

October 2015



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Australasian Neuroscience Society Newsletter



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Message from the President

The ISN/APSN/ANS meeting in Cairns had a number of highlights of particular relevance to our Society. The International Brain Bee finals was a terrific success – beyond the benefits to neuroscience, it was terrific to see so many countries represented from across the world by enthusiastic young people, as well as the unflagging support of the organisers and key mentors.



James Vickers

*President, Australasian
Neuroscience Society*

The final sessions were nail biting, with very little difference in the scores of the top group of students. Neuroscientists in the audience were getting a bit uncomfortable as the final oral test featured questions that I think most of us would struggle to answer correctly! Particular thanks to Linda Richards as the overall organiser, as well as to Charles Watson who led the team of judges. The finalist from Australia, Jade Pham, won the overall competition by just half a point from Soren Christensen of the United States. Robin Williams from the ABC Science Show was in attendance, and you can find a recent story on the International Brain Bee at <http://www.abc.net.au/radionational/programs/scienceshow/top-young-brains-compete-in-international-brain-bee-championship/6842416>.

ANS had two plenary meetings at the Cairns meeting – this included Bob Vink (University of South Australia) for the Eccles Lecturer and Ashley Bush (University of Melbourne) for the Lawrie Austin Lecture. The scheduling of the Eccles Lecture was a challenge as it was well into the evening, but we had very good attendance from ANS Members,

and we were treated to a terrific overview of translational research relevant to brain injury. It was fitting given the neurochemical focus of the Cairns meeting that it concluded with Ashley Bush delivering an excellent Lawrie Austin Lecture on the role of iron mismetabolism in Parkinson's and Alzheimer's disease.

I am also grateful to the ANS Members who were able to make it to the AGM so that we could achieve a quorum! Highlights here included a number of awards from the Society, including the Distinguished Achievement Awards to Fred Mendelsohn and George Paxinos. Andy Lawrence and Charles Watson spoke eloquently about the contributions of Fred and George, respectively, and the recipients were gracious and entertaining in their acceptance speeches! The recipients of other awards will be listed in this newsletter and on our web site, but I would also like to highlight the AW Campbell Award (best contribution by a Member in their first 5 years) to Lucy Palmer, and the Nina Kondelos Award, for a female ANS Member who has made an outstanding contribution to basic or clinical

neuroscience research, which was awarded to Cyndi Shannon-Weikert. There was also an opportunity to thank departing members of the Executive, John Rostas and Joe Lynch, for their excellent service to the Society. John Bekkers was also acknowledged with an ANS Medal, on his 'retirement' as Director of the Australian Course for Advanced Neuroscience. John had undertaken this role for the last 10 years, guiding the training of dozens of Australian and New Zealand students.

We are grateful to The Florey who supported ANS at this meeting by contributing the social and traditional media talents of Amanda Place and Tom Keeble. Given that the meeting was in a regional city, we had excellent media coverage of the Brain Bee and Australasian neuroscience through the work of Amanda, and Tom maintained a steady stream of interesting stories and updates to our meeting Twitter account, as well as our nascent Facebook site (<https://www.facebook.com/AusNeuroSoc>). If you haven't already done so, I would encourage you to follow the ANS Facebook site where we will be aggregating neuroscience news for the region, as well as posting stories of interest to our wider constituency. In just two months of existence, we have over 1400 followers who are interested in the work we are collectively doing in Australia and New Zealand.

*(Message from the
President ...continued)*

At the ANS Council and AGM, we explored avenues for increased advocacy beyond the social media presence. In this regard, we have developed a new form of Sustaining Member. These are institutional (not commercial) Sustaining Members who will support us principally in advocacy activities, so that we don't have to access the corpus of Society funds raised through membership dues. A number of Australian Universities and Institutes are keen to become institutional Sustaining Members. We invite all University and Institute organisational units to consider becoming institutional Sustaining Members. If you may wish more information, please contact me directly at James.Vickers@utas.edu.au. Institutional Sustaining Members will be acknowledged through the Society web page and social media, as well as specifically in relation to advocacy activities. One of the first initiatives in advocacy will be to develop a case for the importance of neuroscience research in our region relative to the substantial burden of the spectrum of disorders that affect the nervous system.

