

Society of Crystallographers in Australia



SCA

Newsletters

No 32, October 1996

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

FROM THE PRESIDENT

It seems that a lot of water has passed under the bridge since I wrote my last President's column, for the December 1995 issue of the *Newsletter*. From the point of view of impact on our daily lives, the most important developments have been the election, the change of government, and the budget. Cuts to university funding have attracted much publicity, although I understand that funding to the Australian Research Council was increased. It was said that the science agencies (such as CSIRO and ANSTO) held their own. This may be true in some relative sense, in that these agencies have been hit less severely than other government departments, but budgets are shrinking nonetheless. My own organisation (ANSTO) is currently refashioning its research program, a painful process when funds are tight.

With these funding concerns off my chest, I can go on to present a rather upbeat report on the state of crystallography, and Australian crystallography in particular. I was privileged to attend the presentation of the Australia Prize in early February, and especially delighted that former SCA President Peter Colman was named among the winners (see *Newsletter* No 31). Then there was the massive gathering of crystallographers in Seattle in August - more than 2,300 crystallographers, I believe, including 8 Nobel Laureates. There were 35 Australians at this meeting, including 6 students who received support from SCA's *1987 Scholarships*. These students have been asked to report on the meeting, and you will find some of their views in this *Newsletter* (more in later issues). I wasn't in Seattle for the whole meeting, but I did enjoy some beautifully prepared and presented lectures in the Keynote series, a number of the Materials series Microsymposia, the Microsymposium on Neutron Reflectometry, and the irresistible invitation to Glasgow (for 1999) issued on the occasion of the conference banquet by Chris Gilmore, Judith Howard and Chick Wilson. Together with additional meetings held every lunchtime (including meetings of the Councils of the SCA and the Asian Crystallographic Association, AsCA), and the full program of satellite meetings before and after the Seattle Congress, this was crystallography on the grand scale. The award of the Nobel prize in Chemistry to Curl, Kroto and Smalley, for their discovery of fullerenes, connects to crystallography through the beauty of the C₆₀ molecule and its occurrence in a variety of crystalline compounds - as reported for example in the Fullerenes session in Seattle.

Back to home, I can report on Australian access to synchrotron radiation. The Photon Factory in Tsukuba, Japan, will be closed down from January to October for an upgrading, which will result in a fivefold increase in its brightness as an X-ray source. Richard Garrett tells me that applications by Australians to work at other synchrotrons during this period will receive favourable consideration as regards travel support. As regards the Advanced Photon Source, Argonne, John Boldeman and Hans Freeman have just returned from the CARS-CAT Board of Governors meeting in Chicago. BioCARS should be operational in the second half of 1997. ChemMatCARS is still in the planning stages, and I am informed Australian scientists will be invited to contribute at the instrument design stage of this activity. The instrument stations of the other CAT, SRICAT, are mostly operational. Activities at both Tsukuba and Argonne now form part of the Australian Synchrotron Research Program (ASRP), funded by the Major National Research Facilities program. I understand that agreements with the overseas parties are complete, and that the agreement between ANSTO (the organisation which will manage the program) and DIST may be signed by the time this column goes to press.

There seem to have been many meetings on neutron scattering this year. Probably the most important was a workshop organised by the European Science Foundation and held in Autrans, France, in January. This workshop, in which John

White participated, examined *Scientific Prospects for Neutron Scattering with Present and Future Sources*. Its report, now available, is a quite authoritative work. I have attended two meetings of an OECD Neutron Sources Working Group whose brief is to look at the supply and demand of neutrons, and attended as well the Neutron Scattering Satellite Meeting in Gaithersburg and the First European Conference on Neutron Scattering held in Interlaken in October. Both meetings were successful, the European meeting being notable as the largest gathering of neutron scatterers (more than 700) ever assembled. Without wishing to pre-empt the conclusions of the OECD Working Group, I have to say that neutron scattering in Europe, whether judged by the number of interested scientists, the diversity of application, or the number of suitable neutron sources (newly refurbished, new, under construction, and planned), is in very good shape indeed. I returned just in time to attend the third Australian meeting on neutron scattering (ten years since the second), and was disappointed neither by the attendance (more than 50) nor the quality of science presented.

