# AuPS News

September 2005



## President's Message

Professor Peter Gage, the immediate-past President of AuPS, passed away on the 13 August, 2005 after he succumbed to the effects of acute myeloid leukaemia. Peter had been an active member of the Society for almost 40 years serving as Treasurer, 1973-75, and President, 2000-04. Peter's personal and scientific contributions particularly to Australian physiology are articulated in the Obituary in this Newsletter. A tribute to Peter Gage will be held on Tuesday 27 September at the beginning of the combined AuPS/ASB meeting to be held at Rydges Lakeside, Canberra. A memorial service is to be held at ANU on Friday 28 October and it is proposed that a symposium in Peter's honour be held at the AuPS meeting to be held in Melbourne in 2006.

At a meeting on 24 August 2005 of the Australian Academy of Science (AAS) National Committee for Biomedical Sciences (on which I represent Physiology) there was a report on the Lindau meeting of Nobel Laureates to which Australian postgraduate students and post-doctoral fellows were invited for the first time. There was also discussion of Fellowships for young scientists, Exchanges programs and the promotion of conferences. The AAS is currently inviting applications for support of Travelling Fellowships and expressions of intent for Research Conferences. The closing date is 30 September 2005.

The upcoming AuPS/ASB meeting at Rydges Lakeside Hotel Canberra promises to be an outstanding meeting with numerous distinguished overseas speakers participating in the program. I wish to extend my personal thanks to the Local Organising Committee and in particular Dr. Stefan Broer for putting together such an excellent program. I wish to encourage all members, including student members, to attend the AuPS Annual General Meeting at 3.00 pm on Friday 30 September and become involved in the activities and future of *your* professional society.

**David Adams**

AAS: www.science.org.au
Lindau meeting:
nobelprize.org/nobel/events/lindau/

### Calendar of Events 2005

27-30 September, Joint AuPS and ASB Meeting, Canberra.
25-29 September, ComBio2005, Adelaide Convention Centre

**The Australian Physiological Society is an Incorporated Association in the State of Victoria. Reg. No. A0021266A**

## Joint ASB / AuPS Meeting Canberra 27 – 30 Sep 2005

The annual Australian Physiology Society's (AuPS) meeting, to be held this year in Canberra, is fast approaching. The scientific programme has been finalised and may be viewed online at the AuPS web site. This year the meeting is being run concurrently with the Australian Biophysics Society and the programme brings together a number of areas of common scientific interest. Scientists from both Australia and around the world will present their latest findings on topics such as ion channels and gating with overseas speakers including Francisco Bezanilla, Stephen Korn, Peter Tieleman and Nigel Unwin and membrane protein interactions and transport with Owen Hamill, Sarah Keller and Eric Honore. The extensive programme in cardiac and skeletal muscle physiology, muscle contraction and exercise is a sign of the strength of this science in Australia and is reflected in the nominated inaugural AuPS invited speaker, Professor Angela Dulhunty whose talk is entitled 'Excitation-contraction coupling from 1969-2005'. This year, for the first time, education, with particular reference to physiology, has been incorporated into the main programme with topics including the challenges and innovations in 21st Century teaching likely to spark a good debate.

It is with a degree of sadness that the scientific contributions made by the late Professor Peter Gage, past president of AuPS (2000-2004), will be honoured and acknowledged at this years meeting. The meeting will begin with a tribute to Professor Gage's career given by his former student, Professor David Adams. The latest research from Professor Gage's group will also be in evidence at the meeting encompassing each of the three areas of research in which Professor Gage was actively involved in, namely the electrophysiology and molecular components of $GABA_A$ receptor function, viral ion channels and the persistent $Na^+$ channel.

The Canberra meeting coincides with the city's annual Flower festival, Floriade whose theme this year is Rock 'n' Roll. The floral displays and their incorporation of the arts are well worth a visit (and its free). The conference dinner promises to be one to remember. The location is the National Museum of Australia, which is situated on the foreshore of lake Burley Griffith with the food prepared by the Hyatt Hotel, one of Canberra's most prestigious Hotels. Canberra in September can be a lovely time with temperatures ranging from 15-20 ºC, but a warm coat is recommended for those who venture out early in the morning or late in the evening.

On behalf of the Canberra organising committee, we look forward to seeing you here in Canberra in Spring.