I recently attended the 6th National Neurotrauma Forum at the University of South Australia. This 2-day event attracted 65 registrants from all over Australia (alas, not from New Zealand this year) and crossed the gamut from traumatic brain injury to spinal cord injury and stroke. In addition to keynote presentations, the meeting had a focus on student and early career researcher presentations, allowing plenty of time for questions and discussion. The meeting dinner was at the Adelaide Oval, generously

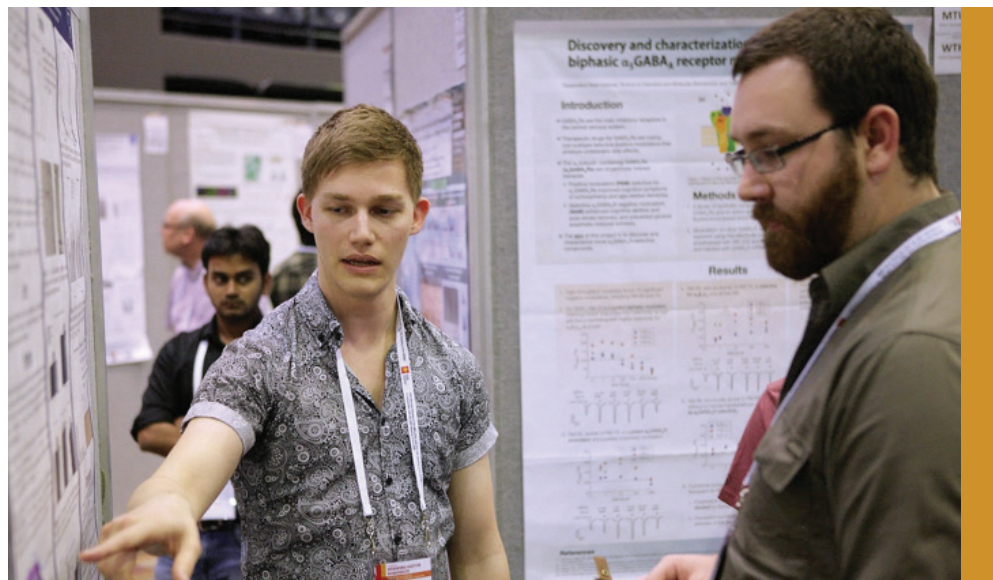
cross-subsidised by the University of South Australia. The Neurotrauma Forum plans to return to Hobart in 2016, as a satellite of the ANS meeting.

Finally, by the time you receive the newsletter, it is likely that the major NHMRC outcomes will be known for the year. For many of us, the year's efforts in this regard may already be known, for example, through 'Dear John' letters from the NHMRC. These are difficult times for health and medical research funding, especially for our full-time researchers on fellowships. Our congratulations go to those who may be successful in NHMRC and other granting outcomes in 2015, but also our best wishes to those who have missed out, especially if your applications were well regarded but funding hasn't stretched to where you landed. Undoubtedly, our universities and institutes are in for a number of years of reduced funding. We wait to see how the Medical Research Future Fund may help ameliorate the downturn, but it is also hoped that colleagues can maintain their programs, salaries and students through the next few years so that our vibrant neuroscience community can 'survive' through the downturn.



Cairns Meeting Hailed a Great Success

The recent joint meeting of ANS with the International Society for Neurochemistry (ISN) and the Asian Pacific Society for Neurochemistry (APSN) that was held at the Convention Centre in Cairns (August 23-27, 2015) was widely acclaimed as a triumph combining outstanding science with great social events.



More than 1200 researchers registered for the meeting, almost half of whom were from Australia and New Zealand.

With 37 symposia, 7 workshops, 8 plenary talks, plus a plethora of posters and 11 satellite meetings, the scientific program of this conference was extraordinarily broad and exciting. Stamina was the major challenge as the program went from 8.30 am to 7.00 pm every day. Outstanding plenary talks covered a range of topics from the elegant molecular machinery that regulates gene expression, through the physiological mechanisms responsible for raised intracranial pressure following brain injury to the sensory influences regulating mosquito attraction to humans. The plenaries given by the two Young Scientists – Dr Michael Fox (Virginia Tech Carilion Research Institute, USA) on extracellular matrix molecules inducing inhibitory synapse formation and Dr Jess Nithianantharajah (Florey Institute of Neuroscience and Mental Health, Australia) on the evolution of synaptic genes, cognition and disease susceptibility – were particular highlights for me and many others.



A very special event, the Final of the International Brain Bee Championship (IBBC), was held at lunch time on the first day, introduced by Robyn Williams, presenter of the Science Show on ABC Radio National. This was the first time that the IBBC has been held in the Asia-Pacific region. Several days of competition were held in the facilities of James Cook University covering anatomy, histology, patient diagnosis, and written short answers to questions. The final stage of the competition consisting of live questions and answers was held in the presence of an enthralled audience of conference attendees astounded at the level of knowledge displayed by these remarkable high school students. The competition was very close with Australia's Jade Pham snatching the Championship by half a point.

There was also a range of varied social events to encourage more informal interactions among registrants. Perhaps the most remarkable of these was the Farewell Celebration in the Rainforest of Kuranda. More than 800 people were bussed to RainForeStation Nature Park where they dispersed through the rainforest among multiple stations that had Aboriginal cultural demonstrations, wild life encounters, music, and star gazing and served a variety of food and drink which never seemed to run out. This was indeed a memorable way to finish an outstanding conference. We now look forward to the 2016 conference in Hobart which I am sure will have its own special flavour to make it memorable.