I will finish again with a summary on forthcoming meetings. The next meeting on our crystallographic calendar is Crystal XX, to be held April 2-5 in Queenstown, New Zealand. Student members of the SCA who wish to attend this meeting are invited to apply for financial support, in the manner detailed in the separate announcement ('call for applications'). AsCA is planning its third meeting, AsCA'98, expected to be held in Malaysia in November 1998, and then of course there is IUCr XVIII Congress and General Assembly to take place in Glasgow in August 1999. Look forward to seeing you somewhere.

Chris Howard

AsCA

The AsCA executives elected at the Council meeting in Seattle are:

President: Professor Ze Zhang (China)

Vice President: Dr Christopher Howard (Australia)

Secretary/Treasurer: Dr Krishan Lal (India)

AsCA'98 is to be held in Malaysia but details of venue and dates are still to be finalised. Hamid Othman will chair the local committee with Shih-Lin Chang of Taipei as Chair of the International Organising Committee.

Student Reports on IUCr XVII in Seattle

(The following are reports from recipients of SCA travel grants which allowed them to attend the International Union of Crystallographers meeting in Seattle (IUCr XVII) held in August 1996).

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Despite the good weather, Seattle reminded me much of Melbourne, the differences being that there are more freeways. The days and nights were quite balmy - something I had not counted on when packing.

The benefits for attending the IUCr meeting in Seattle for me were many. The conference was great for learning about the latest techniques in macromolecular crystal structure determination and refinement, as well as the latest feats in structure determination. Only at such a meeting can one observe the results of techniques of crystallography pushed to their limits.

Having dinner with the people who push crystallography to its limits was good too. Seattle features many small restaurants and cafes, and is notable for its many microbreweries, the products of which can be sampled almost anywhere. Talking crystallography over beer can lead to some quite stimulating conversation too!

The size of the meeting meant that it presented a unique opportunity to meet other protein crystallographers working in closely related areas, something which does not happen often at smaller meetings. However it is easy to be lost amongst the hundreds of posters in each session. Some of the sessions were on topics particularly close to my own interests, namely the ones on studies of ligand-protein interactions and structure based drug design. It brings about the realisation that any one crystallographer is but a drop in the crystallographic ocean! The attention my own poster received was not from the people I expected. Many drug company representatives asked questions about my enzyme-drug complexes.

The social program was most stimulating. Probably the best activity was the dinner at the Pacific Science Center, reminding

me of my primary-school science experiences. And of course, there was the winery tour, where the opportunity arose to sample the results of Washingtons viticulture.

Since most PhD candidates such as myself must work abroad at some stage in their careers, the meeting presented a unique opportunity for learning about others experiences in overseas laboratories.

There is more to Washington State than Seattle. For about a week after the conference two of us from the Australian contingent (Bostjan Kobe and I) went hiking in the Mount Olympus National Park. The alpine meadows are strikingly beautiful at dusk. The coniferous forests reminded me of the temperate forests of Tasmania and Victoria. *Aaron Oakley*

St. Vincent's Institute of Medical Research

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The 17th Congress and General Assembly of the International Union of Crystallography was held at the Washington State Trade and Convention Centre in Seattle between 8th and 17th August. Publicised as the largest gathering of crystallographers ever, this was confirmed at the opening reception where names great and small hovered around large amounts of food and alcohol. The meeting was indeed huge with some 2300 submissions and the same number of conference bags. On the subject of the latter, after looking at the conference logo, one of the friendly local bus drivers asked whether I was attending a conference on fish. It was also nice to see that an article about the conference appeared in the Post-Intelligencer (the Seattle equivalent of the New York Times) which provided an enlightening description of crystallography.

