

Society of Crystallographers in Australia



SCA

Newsletters

No 37, March 98

The SCA homepage is located at <http://www.sca.asn.au>

FROM THE PRESIDENT

Once again it is the time of year when academics start their annual cycle of new students and the pleasures and difficulties that are part of academia in Australia in the 1990's. I thought that I had managed to vent all my frustration with the granting bodies in this country in the last *Newsletter*. All ARC and NH&MRC grants should have been submitted by this time. But just when I believed that I had seen the worst of bureaucratic incompetence, the NH&MRC has invented GrantNet - a scheme devised to take advantage of the modern communication miracle, the Internet. Simply put, the system does not work. The computers and communications are inadequate and the protocols are too full of mistakes to count. What went wrong? The NH&MRC says the system was tested. It was. It was so bad that proper testing was impossible. Despite this, it was released on an unsuspecting public. This farce has cost each applicant hundreds of wasted hours.

Now for the good news. The joint meeting of the Lorne Protein Structure and Function Workshop and the Protein Society held last month in the beautiful resort on the Great Ocean Road was a great success for Australian science, and crystallography in particular. Only ten years ago the unveiling of a new protein structure by an Australian group was a major event. This year's meeting saw the release of seven new structures by the six Australian laboratories some of which had to be "relegated" to the poster sessions. Although it is difficult to choose a single structure for special mention, the work of Tom Garrett at the Biomolecular Research Institute on the insulin-like growth factor receptor was outstanding. The structure itself culminates years of work by a large team of molecular biologists and protein chemists lead by Colin Ward which ultimately produced the form of the protein that yielded crystals diffracting to reasonably high resolution. The actual structure analysis was in relative terms a straightforward exercise. The important conclusion from the work is that the funding of protein crystallography needs to relate to the selection of important biological problems and the production of pure proteins not simply the structure analysis itself. Recent articles in *Nature Structural Biology* (5(1), 11-13, 1998) discuss this point with regard to funding in the United States.

On a final note, the second circular for the forthcoming AsCA meeting to be held in Malaysia from October 13-15 will be available shortly on the Web and will be sent to those who requested a printed copy. The SCA will assist student travel for this meeting. Please alert your colleagues so that Australia is well represented.

Mitchell Guss

NEW MACROMOLECULAR CRYSTALLOGRAPHY LABORATORY

The continuing growth of biological crystallography has seen the emergence of another new macromolecular crystallography laboratory, this time at the University of Auckland. This follows the appointment of Ted Baker as Professor of Structural Biology. With three academic staff, Ted Baker, Peter Metcalf (ex-European Molecular Biology Laboratory) and Clyde Smith (ex-Massey University and University of Wisconsin), together with Heather Baker and some 8-10 other researchers, it will provide further opportunities for Postdoctoral Fellows and graduate students in Australasia. Current projects include proteins involved in bacterial virulence, heat-stable enzymes, binding and transport proteins, GTP- and ATP-dependent enzymes, and several potential drug design candidates.

The new laboratory is housed in the School of Biological Sciences, but has feet in both Biological Sciences and Chemistry. Equipment is centred around a Rigaku RU-300 rotating anode generator with two Mar-345 image plate detectors, and a suite of SGI workstations. Rumour also has it that with several macromolecular crystallography groups now in the "Shaky Isles", summit meetings may be held on the ski-fields of Mount Ruapehu.

Ted Baker

AsCA

October 13-15, 1998

Bangi, Malaysia

Call for applications for the 'E.N. (Ted) Maslen 1987 Studentships and Scholarships'

The Council of the Society of Crystallographers in Australia is calling for applications from postgraduate students of crystallography for the 'E.N. (Ted) Maslen 1987 Studentships and Scholarships' to fund attendance at the Third Meeting of the Asian Crystallographic Association to be held in Bangi in the state of Selangor, Malaysia, from October 13-15, 1998.