John Rostas

Chair of LOC for Cairns 2015

Thank you John Bekkers for running ACAN for over a decade!

It started with a dream, to give something back to the Australian neuroscience community that had provided me with the training that ultimately led to me establishing Axon Instruments, which became the world's largest manufacturer of electrophysiological instruments and software for neuroscience research.

Alan Finkel



Working in America I often visited and was impressed with the intensive training courses offered at Woods Hole and Cold Spring Harbor. In 2004, after receiving encouragement from my wife Elizabeth and from Professors Steve Redman and David Copolov, Steve and I invited leading experts to join us in establishing “Woods Hole Down Under”, more properly named the Australian Course in Advanced Neuroscience (ACAN). The goal was to help build national research capacity by training early career researchers in the latest laboratory research and analysis techniques.

Steve was the inaugural course director, supported by senior course instructors John Bekkers, Joe Lynch, Pankaj Sah, Greg Stuart and James Vickers, lab manager Garry Rodda and course administrator Christine Hirst. After two seminal years establishing the course, with John Bekkers serving as Deputy Director in the second year, Steve retired from the role and on the invitation of the management committee John commenced as the ACAN 2007 Course Director.

I was delighted that John accepted the role because I had long known of his international reputation in long-term potentiation studies and he had been a major contributor to the Axon Guide, which for many years was the leading practical handbook for electrophysiology.

John has a mild-mannered temperament but he is superbly effective. He plans carefully, is meticulous in execution, and because of the high regard in which he is held domestically and internationally he

has managed to attract the support of commercial instrumentation suppliers and volunteer lecturers from around the world.

I see firsthand the fruits of John's management brilliance every year because I deliver the opening lecture of the course. I love catching the ferry to tranquil North Stradbroke Island where at the UQ research facility I meet the dedicated staff and eager cohort of students. John's strategically developed approaches to delivering the course are evident from day one, every year.

I am delighted that follow up studies have shown that many of the early career researchers graduating from ACAN have already become successful researchers and lab heads. The greatest testament to John's incredible contribution to training early career neuroscientists is in the effusive comments from the ACAN graduates and the high esteem in which the Australian Society for Neuroscience holds the ACAN course.

I personally thank John for his contribution to turning the dream into a reality, I wish him luck in his ongoing career at the John Curtin School of Medical Research and I offer my best wishes and support to John's successors.

*(Thank you John Bekkers
...continued)*

To follow are three testaments of the impact John has had on the new generation of neuroscientists.

The 11th installment of the Australian Course in Advanced Neuroscience (ACAN) was held from April 12th to May 2nd this year. With the recent retirement of John Bekkers as ACAN Director on September 1st, I thought I'd thank him for his outstanding governance and contribution to ACAN throughout this time, and share my experiences as an attendee of the first ACAN (then called the Australian Advanced Neuroscience Research Initiative (AANRI)). As part of this I'd also like to highlight how attending this course at the end of my PhD was crucial for my career development and more recently no doubt the next generation of neuroscientists.

For those who have not be fortunate enough to attend, ACAN is a three-week course of lectures from national and international world-renowned neuroscientists about the fundamentals of cellular neuroscience, whilst also receiving extensive hands-on laboratory training in patch clamping and imaging. John Bekkers played a key role in this process during the first course. His clear instruction and calm demeanour were crucial for teaching the 'ACAN students'. Notably, through this clarity John also showed the 'ACAN students' how to teach and instruct their own students once they'd returned to their institutions.

Being able to learn from the very best researchers at ACAN and being shown where the 'bar was set' for true research excellence is something I'll take with me throughout my career.

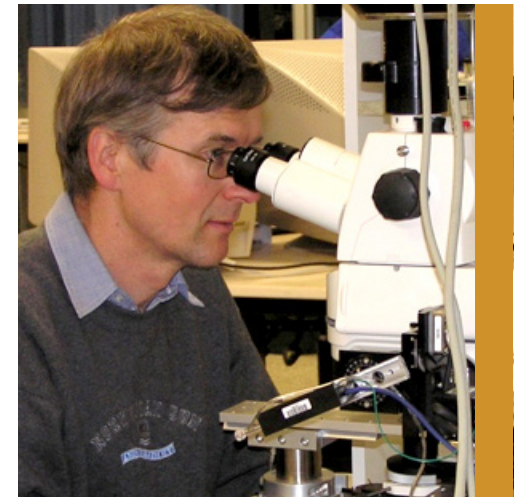
Receiving extensive hands-on training in patch clamping during ACAN enabled me to implement these techniques to investigate the neuroplasticity of sensory dorsal root ganglion neurons and how their function is altered in chronic visceral pain, which affects ~20% of the Western population. Having established my own lab in 2010, and now based at the South Australian Health and Medical Research Institute (SAHMRI), we continue to use patch clamp techniques as part of current NHMRC fellowships and grants.