Probably the most appropriate word with which to describe the conference was parallel. A choice of three keynote lectures (in parallel) started the day which expanded into seven parallel morning and afternoon microsymbiosia. Lunchtime lectures also took place which were more often than not parallel with annual general meetings of national/ regional/ international crystallographic organisations. Now it's fair for the reader to think that with the vast numbers of people and sessions taking place that confusion and mayhem would ensue. In fact, the organisation of the meeting was splendid; everything ran to schedule. As for the conference proper, there were a large number of stimulating lectures. It would be difficult to highlight one but certainly Paul Barnes' presentation (Birkbeck College, London) in which he illustrated not only the importance but also the necessity of using complementary techniques in the study of cement and ceramic chemistry was excellent. The lecture even included a video in which the audience was treated to a journey, a la Star Trek, down the pore of a zeolite. Star Trek will get another mention slightly later .

Another memorable moment for me was the open session in which no less than eight Nobel prize winners (Brockhouse, Deisenhofer, Hauptman, Karle, Kendrew, Lipscomb, Michel and Shull) answered questions ranging from 'Do you have any advice for young scientists?' to the inevitable 'Did you expect to win a Nobel prize?' and perhaps the most revealing, 'If you had the chance again, would you still go into science?' For the benefit of those who did not attend, seven out of eight said yes.

With seven parallel sessions taking place, there was always something of interest and many people spent a large amount of time moving from one conference room to another. In addition to attending sessions on 'Materials Science', 'Surface, Interfaces and Thin Films' and 'Fibre Diffraction', I ended up attending sessions in areas in which I previously knew little. Lectures on negative thermal expansion, high pressure studies and giant magnetoresistance proved to be fascinating. I also had the opportunity of giving a talk in the *Applications of Small-Angle Scattering* session and received some rather pleasing feedback.

Of course, there were some very fine evening events arranged to follow the sessions. A splendid Young Scientist mixer was organised by the Young Scientist SIG and those people who had the idea of holding another mixer at the Science Centre, located in the complex built for Expo '62, should be thoroughly congratulated. Items of sustenance were intermixed with excellent hands-on exhibits and displays on a variety of scientific subjects. I had the opportunity to play virtual basketball; I found that I was somewhat more successful with the virtual variety compared to the 'real' version from my school days. Another area of interest was some displays on the human body. I was surprised to discover that I have the correct height and weight for a female half my age. As if I didn't know! I also want to point out that there were an embarrassing number of people around the Star Trek exhibit.

To summarise, the IUCr XVII conference was superb and can really only be described with a (huge) number of superlatives. It gave me the chance to meet a large number of people, to exchange ideas and thoughts, put some faces to some very well known names and also explore some topics which I perhaps would not have encountered otherwise. I would like to thank the organisers for doing such a terrific job and, finally, I would like to express my appreciation to the SCA for generously

providing me with a *1987 Scholarship* to attend, what was, a truly memorable and enjoyable meeting.

Elliot Gilbert

Australian National University

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IUCr XVII got off to a flying start, literally, with the Flying Karamazov Brothers. Their spectacular juggling act had been preceded by an interesting talk given by Michael Rossmann, recipient of the Ewald Award. After being awed by their skill, and their sense of humour, it was off to the welcoming reception. The good food and beautiful venues were to become a trademark of this conference. As was the conference bag.

The conference got under way the next day. As always, there were many keynote lectures and microsymbposia to choose from, the choice often not being an easy one. While many of the lectures were interesting, the most fascinating talk was the one given by Prof Newnham, *Sensors and Actuators: Smart Crystals*. Also extremely interesting were those by Profs Fujii and Dubois, and of particular relevance was the talk by Mark Spackman *Building Bridges between Theory and Experiment*.

Ever mindful of the need to socialise at these events, the conference organisers provided lots of opportunities, and lots of people. Apart from making new friends, it was great being able to mingle with some absolute legends. Of particular interest was the inventor of the 4-circle diffractometer, Thomas Furnace, and Beevers - who had done significant work in structure refinement. The eight Nobel laureates present were visible - usually at a distance, as they tended to be surrounded by people.