Details of the Congress are available on the WWW at the address:
<http://telperion.otago.ac.nz:800/rweavers/ASCA/asca98.htm>

SCA student members from both Australia and New Zealand are invited to apply for the Scholarships, which will make a substantial contribution to the international travelling costs. Selections will be based upon merit, geographic distribution and previous and/or future opportunities of the candidates. As the SCA Council regards these awards as an important means of introducing young crystallographers to the international scientific community, students awarded Scholarships will be expected to make a presentation of their work at the meeting.

The method of application is straightforward, but a strict deadline will apply.

Method of Application

Postgraduate students applying for a '1987 Scholarship' should forward to the Secretary the following:

- An abstract of the presentation sent, or to be sent, to the Congress Secretariat.
- A covering letter from the applicant's supervisor providing a brief reference and verifying that the applicant is a *bona fide* student at the time of the meeting.
- An indication of what other funding may be available from the applicant's own institution.
- An indication as to whether the applicant has previously received funding from the SCA.

Applications must reach the following address by June 15, 1998:

A/Prof. Trevor Hambley,

SCA Secretary,

School of Chemistry,

University of Sydney,

NSW 2006.

Alternatively, applications may be sent by FAX to 02-9351-3329.

CRYSTAL FRAGMENTS

- Peter Colman (Biomolecular Research Institute, Melbourne) presented the Dean's Public Lecture in the Octagon Theatre at the University of Western Australia on October 29th. Peter's Lecture was entitled 'Influenza Virus: Under the Microscope and Under Attack'.
- Trevor Hambley (University of Sydney) has been promoted to the position of Associate Professor in the School of Chemistry.
- Jim Simpson (University of Otago, New Zealand) has been appointed Head of the Department of Chemistry.
- In January, Lachlan Cranswick (L.Cranswick@dl.ac.uk) took up a one to three year Post Doctoral Fellowship position at the Daresbury Laboratory, home of Britain's X-ray synchrotron. This position involves working as the secretary of the continuing CCP14 (Collaborative Computation Project Number 14) for Single Crystal and Powder Diffraction. The major aim of the project is to accumulate, archive and distribute relevant single crystal and powder diffraction software; plus related software and information resources for the crystallographic community (primarily via the Internet and World Wide Web).

SUBSCRIPTIONS

The Treasurer wishes to remind members that annual membership subscriptions for 1998 are now due. A statement was included with the October *Newsletter*. The amount payable is \$25 for a full member and \$7 for a student member, with these discounted to \$20 and \$5 respectively if payment is made by April 1, 1998. The Treasurer's postal address is Dr. B.W. Skelton, Treasurer SCA, Department of Chemistry, University of Western Australia.

Nedlands, Western Australia 6907.

NEW MEMBERS

The SCA welcomes the following new members for 1998:

Dr. Ross Piltz (ANSTO), Dr Effendy (FPMIPA IKIP Malang, Indonesia), Dr. Claire Whitaker, Dr. William Harrison, Dr. George Koutsantonis (University of Western Australia), Dr. Marisa Spinello (University of Melbourne), A/Prof. Peter Healy (Griffith University), Dr. Ossama El-Kabbani (Victorian College of Pharmacy, Monash University), Ms. Frances Kosovel (University of Adelaide), Dr. Peter Junk (James Cook University of North Queensland) and Dr. Stephen Holt (Australian National University).

RESEARCH GRANTS AWARDED

The following grants were received by members of The Society of Crystallographers in Australia for 1998. All awards have been rounded off to the nearest dollar. The names in italics indicate that they are not members of the *Society*.