Links:
ASB web site http://www.biophysics.org.au
AuPS web site http://www.aups.org.au
Floriade flower festival
http://www.floriadeaustralia.com
National Museum of Australia
http://www.nma.gov.au

**Louise Tierney**

## Student event at the ASB / AuPS Conference

The student event at the forthcoming AuPS meeting in Canberra will be held on the Wednesday evening (28 Sep) from 7 pm onwards.

The student function promises to be an exciting adjunct to the meeting. We will be hosting Dr Alan Finkel, former CEO of Axon In-

struments and Vice President and Chief Technology Officer of Molecular Devices, who will give young physiologists a different perspective on where a PhD can take us.

Dr Finkel has had an amazing career, in which he has revolutionised electrophysiology research. While undertaking his PhD in electrical engineering at Monash University in the early 1980s, he became aware of the need for developing equipment that was suitable for studying electrical activity in mammalian neurons. After gaining his doctorate, Dr Finkel solved the problem by developing the single-electrode voltage clamp. As the resources to mass-produce the voltage clamp did not exist in Australia, he moved to San Francisco in 1983 where he formed Axon Instruments. When Axon listed on the Australian Stock Exchange, it enjoyed the most successful first day of any company in the history of the Exchange. Dr Finkel has since endorsed the sale of Axon to Molecular Devices. He continues to support Australian science and particularly young Australian researchers through the Finkel Foundation's school for young Australian neuroscientists.

It is a great honour to have Dr Alan Finkel as our guest speaker for this year's AuPS student event. I urge all students attending the meeting in Canberra to attend the function. Drinks and food will follow on from Dr Finkel's presentation, so this is a perfect opportunity to meet and network with other young physiologists from around the country.

**Enzo Porrello**

## Networking: Getting past the first hurdle.

Physiology has many exciting and challenging aspects: the advances in technology, intellectual challenges in understanding, discovering something new and sharing these experiences with other people. This last aspect, sharing with other people, is part of the reason we publish papers and join societies like the AuPS. It is an inextricable part of the human activity that we call science. The human interaction that is a part of this sharing is a great way to make sense of what is going on around you and in physiology in general. The flow of information fosters a sense of belonging to a community and the establishment of connections between like-minded people. This can lead to all sorts of opportunities. You may pick up some handy hints on that crucial experiment, tips on getting your research funded or information on new job opportunities. Now, give all this a name – networking – and it can take on quite a different set of values and expectations, but this need not be the case. Here are a few tips to help you put things in perspective and to get the ball rolling.

- Making the first step is not always easy. Start by making contact with your peers, as you will find they will share similar concerns and hopes as yourself.
- Start by thinking of it more as a conversation and less as networking and it will be more enjoyable.
- Practice using open questions that require more than a yes or no answer.
- Remember, communication is a two way process, so you need to be just as good at listening as doing the talking. Listening carefully allows you to ask interesting and pertinent questions.
- Networking doesn't mean that you need to always be selling yourself. Sure, it is a competitive world out there, but 'always' can be draining on you and on others.
- If there is someone in particular that you are keen to meet, other colleagues, supervisors or mentors may be able to arrange an introduction. Be prepared with a few key questions.
- What if you are not instantly connecting? Have a few different approaches up your sleeve for building a conversation. Asking a person for their opinion on a topic is a useful approach as it can provide a focus for a counterpoint and discussion.
- Take advantage of the advice from those who are willing to share the wisdom of their 'hindsight', or those that are chewing over some of the tough questions in physiological science where the next exciting advances are to be made.
- Don't be afraid to ask for help, and when the time comes, be willing to share your experience too.

**Trevor Lewis**

## Profile: Prof. Angela Dulhunty

At the upcoming ASB / AuPS meeting, Prof. Angela Dulhunty will be presenting the AuPS Lecture. Prof. Dulhunty graduated with a BSc (Hons) from The University of Sydney and completed her PhD studies at The University of NSW. After a period as a Muscular Dystrophy Postdoctoral Fellow at the University of Rochester Medical Centre (Rochester, New York, USA), Prof. Dulhunty returned to a lectureship position in the Department of Anatomy at the University of Sydney. In 1983, Prof. Dulhunty along with Prof. Peter Gage and Prof. Peter Barry was successful in establishing a centre of excellence – the Nerve Muscle Research Centre. The move to the John Curtin School of Medical Research was made in 1984, where Prof. Dulhunty progressed to be appointed a full professor in 1997, and is where she continues to pursue her research into excitation-contraction coupling in skeletal muscle as the leader of the Muscle Research Group.