The poster session was enlightening. A light grilling by Bader and some interesting conversations with others - and the afternoon passed quickly. Clearly aware that a week and half is a long time to constantly absorb new information, the organisers scheduled a free day. Many delegates took this opportunity to visit Mount Rainier. It was quite a long drive, but the scenery was great. For many who climb mountains, the aim is to reach the summit. If there is not time to reach the top - the aim is to get as high as possible. Victor, a fellow crystallographer from UWA, clearly knew of this rule. As we ran up the mountain-side, I could see why - but gosh was I unfit! Two and a half hours was clearly not enough time to enjoy the majesty of this absolutely beautiful and amazing place. However, we were on a tight schedule, and had to dash back for the Pacific Science Centre Gala, which was a great way to end a great day.

Staying at the awesome University of Washington provided the opportunity to experience the Seattle bus system. While many may regard this as the norm, it took a while for the uninitiated to get used to the fare changes. The fare differed between peak and non-peak periods - during the week that is. It was different on the weekend. Going into the downtown area required the fare to be paid as you entered the bus, however, when catching the bus in the opposite direction, the fare was paid on exiting. Of course, that all changed in the evening, when all fares were paid on entry. A few more lectures, a little bit more sightseeing, and all to soon it was all over. Till Glasgow.

I would like to sincerely thank the SCA for the very generous grant which enabled me to attend this conference.

Barbara Etschmann

University of Western Australia

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Sleepless in Seattle.... so the saying goes, and then there's Seattle trademark weather pattern....rain, rain and more rain. Maybe it is true, but for the time I was in Seattle for the IUCr XVII Congress, the weather was perfect. After an exhausting 24 hour plane trip from Perth, Western Australia, transiting in Melbourne, Victoria and transiting once again in Los Angeles, California, I finally arrived in Seattle, the capital of Washington State.

My first impression of Seattle reminded me of Perth. Central Seattle is certainly not a very big city compared to Los Angeles or San Francisco, but it is a very pleasant place to visit. I found that I could just about walk anyway by foot although some parts of down-town Seattle tended to be on the hilly side. I managed to find time to browse through a few shopping malls and of course, the famous Pike Street Market, around the busy conference schedule.

Approximately 2400 delegates attended the congress and it was certainly one of the largest conferences I have attended.

Seven concurrent sessions were held every day together with keynote lectures every morning. I found that I had to be very selective in choosing which talks to attend because of these parallel sessions. I thoroughly enjoyed the keynote lecture given by Dr. Daniel Louer on Modern Powder Diffraction in Materials Science and I learnt some fascinating aspects regarding the influence of variable counting time on thermal parameters in Rietveld refinements

Besides keynote lectures and presentations, there were four poster sessions, with each session displaying posters for two days. I presented a poster entitled *Structure Refinement of Gamma Alumina - Revisited* in Session III, on the fifth and sixth days of the conference. During that period, I managed to converse with several scientists from around the world.

For me and many others, no doubt, the highlight of the conference was a day tour to Mount Rainier, one of Washington's greatest attractions with breath-taking scenery. The mountain top is covered with glaciers and fields of eternal snow for the most part of the year and it is just a magnificent sight in all its grandeur.

Before I pen off, I would like to express my thanks to SCA for providing me with part of the funding to enable me to travel to Seattle. Besides having a great time at the congress and meeting numerous people, it was quite an experience travelling to the USA and it will certainly be remembered fondly. *Bee K. Gan*

Curtin University

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The Seventeenth Congress of the International Union of Crystallography was held in Seattle, USA, from 8-17 August 1996. The meeting brought together the largest number of crystallographers for any IUCr Congress, around three thousand people gathered from over the world.