Australian Research Council (ARC)

- Michael Parker (St. Vincent's Institute of Medical Research, Melbourne): 'Understanding Detoxification Mechanisms: Structural Studies of Glutathione Transferases'. - \$195,000 (1998/2000).
- *Prof. D. Dakternieks (Deakin University)*, Edward Tiekink (University of Adelaide), *Prof. K. Jurkschat (Dortmund University)*: 'Organotin Oxo-Clusters: Building Blocks for New Highly Selective Homogeneous Catalysts'. - \$129,000 (1998/2000).
- Trevor Hambley (University of Sydney): 'Stereochemical and Sequence Dependent Influences on the Binding of Novel Pt Complexes to DNA.' - \$253,000 (1998/2000).
- Peter Junk (James Cook University of North Queensland): 'Lanthanoid-Aza-Crown Ether Chemistry.' - \$141,000 (1998/2000).
- Mark Humphrey (The Australian National University): 'Advanced Cluster Chemistry'. - \$190,000 (1998/2000).
- Max Taylor (Flinders University of South Australia): 'Experimental Studies of Charge Density in Nucleobases and their Metal Complexes.' - \$129,000 (1998/2000).
- Colin Raston (Monash University): 'Special Investigator Award: Main Group Nano-chemistry.' - \$600,000 (1998/2000).
- *Prof. R.G. Gilbert (University of Sydney)* and John White (Australian National University): 'Effects of Hydrophilic Monomers on Emulsion Polymerisation.' - \$195,000 (1998/2000).
- David Cockayne (University of Sydney): 'Characterisation of Nano-Scale Defects and Quantum Dots in

Semiconductors.' - \$162,000 (1998/2000).

• Paul Curmi (University of New South Wales) and A/Prof M.S. Baker (University of Wollongong): 'Mechanism of Inhibition of Urokinase by the Serpin, Plasminogen Activator Inhibitor 2.' - \$194,500 (1998/2000).

• A/Prof. P. M. Kelly and John Drennan (University of Queensland): 'The Olivine <-> Spinel Transformation.- Its Relevance to Earthquakes and Engineering Ceramics.' - \$197,500 (1998/2000).

• Eric Kisi (University of Newcastle), A/Prof M. Barsoum (Drexel University) and Dr. S.J. Kennedy (ANSTO): 'In-situ Neutron Diffraction Study of the Thermo-Mechanical Processing of Ceramic.' - \$157,000 (1998/2000).

National Health and Medical Research Council (NH&MRC)

• Ossama El-Kabbani and Prof. M. Von Itzstein (Victorian College of Pharmacy, Monash University): 'Studies of the Aldo-keto Reductase Enzymes.' - \$103,065 (+1999/2000 support).

• Michael Parker (St. Vincent's Institute of Medical Research, Melbourne): 'Studies of a Protein Involved in Alzheimer's Disease.' - \$111,372 (+1999/2000 support).

• Michael Parker (St. Vincent's Institute of Medical Research, Melbourne): ' Studies of a Protein with Uses in Combating Organ Graft Rejection and Measles Infection.' - \$50,425 (+1999/2000 support).

• Matthew Wilce and Mitchell Guss (Department of Biochemistry, University of Sydney): 'Understanding Cellular Energy Production, Muscle Contraction and Cell Growth.' - \$63,733 (+1999/2000 support).

• Dr G. Morahan and Peter Colman (Biomolecular Research Institute, Melbourne): 'Discovery of Genes Causing Juvenile Diabetes and its Complications.' - \$188,000 (+1999/2002 support).

1997 BOAS MEDAL

The Australian Institute of Physics 1997 Boas Medal has been awarded to Professor Keith Nugent of the University of Melbourne and Dr. Stephen Wilkins of CSIRO Manufacturing Science and Technology for their contributions to X-ray and light optics.

In 1989 Professor Nugent, Dr. Wilkins and their colleagues pioneered a novel form of "lobster-eye" X-ray optics based on capillary arrays of reflectors. During the past four years Professor Nugent and his group have further developed these techniques to the stage where they are to be used in a proposed international collaboration to develop a new form of X-ray telescope and a LOBSTER satellite which should allow much improved all-sky X-ray astronomical surveys. During this period Professor Nugent and his colleagues have also developed a new and direct approach to the determination of optical phase from intensity measurements which promises to have important applications in astronomy and X-ray imaging.