Being able to learn from the very best researchers at ACAN and being shown where the 'bar was set' for true research excellence is something I'll take with me throughout my career.

I wish Pankaj Sah (Queensland Brain Institute) all the best as the new Director of ACAN and I hope to see ACAN continue its excellent training for many decades to come. The next generation of neuroscientists depend upon it!

Stuart Brierley

ACAN 2005



October 2015

(Thankyou John Bekkers
...continued)

I first meet John Bekkers when I arrived at North Stradbroke Island in 2012 to attend the Australian Course for Advanced Neuroscience (ACAN). It didn't take long for my respect for John to grow. He was always the first person in the lab in the morning and the last one out at the end of some very long days, yet his enthusiasm never waned. There was never a bad question or a bad time to ask one. His dedication to providing the best electrophysiological and imaging equipment for ACAN participants to learn on and teachers who are world leaders in their fields to learn from is what has made this course one of the most prestigious neurophysiology courses worldwide.

It was my participation at ACAN where I gained not only the experience but also the confidence to turn my hand to high-end electrophysiology techniques, including multi-neuron whole-cell patch-clamp, during my PhD and postdoctoral research. John's passion for teaching and mentoring ACAN's students is a lasting legacy that extends to long after the three-week course has ended. All you have to do is talk to someone who's been to ACAN and they'll be more than willing to tell you about it!

I would like to thank John for his efforts developing ACAN over the past 11 years. Attending ACAN was one of the greatest experiences in my research career thus far and I have no doubt that it will continue to serve me in great stead in the years to come.

Robert Hatch

ACAN 2012



John has shown that he has an incredible ability to turn the normally quiet lab at the Moreton Bay Research Station on the idyllic North Stradbroke Island into a cutting edge electrophysiology laboratory.

Earlier this year we learnt that John Bekkers would be stepping down as director of the Australian Course in Advanced Neuroscience (ACAN): an intensive course teaching the theory and practical skills behind several techniques in cellular neuroscience. In this position John has shown that he has an incredible ability to turn the normally quiet lab at the Moreton Bay Research Station on the idyllic North Stradbroke Island into a cutting edge electrophysiology laboratory. I can only imagine how much goes into making the course happen, from shipping equipment and faculty from around the world to setting up 6 electrophysiology rigs and of course, supervising us students in the lab over 12 hours a day for 3 weeks.

Attending ACAN earlier this year I had the pleasure of witnessing first hand John's passion and dedication to training young neuroscientists. This passion was incredibly contagious, and from the moment we arrived all twelve of us knew that we

were in good hands. From making solutions, to questions about local wildlife, to the finer points of dual patching, John was with us smiling and eager to help even when a quick midnight question opened up a can of worms with discussions lasting into the early morning. Under John's guidance we were all patching after only a few hours, writing protocols on the first day and even entertaining tour groups that stumbled into the lab!

The extraordinary work John has done, not only in the three weeks we were there, but also behind the scenes is unmeasurable and I know that all 'ACANers' would agree that we can't imagine the course without him.

Kelly Smith

ACAN graduate 2015

Fred Mendelsohn receives an ANS Distinguished Achievement Award

Over his career Fred published 299 publications many of which were in leading journals such as Nature, PNAS, J. Clin. Invest., Circ. Res. to name a few. Fred's work has been cited >10,000 times. Over 20 of Fred's papers have been cited >100 times. In addition to his outstanding science contributions, Fred is also a leader with regards his professional contributions, in particular to the Australasian Neuroscience community.

His research focussed on neuropeptides and their receptors, processing enzymes and actions, especially angiotensin and related peptides. The existence of an independent angiotensin system in the nervous system was controversial until they provided the first detailed mappings on angiotensin AT1 and AT2 receptors and angiotensin converting enzyme (ACE) in the mammalian brain, including humans.

They also found abundant AT1 receptors on nigrostriatal dopaminergic neurons and showed, using microdialysis in rats, that Ang II facilitates dopamine release in the striatum. They found that ACE was abundant in the brain in two distinct categories. One group of sites include the circumventricular organs, where AT1 receptors are also localized, and circulating Ang II has access because of a permeable blood brain interface. ACE, inhibitors also have ready access to the circumventricular sites to block the enzyme. A second category of sites bearing ACE include the basal ganglia where it is localized to striatonigral projecting neurons. The enzyme here is not readily accessible to circulating inhibitors.

This work formed the basis of his Eccles Lecture to the Society in 2001 and led to his election as Chairman of the Angiotensin Gordon Conference, USA (1996-1998).

A related peptide, named Ang IV, was found to bind to abundant, high affinity sites, named the AT4 receptor, whose pattern of distribution was quite distinct from the classical receptors. Ang IV has no activity towards AT1 or AT2 receptors but exerts potent effects on memory and learning. They cloned the AT4 receptor and found it to be identical to the membrane-bound enzyme, Insulin Regulated Amino peptidase (IRAP) known to occur in insulin-responsive peripheral tissues, but not previously in the CNS. In the CNS, they found IRAP was localized to intracellular vesicles in cholinergic neurons. In view of the potent effect of IRAP ligands on memory and learning these compounds were of interest as cognitive enhancers. His group has developed low molecular weight non-peptide compounds with high affinity for IRAP assisted by molecular modelling in collaboration with Michael Parker at St Vincent's Institute.