*What was your first experiment as a child?*
Taking an old alarm clock to bits and trying to put it back together again

*When did you first know you wanted to be a scientist (physiologist)?*
I knew that I wanted to be involved in medicine and medical research after reading Frank G Slaughter's books when I was about 13 years old.

*Who has been most influential upon in your scientific career and why?*
Peter Gage had the greatest influence on my scientific career. He initially convinced me to give up plans of overseas travel, to enrol in a PhD and to embark on a serious scientific career. His enthusiasm and encouragement for discovery and innovative thinking continue to influence my approach to science.

*What makes a good scientific mentor or supervisor?*
A good mentor or supervisor should be able to provide strong scientific support and guidance, while encouraging individual development and freedom in thinking.

*Is there a single scientific paper or talk that greatly influenced your research pathway?*
Not a single paper or talk. However several classical works stand out as being landmarks in directing my research pathway. These include the Hodgkin & Huxley papers in the early 1960's, the Gage & Eisenberg papers in the late 1960's and the Armstrong & Bezanilla papers in the 1970's. These works exemplified a rigorous biophysical approach applied to then novel biological phenomena, coupled with insight and imagination.

*What is the best piece of advice you've received?*
That good use can be made of any time slot no matter how brief the period.

*Assuming anything is possible, which person from anytime in history or today would you most like to have dinner with?*
Marie Curie.

*What is the most memorable comment you ever received from a referee?*
Hard to say; I have had a full gambit of comments from referees ranging from "exciting work that should be accepted without change" to "fails to provide any new information" – occasionally about the same manuscript.

*What gives you the most job satisfaction?*
Scientific discovery, solving scientific mysteries and seeing young researchers evolve into independent investigators.

*What are your major frustrations?*
Having more ideas than funds to explore them.

*What would you have become, if not a scientist?*
A surgeon, architect or a farmer

*What do you do to relax?*
Walk my dogs, ride my horses or garden

*What interesting discovery do you think is not too far off?*
The discovery of the nature of intermolecular interactions that allows a voltage gated calcium channel in the transverse tubule membrane of a muscle fibre to regulate the activity of a ligand gated calcium channel in the sarcoplasmic reticulum membrane and hence to initiate muscle contraction.

**Trevor Lewis**

## Biomedical and Medical Science Programs (part II).

In the previous issue of AuPS News, the association of undergraduate programs in biomedical and medical science in Australia and New Zealand, BAMSPANZ, was introduced. That article also contained information about the first meeting of representatives from the constituent universities, held in Adelaide last December. The subject of this essay is the healthy state of affairs among the medical and biomedical science programs.

Of the 23 universities that offer undergraduate degree programs in medical or biomedical science, representatives from 16 attended the meeting in Adelaide, with a further four institutions participating in the association. The information contained herein comes from the discussions held and the submitted written descriptions and publicised literature about individual programs.

One measure of the positive state of these programs is the size and nature of enrolments. Based on figures presented at the meeting, over 1000 local and international students enter these programs each year and new programs continue to be developed at additional universities. The enrolments in these programs are also increasing. For example, the programs at the universities of Melbourne and Adelaide have both increased student intake by four-fold since 1997. At the same time, the credentials of the enrolling students are staggering. Most of the institutions represented at the meeting noted entrance cut-offs at 90% or better for year 12 applicants, and some cited cut-offs at the top 5%.

The institutions are proud of the strengths of their programs and the success of the graduates. Among the strengths noted are: integration of the biomedical science programs with areas of research strength at the university; high passage rate of graduates into honours and PhD programs; success of biomedical graduates in honours; high success rates of graduates with postgraduate scholarships and entry into elite PhD programs; high passage rate of graduates into postgraduate medical programs.