The Congress was opened by the IUCr President, Professor Philip Coppens with the welcoming of all participants. The ceremony included a presentation of Professor Michael Rossmann of the Department of Biological Sciences at Purdue University in West Lafayette, Indiana, who was awarded the 1996 Ewald Prize, in recognition of his outstanding work on the methodology of macromolecular structure analysis and determination of viruses. It should be mentioned that the Ewald Prize is most distinguished certificate in the crystallographically field after the Nobel Prize. In fact, eight Nobel Prize winners in the study of crystallography were present at the meeting. They gave lectures and one of the days featured a discussion at which all the Nobel Laureates answered questions raised by the audience which listened with great attention and interest.

Following the Opening Ceremony a Welcoming Reception was held at the Bell Harbor International Conference Center at the waterfront of Elliott Bay where we had unforgettable meetings with old friends, whom we had not seen for a long time.

The scientific program of the Congress was extremely busy. Each morning there were three Keynote Lectures in parallel. The 105 Microsymposia covered such topics as organic compounds, biological macromolecules, surfaces and interfaces, high pressure work, crystal growth, charge, and spin and momentum density. More than half the talks presented were related to protein crystallography. Personally, I chose the most important and interesting sessions for me such as organometallic and coordination compounds, methods for structure determination, and crystal growth. There were four poster sessions with over 1000 presentations during the Congress and because of this the poster halls were open from early morning to late night.

The American Institute of Physics organised an exhibition of the latest instruments and techniques for sample isolation, purification and preparation as well as for crystal growth and data collection; computer software; graphics systems and databases.

In the middle of the meeting we had a break, which we spent in the Mount Rainier National Park. Mount Rainier is a volcano born of fire and built up above the surrounding country by repeated eruptions and successive flows of lava. It is a relatively young volcano, only about one million years old. A mountain wonderland of dense forests, dazzling wildflowers, tremendous snowfields, and rugged glaciers, the fresh smell of trees and honey, the soothing sound of falling water, and the refreshing cold breezes off the glaciers, it is almost beyond description. Finally, I would like to express my gratitude to the Society of Crystallographers in Australia for providing the opportunity to take part in a very interesting and enjoyable Congress.

Luba Semenova

University of Western Australia

NATIONAL COMMITTEE FOR CRYSTALLOGRAPHY

Report to SCA, November 1996

The XVII General Assembly and Congress of the International Union of Crystallography in Seattle, its Satellite Meetings and preparations for them have been the chief events in 1996. At the Congress it was a great pleasure to see Professor Ted Baker elected as President of the Union and we all wish him well. At the General Assembly, Australia was represented by Dr Ted Maslen, Dr Mark Spackman and Professor John White. Taiwan was admitted as a member of the Union and Israel chosen as the venue for the General Assembly and Congress in 2002. South Africa was the runner-up when it came to the last vote.

Both inside and out of the General Assembly there was much discussion on the future format for the Congress and General Assembly. This was not resolved, but it would be valuable for the National Committee to have any input from members of the SCA about this matter. Some held that at present the Congress was too long, especially when Satellite Meetings were taken into account, and also that the exercise was too expensive. Among the options put forward were fewer Satellite Meetings and more two- or three-day Microsymposia on a particular topic, dividing the Congress so that business meetings were held in the middle of the period, but with a largely protein crystallographic part first and then a non-protein part of the Congress following. One decision of the General Assembly was to accept the establishment of a Small Angle Scattering Commission, a move proposed and supported by a number of Australians. The strong input from this country and New Zealand into a number of the working Commissions of the Union was again noted.

The Neutron Scattering Commission held its Satellite Meeting at the National Institute for Standards and Technology (NIST), Gaithersburg, Maryland. There were about 140 participants and of the approximately 40 presented lectures more than half were given by young scientists from many countries. A feature of the Satellite Meeting was the choice of two or three scientific themes such as giant magneto resistance phenomena which required the use of many neutron scattering methods (diffraction, inelastic scattering etc.) for their study. A discussion on future neutron sources revealed once again the strong commitment made by Japan to fundamental research at the highest level in the coming decade.