Fred was pivotal in establishing the first research Positron Emission Tomography facility in the country at the Austin Hospital, Heidelberg, including an 11MeV cyclotron and radiochemistry capabilities. As Scientific Director, he was involved in educating clinicians, academics, Board Members and administrators of the value of PET. He was key

in fundraising, and recruitment of skilled staff for operation and maintenance of the cyclotron and with fast radiochemistry. PET has recently proved invaluable to quantitate regional deposition of beta amyloid in the brain in Alzheimer's disease, opening the prospect of preclinical diagnosis and allowing establishment of therapeutic trials at early stages of the disease.

Fred was elected President of ANS 2002-2003 and served on the Executive 2001-2004. During this time he persuaded Nobel Laureates, Jean-Pierre Changeux and Eric Kandel to visit as ANS Overseas Lecturers. As a member of the Governing Council of IBRO, Fred was pivotal in securing the bid for the 2007 IBRO World Congress of Neuroscience to be held in Melbourne. This was the first time the meeting was held in Southern Hemisphere. The meeting was well attended (>2,000 delegates) and highly successful.



Andrew
Lawrence
&
Tony
Hannah

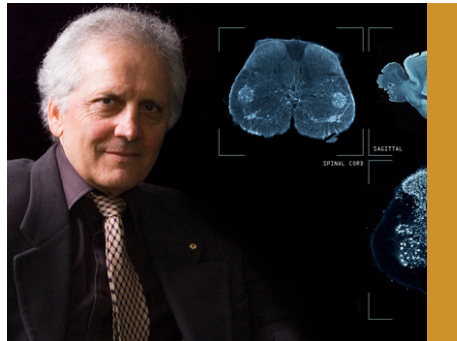
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George Paxinos receives an ANS Distinguished Achievement Award

(Fred Mendelsohn receives an ANS Award ...continued)

In 1996 Fred was appointed Director of the Howard Florey Institute for Experimental Physiology and Medicine at Melbourne University. He decided to focus the Institute exclusively on neuroscience. Fred was pivotal in securing agreement of the Howard Florey Institute Board and Melbourne University to seek funding for major expansion of the Institute into new buildings on the Parkville campus and at the Austin Hospital.

Therefore, even this somewhat brief summary of Fred's career and contributions to neuroscience more broadly demonstrate that he is a distinguished neuroscientist who has rendered notable service to the society; has received major international scientific awards; has made major discoveries that have advanced the understanding of the nervous system and made an exemplary contribution to mentoring young scientists. Accordingly, it is our pleasure to provide Fred with the strongest possible endorsement for an ANS Distinguished Achievement Award.



Professor Paxinos is the
world's leading cartographer
of the brain and spinal cord.

Charles
Watson

Professor Paxinos served as ANS President in 2005/6. While President, he presented to IBRO the ANS successful bid to host the World Congress of Neuroscience. He was President of the Local Organizing Committee and President of the World Congress. The World Congress was held in Melbourne in 2007 and was attended by approximately 2,500 people. The Congress was highly successful scientifically. Professor Paxinos has contributed to the culture of ANS through several endowments including, The Paxinos-Watson Award, The Istvan Tork Student Oral Award and The Nina Kondelos Award. In addition to the ANS awards, he endowed prizes to recognize excellence in student performance in Neuroscience Research Australia, the School of Psychology and the School of Medical Sciences.

He has advanced our understanding of the organization and structure of the central nervous system of humans and experimental animals – paving the way for the development of psychotherapeutic drugs and more accurate interventions on the human brain.

Professor Paxinos was an NHMRC Australia Fellow (2009-2013), one of two neuroscientists who received this award. He currently holds two NHMRC grants, an ARC Center of Excellence and an NIH grant. He has published in 46 research books, 145 refereed journal articles, 30 book chapters and 17 CD-ROMs. In total, his works have been cited 86,880 times. His first book, *The Rat Brain in Stereotaxic Coordinates*, is the most cited work in neuroscience (over 60,000 citations) and the third most cited book in all of science. His *Atlas of the*

Human Brain received The Award for Excellence in Publishing in Medical Science of The Association of American Publishers. His work facilitates the testing of hypotheses and the development of treatment for brain and spinal cord disorders. Most scientists working on the relationship between the human brain and neurologic or psychiatric diseases, such as Parkinson's, schizophrenia and Alzheimer's, or animal models of these diseases, use Paxinos' atlases and concepts of brain organisation. His atlases of the human brain are the most accurate guides for therapeutic interventions on the subcortex.