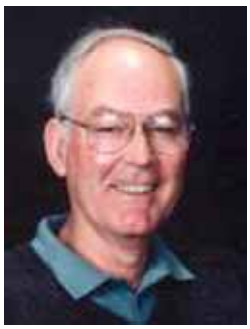
It was clear at the meeting in December that the programs are not in any danger of being scaled back, nor was an uncertain future given as a reason for any institution being unrepresented. To the contrary, as noted in the earlier essay, many of the challenges facing the named degree programs are the result of increasing popularity and enrolments. In addition, they place indirect pressures upon other degree programs, notably the ordinary BSc, if students, particularly some of the highest achieving ones, opt for the named degree instead of the general degree. In summary, though, the future is bright for undergraduate biomedical science programs in Australia and New Zealand.

As an association, BAMSPANZ will build on the successes achieved by the individual institutions by being a portal for information on these programs to prospective students and to the public at large. It will also present news of biomedical science in general. Finally, the association and its web site, currently under construction, will provide a forum for the member institutions to share ideas and materials and to act for the benefit of undergraduate medical and biomedical education in Australia and New Zealand. I look forward to introducing the web site and further describing the activities of BAMSPANZ in the future.

**Jeff Schwartz**

For more information about the Biomedical and Medical Science Programs in Australia and New Zealand (BAMSPANZ), please contact me at jeff.schwartz@adelaide.edu.au.

## Obituary:
## Professor Peter William Gage
## FAA, DSc, PhD, MB ChB (1937-2005)



It was with a great sadness that we learnt that Peter Gage had died suddenly, but peacefully, on Saturday 13th August after a prolonged battle with illness, in the presence of his partner, Angela Dulhunty, and his immediate family who all meant so much to him. He dearly loved his family and was most proud of his two sons, Peter and David, and his two daughters, Shelley and Jenny, and his 10 grandchildren. He had been suffering from acute myeloid leukaemia, and after four rounds of chemotherapy earlier in 2004 had had a bone marrow transplant in November 2004. The transplant had taken well and Peter had even been able to start getting back into the lab with his research group periodically in 2005, and though there had been ups and downs in the recovery process with the graft-host interaction and the required immunosuppressant drugs, there was a lot of optimism, particularly given his fighting spirit. However, a sudden deterioration in his condition on August 11th signalled the beginning of the end of what had been a very productive life. Peter was a very warm, encouraging and human person, who was passionate about music, movies, tennis, their dogs and the outdoors. He will be sorely missed by a large number of current and former PhD students, post-doctoral fellows, colleagues and friends both in Australia and around the world, and his loss will continue to be felt for a long time to come.

Peter Gage did his undergraduate and graduate training in medicine at the Universities of Otago and Auckland, receiving his MB ChB degree from the University of New Zealand in 1960, worked in hospitals for two years, then moved to Sir John Eccles' department in the John Curtin School of Medical Research (JCSMR) at the Australian National University (ANU) in 1963 to do a PhD, which he received working with Professor John Hubbard in 1966. He joined Professor Paul Horowicz at Duke University, North Carolina USA as a post-doctoral fellow and then Assistant Professor to gain an excellent training in biophysics, working on muscle electrophysiology and synaptic transmission. He returned to Australia in 1968 to take up a Senior Lectureship in the School of Physiology and Pharmacology at the University of NSW, receiving a Professorial position (Personal Chair) in that School in 1976 until he left in 1984. During this time he was also made a Fellow of the Australian Academy of Science (FAA) in 1977 and appointed as Director of a Centre of Excellence (Nerve Muscle Research Centre) at UNSW from 1982-1984. He then took up a position as a tenured Professor in the Department of Physiology and subsequently Division of Molecular Bioscience at the JCSMR at the ANU in 1984 till his death this year. From 1999-2004 he was also the President of the Australian Physiological and Pharmacological Society. In 2004, he was awarded the Bob Robertson Medal by the Australian Society for Biophysics, to recognise his outstanding contributions to the field of biophysics in Australia.

During his research career Peter Gage made an enormous contribution to biomedical research both directly and indirectly. He was acknowledged both from a national and international viewpoint as the leading membrane biophysicist in Australia, particularly in the area of ion channels. As Bertil Hille commented: "For almost 40 years Peter was a leading practitioner and advocate for membrane biophysics in Australia. He had many students. He was imaginative and brave in his range of work." Peter has made outstanding original and highly significant contributions to the study of the biophysical properties of both ion channels and synaptic transmission. He has published more than 180 research papers, major reviews and book chapters, the majority being in leading international journals including Nature, Science, the Journal of Physiology, the British Journal of Pharmacology, the Journal of General Physiology, the Biophysical Journal and the Journal of Biological Chemistry, Proceedings of the National Academy of Science (USA), Proceedings of the Royal Society (London), Progress in Biophysics and Molecular Biology, FEBS Letters and the Journal of Virology. The impact of his research is re-

flected in the fact that his publications had received greater than 4,000 citations, with many receiving more than 100 citations each.