The Synchrotron Radiation Satellite was held at the Advanced Photon Source (APS) Argonne National Laboratory, Chicago. The excellent facilities at the APS were on display and there was much discussion about future collaboration between Australians and members of the consortia with whom they will be associated as a result of Australia's Major National Research Facility programs there.

Australian Access to Synchrotron Radiation

As reported in previous *Newsletters*, the Australian Synchrotron Radiation Program (ASRP) is meant to provide access for all Australian crystallographers and materials scientists to synchrotron radiation beams at the Photon Factory (Tsukuba, Japan) and the APS. At the recent Steering Committee of the Australian National Beamline in Tsukuba, the importance of our connection to that X-ray source was once again underlined and the rapid growth of Australian proposals to use the Photon Factory "BIGDIF" as well as other instruments there was illustrated. We were informed about the plans for the shut-down in 1997 when the emittance of the ring will be improved to within about a factor 5 of a third generation source.

At a meeting in Melbourne on 1st November 1996 the first group of eight partners in the ASRP met and formally agreed to the rules and objectives of the association. These rules should be all settled by the lawyers concerned within seven days. This will allow the formal agreement between the Australian government and ANSTO to be signed and funds to flow for the MNRF agreed in 1995. Negotiations for Australian access to the BioCARS and ChemMatCARS consortia at the APS, as well as to the Argonne National Laboratory's own SRICAT have been concluded. It remains now to set up the management structures for access to all facilities covered by the MNRF.

There is already a beam in the SRICAT beamlines and they will be accessed for selected experiments during 1997. When last seen, the beamlines for the BioCARS instruments were nearing completion in the University of Chicago with installation expected to start late in 1996 and early in 1997. The good news that the National Science Foundation had funded the ChemMatCARS beamline came through about two months ago. The Australian contribution to this beamline could be an important fraction of the total cost. Meetings to discuss possible instruments have been held in Canberra and Brisbane in the last few months and all interested groups are invited to participate in the coming activities by contacting John White, John Boldeman or Richard Garrett.

CRYSTAL XX

The Twentieth Meeting of the Society of Crystallographers in Australia will be held from April 2-5, 1997 Queenstown, Central Otago, New Zealand. The first circular for this meeting is available on the World Wide Web. The venue will be the Lakeland Hotel, Queenstown. Registration forms and a call for abstracts will be sent out at the end of October and the deadline for the submission of both will be 1st February 1997.

COUNCIL ELECTIONS AND BUSINESS MEETING

Members are advised that a Business Meeting of the SCA will be held during CRYSTAL XX at Queenstown. The meeting will be held in the late afternoon of Friday, April 4 1997 at the Lakeland Hotel.

This meeting brings with it the end of the current terms of office of Dr Ian Grey (Past President), Dr Chris Howard (President), Assoc. Professor Mark Spackman (Secretary) and Dr Graham Smith (Treasurer). To fill the vacancies thus created the Nominations Committee, in accordance with Article IV and Rules III and IV of the SCA Constitution, has nominated Dr Max Taylor (Flinders Univ.) for Vice-President, Dr Trevor Hambley (Univ. of Sydney) for Secretary, Dr Brian Skelton (Univ. of Western Australia) for Treasurer, and Dr Jennifer Martin (Univ. of Queensland) for Council.

Thus, taking account of the pre-determined positions, officers standing for re-election, and new nominations, the proposed composition of Council and Standing Committees for the term beginning April 1997 is:

President: J. M. Guss (Univ. of Sydney, NSW)*

Vice-President: M. R. Taylor (Flinders Univ., SA)†

Secretary: T. W. Hambley (Univ. of Sydney, NSW)†

Treasurer: B. W. Skelton (Univ. of Western Australia, WA)†

Council: J. Martin (Univ. of Queensland, QLD)†

A. Pring (South Australian Museum, SA)*

T. R. Welberry (Australian National Univ., ACT)*

ANCCr Representative: J. W. White (Australian National Univ., ACT)* *ex officio*

Past-President: C. J. Howard (ANSTO, NSW)*

Nominations Standing Committee: B. M. K. Gatehouse (Monash Univ., VIC)*

S. R. Hall (Univ. of Western Australia, WA)*

S. W. Wilkins (CSIRO Materials Science, VIC)*

* pre-determined position, † new nomination

Dr Brian Skelton will also continue as *Newsletter* Editor.