Professor Paxinos has supervised 35 honours students, 8 PhD students and 16 postdoctoral fellows. He has served on 14 editorial boards of international refereed journals (currently on 8, including Editor-in-Chief of one). He is one of the few scientists who are members of two learned academies in Australia. In 2003 Professor Paxinos received The Alexander von Humboldt Award (Prize) (Germany) for contributions to neuroscience.

In conclusion, Professor Paxinos has made a contribution to ANS that advanced the society's culture, science and finances. He has also made a contribution to neuroscience internationally by advancing our understanding of the organisation and structure of the central nervous system of both humans and the main animal species used in science and medicine (such as the rat and mouse), paving the way for the development of psychotherapeutic drugs and more accurate interventions on the human brain.

Report of the Australian Brain Bee Challenge



Jade was the 2014 NSW State Champion, before winning the National Brain Bee Challenge in Perth earlier this year. Jade has done incredibly well, representing Australia at the International Earth Sciences Competition in Brazil two weeks after competing in Cairns.

Well, in case you haven't heard, our 2014 Australian Brain Bee Champion has done us proud – becoming the 2015 International Brain Bee Champion at the recent ANS meeting in Cairns. Competing against representatives from 23 countries, Jade Pham – from Bankstown in Sydney – came first in this nail-biting competition, with Soren Christensen from the US coming in closely behind and Andra Cristiana Stefan from Romania taking out third place. New Zealand also did very well, with Nicholas Kondal coming in fourth overall. Jade was the 2014 NSW State Champion, before winning the National Brain Bee Challenge in Perth earlier this year. Jade has done incredibly well, representing Australia at the International Earth Sciences Competition in Brazil two weeks after competing in Cairns. Fortunately, neuroscience and neurosurgery remain her passions. Given that she obtained a perfect score in the patient diagnosis section of the

competition, in which contestants have to interpret clinical signs from videos of real neurological cases and identify the underlying disturbance, the future looks bright for Jade.

Thank you so much to Linda Richards, our incoming President of ANS, and Katherine Wilkins and their team for running such a successful competition. It was an excellent opportunity for Australia to host this competition, and there is no doubt that it would have to be one of the best-run International Brain Bee competitions ever.

Next year's International Brain Bee will be held at the FENS Forum in Copenhagen. The 2015 Australian Champion, to be selected at the 2015 National Finals, will be flown to Denmark by Western Sydney University, host of the National Brain Bee Challenge. The 2015 National Finals will

be held in conjunction with the 6th UWS Sensory Neuroscience Symposium in December 6-7 this year, and will see eight State and Territory champions from Australia battling it out to become the 2015 Australian Brain Bee Champion, and the two finalists from New Zealand competing to win the title of 2015 New Zealand Brain Bee Champion.

I wish them all well!

Vaughan
Macefield

ANS Award Winners 2015

The AW Campbell Award for the best contribution by a member of the Society in their first 5 postdoctoral years was awarded to **Dr. Lucy Palmer** (Florey Institute of Neuroscience and Mental Health, Melbourne).

The Nina Kondelos Award for a female neuroscientist who has made an outstanding contribution to basic or clinical neuroscience research was awarded to **Prof Cyndi Shannon Weickert** (Neuroscience Research Australia, Sydney)



The Mark Rowe Award for the best publication by an early career researcher member of the Society in 2013 was awarded to **Mehdi Adibi** (School of Psychology, University of NSW) for:

Mehdi Adibi, James S McDonald, Colin WG Clifford and Ehsan Arabzadeh.
ADAPTATION IMPROVES NEURAL CODING EFFICIENCY DESPITE INCREASING CORRELATIONS IN VARIABILITY.
Journal of Neuroscience 33, 2108-2120 (2013)

The Mark Rowe Award for the best publication by an early career researcher member of the Society in 2014 was awarded to **Kalina Makowiecki** (School of Animal Biology, University of WA) for:

Kalina Makowiecki, Alan R. Harvey, Rachel M. Sherrard and Jennifer Rodger.
LOW-INTENSITY REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION IMPROVES ABNORMAL VISUAL CORTICAL CIRCUIT TOPOGRAPHY AND UPREGULATES BDNF IN MICE.
Journal of Neuroscience 34, 10780-10792 (2014)

The Paxinos-Watson Award for the most significant neuroscience paper published by a member of the society in 2013 was awarded to **Benjamin Sivyver and Stephen R. Williams** (Queensland Brain Institute) for:

Benjamin Sivyver and Stephen R. Williams.
DIRECTION SELECTIVITY IS COMPUTED BY ACTIVE DENDRITIC INTEGRATION IN RETINAL GANGLION CELLS.
Nature Neuroscience 16, 1848-1856 (2013)

The Paxinos-Watson Award for the most significant neuroscience paper published by a member of the society in 2014 was awarded to **Dr. Lucy Palmer** (Florey Institute of Neuroscience, Melbourne) for:

Lucy M Palmer, Adam S Shai, James E Reeve, Harry L Anderson, Ole Paulsen and Matthew E Larkum.
NMDA SPIKES ENHANCE ACTION POTENTIAL GENERATION DURING SENSORY INPUT.
Nature Neuroscience 17, 383-390 (2014)

Lucy Palmer wins the AW Campbell and the Paxinos-Watson Awards

Lucy Palmer's research addresses the long-standing question of how cortical neurons receive and process information from the outside world.