Peter was an inspiring research group leader and his contributions to Australian and international scientific research have also included the training of more than 30 PhD students, many of whom have gone on to establish strong international reputations, and a large number of former postdoctoral colleagues and close collaborators, whom he mentored, challenged and warmly encouraged with his enthusiasm and commitment to scientific research. In addition, he was always very ready to pursue leading-edge science and was the first, with the aid of his research colleagues, to introduce new techniques into Australia, such as the use of the voltage-clamp to record synaptic currents at the muscle end-plate, the use of the three-electrode voltage clamp on muscle fibres, the first patch-clamp set-up in Australia and the hippocampal slice technique, and then to share these techniques with other laboratories. He was also keen to understand basic underlying mechanisms and to explore them in a rigorous way, which over recent years encouraged him to combine electrophysiology with molecular biology, and provided an example for other groups to follow.

He also greatly contributed to the Australian research community by organizing patch-clamp workshops, numerous Curtin Conferences and a GABA 2000 international Symposium in Cairns. Peter was an excellent communicator, whether to the media or to colleagues, and further recognition of his research contribution was reflected in the numerous invitations for him to speak at international and national conferences, symposia and various academic institutions. He was an outstanding lecturer and popular with undergraduate students, and although they were challenged by the rigorousness of his biophysical approach, his lectures achieved the highest ratings from students.

In recent years, his research has continued to be at the forefront of research with his structure-function studies on $GABA_A$ receptors and the mechanism underlying the action of diazepam; his work on a series of virus proteins which form ion channels and the observation that drugs which block such channels can block virus budding; the characterization of the persistent Na+ channel in cardiac and hippocampal cells, its role in cell death during hypoxia and possible strategies to prevent this; and work on the modulation of the ryanodine $Ca^{2+}$ channel in the sarcoplasmic reticulum of muscle and its importance for muscle contraction. He was the co-inventor of two patents and the founder of the biotechnology company, Biotron.

Given continuing health, the direct contribution of Peter Gage to significant research output had been expected to continue for many years to come. Unfortunately, that was not to be the case. Though his death will be acutely felt, both personally and scientifically, by the research community for a long time, the legacy of his contributions to Australian science and to the scientific community will continue on well into the future.

We are very appreciative of Peter's contribution to our lives and to scientific research, and our thoughts and prayers are especially with his family and close colleagues and friends at this time.

**David Adams and**
**Peter Barry**
**September 2005**

## Proposed constitutional changes for the AuPS

The following proposals for changes to the constitution of the AuPS will be voted on at the AGM to be held as a part of the scientific meeting in Canberra.

PROPOSAL 1.

The first proposal is to modify the constitution to include a "Webmaster" to replace the "Associate Editor".

*This involves changing:*

4.1 The governing body of the Society is a Council consisting of the Officers, an Editor and a Associate Editor of the publications of the Society, six councillors elected by the Ordinary Members and a seventh Councillor elected by the Student Members, together with such members as may be co-opted to Council in accordance with sub-clause 12 of this clause.

*to read*

4.1 The governing body of the Society is a Council consisting of the Officers, an Editor of the Proceedings of the Society, a Webmaster responsible for the Society's web site, six councillors elected by the Ordinary Members and a seventh Councillor elected by the Student Members, together with such members as may be co-opted to Council in accordance with subclause 12 of this clause.

*and changing*

4.4.3 The Council shall appoint the Editor and Associate Editor.

*to read*

4.4.3 The Council shall appoint the Editor and Webmaster.

*and changing*

4.6.2 The Editor and Associate Editor may hold office for the period between four Annual General Meetings, and may be re-appointed for further periods of two years.

RECENT APPOINTMENTS

**AProf. Peter Thorn** has recently been appointed to the School of Biomedical Sciences at the University of Queensland and will be taking up his appointment January 2006. Peter is currently a Reader in the Department of Pharmacology, University of Cambridge, and is internationally recognised in the field of calcium signalling and its role in regulating secretion and exocytosis.