The invitation is now extended for any member to submit additional nominations for any of the positions for which vacancies will occur, ie. for all but pre-determined positions.

Nominations must be submitted to the Secretary, over the signatures of two members, by January 31 1996. If none are received, the candidates nominated by the Nominations Committee will be deemed to have been elected and will take office at the Business Meeting in April 1997.

Mark Spackman

BUSINESS MEETING - PROPOSED AGENDA

1. Apologies
 2. Minutes of previous Business Meeting, April 20 1995, Ballarat
 3. Business arising from the Minutes
 4. President's Report
 5. Treasurer's Report
 6. Report from Chairman, National Committee for Crystallography (including an update on access to synchrotron radiation)
 7. Report on AsCA
 8. Date and venue for CRYSTAL XXI meeting
 9. Other Business
 10. Report from the Nominations Committee and transfer to new Council
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MEMBERSHIP SUBSCRIPTIONS

Please note that the membership subscription attracts a discount if paid by April 1st. Please pay your subscription promptly; the discount will not apply to subscriptions received at CRYSTAL XX. The subscription notices are enclosed

SUPPORT FOR STUDENT ATTENDANCE AT CRYSTAL XX

As in previous years, SCA is offering a number of *1987 Studentships* to *bona fide* postgraduate members of SCA to assist in travel costs associated with attendance at CRYSTAL XX in Queenstown. Full details can be found in this *Newsletter* and have been e-mailed to a majority of the membership. If a copy of guidelines and the application procedure is required, e-mail the Secretary (msparkma@metz.une.edu.au). Even if this information does not apply to you, please endeavour to make sure that all postgraduate students of crystallography in Australia and New Zealand are aware of this opportunity.

CALL FOR APPLICATIONS FOR 1987 STUDENTSHIPS

CRYSTAL XX,

2-5 APRIL 1997,

QUEENSTOWN, NZ

The Council of the Society of Crystallographers in Australia is calling for applications from postgraduate students of crystallography for *1987 Studentships* to assist in attendance at the twentieth meeting of the SCA to be held in Queenstown, NZ, April 2-5 1997.

SCA student members from both Australia and New Zealand are invited to apply for the Studentships, which will make a contribution to the 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 national and international scientific community, recipients of Studentships 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, as the deadline for registration and submission of abstracts to the Organising Committee is February 1, 1997. Details of the meeting are available on the WWW at: <http://www.canterbury.ac.nz/chem/crystal.htm>.

Method of Application:

- Membership of the SCA is an essential criterion. Postgraduate students applying for a *1987 Studentship* should forward to the Secretary the following:
- An abstract of the presentation sent, or to be sent, to the Organising Committee;
- 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.

Applications must reach the following address by February 15, 1997:

Assoc. Prof. Mark Spackman

SCA Secretary

Department of Chemistry

University of New England

Armidale

NSW 2351

Alternatively, applications may be sent by FAX:

(067) 73 3268.

For the web browsers

(1) Crystal XX site:

<http://www.canterbury.ac.nz/chem/crystal.htm>.

(2) IUCr home page: <http://www.iucr.ac.uk>. This also has a pointer to what will be the home page for IUCr XVIII in Glasgow.

(3) Relating to the Australian synchrotron program - <http://pinecone.kek.jp> (Photon Factory, Japan) and <http://www.aps.anl.gov> (Advanced Photon Source, Argonne).

(4) <http://www.nobel.se>. Nobel prizes (for fullerenes).

(5) <http://www.esf.org>. For the report *Scientific prospects for neutron scattering*.

(6) FASTS: <http://bimbo.pharmacol.su.oz.au/fasts/fasthome.html>.

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