Dr. Wilkins and his team at CSIRO have developed new techniques of X-ray imaging, based on phase-contrast, which initially relied on the use of perfect-crystal optics but more recently have progressed to methods requiring only conventional polychromatic (microfocus) X-ray sources. In contrast with conventional X-ray absorption imaging, phase-contrast imaging probes the refractive index of the medium and can give strong contrast for weakly absorbing materials including biological tissue. The method has potentially

important applications in clinical medicine, the biological and physical sciences, and industry.

Australian Institute of Physics

FUTURE MEETINGS

Small Angle Scattering and Reflectometry Meeting

The first ANU Small Angle Scattering and Reflectometry Meeting will be held at the Research School of Chemistry, Australian National University from April 15-16, 1998. This is to be an informal meeting where participants can present their SAXS, SANS and reflectometry results and learn the techniques. There will also be discussion as to the future direction of Australian research, particularly with respect to Synchrotron applications and the new nuclear reactor at Lucas Heights. For more information contact Philip Reynolds on phil@rsc.anu.edu.au.

AsCA'98

Plans for the forthcoming AsCA'98 meeting in Malaysia (October 13-15, 1998) are proceeding very well. A copy of the First Circular is available on the AsCA'98 Homepage at: <http://telperion.otago.ac.nz:800/rweavers/ASCA/asca98.htm>. A call from the Secretary of the SCA for applications for travel awards is on Page 2 of this *Newsletter*. The Second Circular will be available shortly.

AXAA99

Australian X-ray Analytical Association (AXAA). National Schools and Conference - AXAA99, Melbourne, February 8-12, 1999.

XVIII IUCR Congress

Glasgow, Scotland, August 4-13, 1999.

The venue for the XVIII IUCR Congress is the Scottish Exhibition and Conferences Centre (SECC) in the centre of Glasgow. The scientific sessions, poster areas and exhibitions will all take place at this single site. The Congress Web page is located at: <http://www.chem.gla.ac.uk/iucr99/>.

Several Satellite Meetings are being organised.

- Synchrotron Radiation. This is to be held at Chester College, Chester. The organiser is Bob Cernik and it is to be held pre-Congress.
- Structural & Dynamic Aspects of Molecular Ionic Solids Using Neutrons. This is to be held at Merton College, Oxford from August 1-3, 1999 and is being organised by Colin Carlife. Further information can be obtained from the meeting website at: <http://www.isis.rl.ac.uk/conferences/IUCRneutrons.htm>.
- Cambridge Structural Database. August 15-18, 1999. To be held at Merton College, Oxford and organised by Frank Allen.
- Crystallographic Computing School. To be held at Merton College, Oxford from August 14-20, 1999 with organisation by Gerard Bricogne and David Watkin.

FOR THE WEB BROWSERS

Some useful addresses:

- Society of Crystallographers in Australia (SCA): [http:// www.sca.asn.au/](http://www.sca.asn.au/).
 - AsCA'98 Conference, Bangi, Malaysia, October 13-15, 1998:
<http://telperion.otago.ac.nz:800/rweavers/ASCA/asca98.htm>.
 - IUCr XVIII Congress Glasgow 1999: <http://www.chem.gla.ac.uk/iucr99/>.
 - Australian X-ray Analytical Association (AXAA): [http:// www.latrobe.edu.au/www/axaa/](http://www.latrobe.edu.au/www/axaa/).
 - Crystallography World Wide Employment (CSIRO Mirror Site):
<http://www.minerals.csiro.au/mirror/w3v1c/job.index.html>.
 - Employment in Chemistry, Physics and Medicine: <http://www.job-hunt.org/science.shtml>.
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The next issue of the *Newsletter* will be in May. Contributions should be e-mailed to the Editor by the end of April.