**Dr. John Semmler** has recently been appointed as a Lecturer in the Discipline of Physiology, School of Molecular and Biomedical Science at the University of Adelaide. John obtained his PhD in Physiology from the University of Adelaide and has held appointments at the University of Colorado in Boulder, U.S.A, and the School of Exercise and Nutrition Sciences at Deakin University. His research interests focus on the neural control of movement in humans. John is particularly recognised for his contributions in the area of neural adaptations in response to changes in physical activity, and is currently funded by the NHMRC.

*to read*

4.6.2 The Editor and Webmaster may ...

*and changing*

7.5 The Annual General Meeting shall receive and may debate a report on the year's activities of the Society to be presented by the National Secretary on behalf of the Council, a financial report and summary of accounts to be presented by the Treasurer on behalf of the Council, and an editorial report to be presented by the Editor.

*to read*

... by the Treasurer on behalf of the Council, an editorial report to be presented by the Editor, and a Webmaster's report concerning the operation of the Society's web site.

*and in the Domestic Rules changing:*

11.7 The National Secretary shall be responsible for the Programme planning of each meeting assisted by a Committee which shall consist of the Editor, Associate Editor, Treasurer, Local Secretary and up to two other members selected by the National Secretary. The Local Secretary will organise a Programming Meeting two months before the meeting, at which the abstracts and other scheduled events will be timetabled. The Editor will then prepare the Programme for the Society's web site.

*to read*

... a Committee which shall consist of the Editor, Webmaster, Treasurer, Local Secretary and up to two other members selected by the National Secretary. The Local Secretary will organise a Programming Meeting two months before the meeting, at which the abstracts and other scheduled events will be timetabled. The Webmaster will then prepare the Programme for the Society's web site.

PROPOSAL 2.

*At present the AuPS Domestic Rules include:*

4. Members who are retired shall pay a subscription equal to 60% of the normal subscription.

*It is suggested we change Domestic Rule 4 to:*

4. Members who are retired shall not be required to pay an annual subscription.

PROPOSAL 3.

*The AuPS Constitution includes, under the heading "Membership":*

3.3.3 The Council may confer provisional membership on persons who have been nominated for membership by two members of the Society provided that they are engaged in activities related to the science of Physiology and have fulfilled such conditions for election as may have been promulgated in the Society's Domestic Rules.

*It is suggested that this be changed to:*

3.3.3 The Council may confer provisional membership on persons who have been nominated for membership by a member of the Society and/or they are engaged in activities related to the science of Physiology and have fulfilled such conditions for election as may have been promulgated in the Society's Domestic Rules.

PROPOSAL 4.

*At present the AuPS Constitution includes:*

10. Amendment (Constitution and Objects)

The Constitution and objects may be amended by motion, of which at least four weeks notice has been given, at any General Meeting and carried by 3/4 of the Members present and voting, provided that a quorum for this purpose shall be forty members. If a quorum should be lacking, the meeting may resolve by a majority of 3/4 to decide the issue by a postal ballot of all members. In this event 3/4 of members returning ballots will suffice to pass the proposed amendment.

*It is proposed that this be changed to:*

10. Amendment (Constitution and Objects)

10.1 The Constitution and objects may be amended by motion, of which at least four weeks notice has been given, at any General Meeting and carried by 3/4 of the Members present and voting, provided that a quorum for this purpose shall be forty members. If a quorum should be lacking, the meeting may resolve by a majority of 3/4 to decide the issue by an electronic mail ballot of all members. In this event 3/4 of members returning ballots will suffice to pass the proposed amendment.

10.2 On the recommendation of Council, a motion to amend the Constitution and objects may be put to the membership through an electronic mail ballot. The motion must be sent by electronic mail to the membership at least four weeks prior to the closing date for ballots to be returned. The National Secretary shall send to all members any discussion on the motion sent by electronic mail by a member.

*The purpose of this amendment is to:*

- change "postal ballot" to "electronic mail ballot"
- permit changes to the Constitution and objects without having to wait for a General Meeting

Notes:
The AuPS constitution can be found at -
http://www.aups.org.au/Members/constitution.html

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This issue of AuPS News has been compiled by Trevor Lewis.

The next issue of the AuPS News will be distributed in December. Any contributions for the AuPS News should be sent to Trevor Lewis