Since neurons receive the majority of synaptic inputs onto their dendrites, her research involves understanding how dendrites receive and process synaptic input and how it influences action potential initiation. In brief, she has published 14 articles relating to this topic in high-impact journals including 'Science' and 'Nature Neuroscience' (she is the first-author of 11 articles), written 3 first-author review articles, authored 2 book chapters in neuroscience text books, and has been invited to give 21 talks both nationally and internationally. She was awarded the prestigious Grass Fellowship in 2013 which funded 3.5 months of research at the Marine Biological Laboratory, USA. Additionally, she was awarded a NHMRC Career Development Fellowship (2014-2018), two NHMRC project grants as CIA (2015-2019) and a Ramaciotti Establishment grant (2015).

Furthermore, she was recently asked to be a co-director of the Imaging Structure and Function in the Nervous System course held at the Cold Spring Harbor Laboratory, USA beginning 2015 which is a great honor for such a junior researcher. During her graduate work in the laboratory of Greg Stuart at the Australian National University, she investigated fundamental cellular neuroscience questions using a novel technique, voltage sensitive dye imaging. Two studies focused on the site of action potential

initiation in the layer 5 pyramidal neuron in the somatosensory cortex (Palmer and Stuart, 2006) and the cerebellar Purkinje cell (Palmer et al., 2010). She also studied the historically debated question of spine neck resistance in basal dendrites of layer 5 pyramidal neurons (Palmer and Stuart, 2009). The techniques and the skills that she developed during her Ph.D led her to a successful postdoctoral position.

After graduating with a Ph.D in 2008, she joined the laboratory of Matthew Larkum at the University of Bern, Switzerland (the laboratory moved to Charité University of Medicine in Berlin, Germany in 2011). Here, she performed electrophysiological and fluorescence imaging measurements in the intact rodent brain (in vivo). These techniques are challenging and only performed by a handful of researchers around the world. Her post-doctoral research was very productive and resulted in 8 publications (6 journal articles and 2 book chapters) including publications in the journals 'Science' and 'Nature Neuroscience'. She now has her own laboratory at the Florey Institute.

Joe Lynch

Professor Cyndi Shannon Weickert, Winner of the 2015 Nina Kondelos Award

Prof Shannon Weickert takes a unique approach in focusing on molecules involved in neuro-developmental and neuroinflammation in the pathophysiology of schizophrenia. She has made major contributions to our understanding of normal development of the human cerebral cortex.

Kay Double

The 2015 winner of the ANS Nina Kondelos Award, presented to a female neuroscientist for outstanding contribution to basic or clinical neuroscience research, is Professor Cyndi Shannon Weickert (NeuRA, SRI & UNSW).

Prof Cyndi Shannon Weickert earned a PhD in Biomedical Science at Mount Sinai School of Medicine, New York City and completed postdoctoral training at the National Institute of Mental Health rising to the level of Unit Chief of Molecules in the Neurobiology and Development of Schizophrenia Unit.

In 2006, she was recruited to Australia as the Macquarie Group Foundation Chair of Schizophrenia Research. In 2010, Cyndi became an Australian citizen and in 2011, she became a NHMRC Senior Research Fellow. Prof Shannon Weickert takes a unique approach in focusing on molecules involved in neurodevelopmental and neuroinflammation in the pathophysiology of schizophrenia. She has made major contributions to our understanding of normal development of the human cerebral cortex.

To date, she has published over 160 neurobiological papers, and her work has helped to shape new versions of the etiology of schizophrenia. She is known for her pioneering work on brain derived neurotrophic factor, estrogen receptors and cytokines in human brain. She was the first to identify dozens of novel splice variants of the estrogen receptor transcript in primate brain and to determine that there were specific molecular changes in the estrogen receptor in the brain of people with schizophrenia. She went on to show that this schizophrenia-related change would produce a blunted estrogen response. She has translated these basic discoveries on estrogen receptor disruption to lay the foundation for repurposing available drugs where she reversed the dominant negative effect of the ESR1 maturation using transfection and a selective estrogen receptor modulator (SERM) treatment of cell lines. Recently, with the help of clinical colleagues, they successfully completed a clinical trial using a novel adjunctive treatment, SERM for people with schizophrenia. The clinical trial, that she help lead, demonstrated that memory and attention can be improved significantly with six weeks of SERM treatment in males and females with schizophrenia.

