are:

- to establish extensive links with companies and/or government agencies over the three major research programs;
- to increase significantly collaborative research between the

School of Chemistry and industry, with support from the other lead University Departments and external partners;

- to provide resources and expertise for the highest quality training of research students at postgraduate level;
- to work collaboratively with industry and professional organisations to ensure training needs are met, leading to the development of short courses when appropriate;
- to provide appropriate consultancy and/or diagnostic services in accordance with University guidelines;
- to promote heavy metals research at the Centre through the organisation of periodic symposia involving industry and government representatives, and through the publication of its significant achievements via the media.

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(CHMR continued from page 6)

The Centre invites expressions of interest from possible industrial or institutional partners who may wish to pursue a collaborative involvement consistent with these Aims.

This may include access to the R&D Tax Concession and range of Government funding sources [e.g. ISR, AusIndustry or Innovation schemes] available for collaborative research.

The Centre also welcomes indications from potential clients interested in its Consultancy, Diagnostic Services, Contracted Research or Contracted Training activities.

For further information please contact Prof. Len Lindoy (see contact details under Foundation for Inorganic Chemistry). ♦

Chancellor addresses the Foundation for Inorganic Chemistry



Professor Len Lindoy

The annual dinner of the Foundation for Inorganic Chemistry on the 8 May was a great success. A highlight of the night was an address by Chancellor Justice Kim Santow on the future direction of the University, a topic which ensured much interest and discussion. Subsequently, Professor Wim Buijs of DSM Research, Holland, the Foundation's first semester guest for 2002, talked of university-industry interactions. The AGM and Council meeting were quickly and painlessly dispatched between courses.

The Foundation is concerned

with promoting industry-university interactions, bringing to Sydney eminent chemists from other universities and institutes for lectures and research consultations, forming a global network of research chemists with an inorganic orientation, and providing a means for Sydney graduates to stay in contact.

Anyone wishing to become a member of the Foundation would be greatly welcomed.

Enquiries to Professor Len Lindoy, School of Chemistry, The University of Sydney, NSW, 2006, Australia, Telephone +61 2 9351 4400; Fax +61 2 9351 3320; Email l.lindoy@chem.usyd.edu.au. www.chem.usyd.edu.au/ ♦

Prize/Scholarship Winners for 2001

The School of Chemistry awards over \$85 000 in Prizes and Scholarships each year to the best of its students. The following students (pictured below) were awarded prizes or scholarships in 2002 based on their academic achievements in 2001. Scholarships are awarded subject to the students satisfying conditions required for each of the individual scholarships.

2001 Recipients



The New HSC Chemistry Syllabus: Disaster or Deliverance?

At the beginning of 2000, a new HSC Chemistry syllabus was introduced across NSW after a gestation period of less than two years. The syllabus represented a major change, being based on the spiral approach to concept development and being context driven. The haste, driven largely by the State Government's wish to have a new syllabus in place for the "New Millennium", caused great concern amongst teachers, universities and professional bodies, but the then Minister for Education, John Aquilina, could not be swayed. Of greatest concern was the lack of time for preparation of resource material for such a demanding syllabus, but there was also concern about how much chemistry the students would learn and understand from the context driven approach.

In July 2001, with the first cohort nearing completion of the new syllabus, the School of Chemistry held two forums at its biennial Chemistry Teachers Workshop. Our goal was to establish what the teachers thought of the new syllabus, how the preparation of those of the cohort to come to us in 2002 would differ from previous years and what holes there were in the re-

source material and facilities needed to service the syllabus. Not surprisingly, there was a wide range of opinions about the syllabus, though all agreed it had been a massive job to implement, especially given the limited resource material and the lack of time. However, most felt that the students would know less chemistry, especially the mathematical aspects, but be more enthusiastic. A common theme to emerge was that the syllabus required facilities, such as atomic absorption spectrometers, that were simply not available in the schools. This led the School of Chemistry to offer workshops in the areas of major deficiency. The first of these, on "Chemical Monitoring and Management" was developed by our High Schools Liaison Officer, Dr Jeanette Hurst, initially for the Chemistry Teachers Workshop, but then for high school students themselves. In 2002 this workshop has been presented 75 times for more than 1700 students from 75 schools! Jeanette has now developed two more workshops on Forensic Chemistry and Industrial Chemistry. These are being run in August with over 100 students enrolled so far. The success of these programs in the School of Chemistry has led to the establishment of a Faculty wide program called Kickstart Science. This has been supported by grants

from the College of Science and Technology and the Faculty of Science and will include workshops in Physics and Biology. It has also led to Physics and Biology appointing or considering High School Liaison Officers - yet again Chemistry leads the way with innovative and successful strategies!

So, what of the first output from the new syllabus? Well, enrolments in Chemistry have gone up, the UAI cut off for the BSc has gone from 76 to 81 and the number of students in the School's talented students program (involving only the top 1.2% of the HSC cohort) has doubled from 24 to 48! This is due in part to Jeanette's efforts in running the workshops and other programs such as Gifted and Talented, Olympiad Training and Extreme Science over the last few years - an influence that can only increase with the dramatic success of the Kickstart Science workshops. However, there is no doubt that the school teachers were right - the new syllabus has increased enthusiasm for chemistry and that is a great opportunity for us. Also, the current cohort of students, the first graduates of the new HSC syllabus, are doing at least as well in first year chemistry. So, we can now start to put Chemistry back where it belongs - at the centre of science.

If you would like further information please contact: *Dr Jeanette Hurst, School of Chemistry, F11, University of Sydney NSW 2006, Australia. Telephone: +61 2 9351 3105, Fax: +61 2 9351 7098 or email j.hurst@chem.usyd.edu.au Web-site: www.chem.usyd.edu.au.*



Chemistry
Science
Teachers'
Workshop
2001