Prof Shannon Weickert engages regularly and passionately with carers and consumers in her research area and in 2009 she was the subject of an ABC Australian Story and TedX speaker in 2014 on her life and schizophrenia research. She loves to teach and to debate scientific ideas with colleagues.



New South Wales News

On 31st August, the Cell Architecture in Development and Disease (CADD) symposium, held at the University of New South Wales, was again showcasing an exceptional range of international [Eckhard and Eva Mandelkow, German Centre for Neurodegenerative Diseases (DZNE, Bonn, Germany)] and interstate [Victor Anggono, Queensland Brain Institute, University of Queensland and Anna King, Wicking Dementia Research and Education Centre, University of Tasmania] speakers. The CADD symposium is now established as a platform for researchers from diverse disciplines who are interested in understanding regulatory mechanism of the cell architecture with a particular appreciation for the study of functional changes of the mammalian cytoskeleton in diseased cells. This year's 4th CADD meeting was organised by the ANS NSW state representative Thomas Fath (UNSW) and Lars Ittner (UNSW) and jointly sponsored by ANS and ASBMB.

In addition to a focus on regulatory aspects of the cytoskeleton in talks presented by the international and interstate speakers as well as Wendy Gold from the Westmead Children's Hospital, the symposium featured new findings on the role of neuronal cell adhesion molecules [Vladimir Sytnyk, School of Biotechnology and Biomolecular Sciences, UNSW], lipid metabolism [Anthony Don, Prince of Wales Medical School, UNSW] and hypersynchronicity and cross-frequency coupling [Arne Ittner, School of Medical Sciences, UNSW] in the pathology of Alzheimer's Disease.

Thomas Fath



Brain awareness activities held at Condell Park High School on Friday 07 August 2015

October 2015



As Dr Jin Huang's "Scientists in Schools" partnership continues with the teachers of Condell Park High School (<http://www.scientistsinschools.edu.au/>), brain awareness outreach activities were organised again this year.

Our outreach program aims to promote public awareness of the benefits and progress of brain research through a variety of fun and hands-on activities.

This year, Year 8 kids from Condell Park High School (<http://web1.condellpk-h.schools.nsw.edu.au/public/website/>) obviously enjoyed the day by providing positive feedback (4.6/5). Favourite activities were the battle between their brain waves using a Mindflex Duel machine (http://mindflexgames.com/what_is_mindflex.php) and maintaining balance using massagers. They loved to have a go at lamb brain dissections. They also discovered some amazing body sensations such as how smell and taste work together!

We want to thank Australasian Neuroscience Society (<http://www.ans.org.au/>) for funding these activities. Note most scientists are members of the Australasian Neuroscience Society and Sydney Chapter of The American Society for Neuroscience (<http://www.sfn.org/>).

Team members

Discipline of Biomedical Science:

Dr Jin Huang (leader), A/Prof Kay Double, Dr Alan Freeman, Dr Damian Holsinger, An Truong, Kathryn Mathews, Gloria Luo-Li

Discipline of Physiology:

Dr Dario Protti, Charles Yates

BMC: Dr Eryn Werry

ACU: Dr Paul Tawadros

Permission were obtained from team members and school to publish photos on school bulletin and/or websites.

Jin Huang

October 2015

(Brain Awareness Activities at Condell Park High ...continued)

Brain Awareness Activities Evaluation 07/08/2015

Organised by Dr Jin Huang (The University of Sydney)

Class: Year 8 (46/50 in total, 92% response rate).

Condell Park High School

		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Average Score
1	You enjoyed today's activities	42	4	0	0	0	4.91
2	You learnt something from today's activities	38	8	0	0	0	4.83
3	Today's activities provided a good overview of how the brain works	34	12	0	0	0	4.74
4	The Quiz questions were at the right level for us to answer	12	20	14	0	0	3.96
5	The duration of today's activities were about right	21	17	8	0	0	4.28
6	The activities were well organised	41	5	0	0	0	4.89
7	There were adequate equipment available	37	9	0	0	0	4.80
8	Overall, the Neuroscientists team explained things well	32	9	5	0	0	4.59
							4.63

9 **Most Favourite Activity:**

brain waves (4x); proprioception and balance (4x); brain dissection (2x); olfaction (1x)

10 **Least Favourite Activity:**

brain dissection (4x); nerve and muscle function (3x); reflexes (2x); olfaction (1x)

11 **Comments/suggestions from students:**

Today was great, but we would have liked it better if we had more time.

Overall today was great. Thanks.

ANS News from New Zealand

South Island Brain Bee

More than 80 Year 11 students from 16 South Island high schools met in Dunedin to compete in the second round of the Australia and New Zealand Brain Bee Challenge on 30 June. The event is also supported by the Brain Health Research Centre at Otago.

The South Island Brain Bee winner was Kate Jenkins from St Margaret's College in Christchurch, above right. Rangitapu Girls' School won the team event, right, team members are (from left) Marisol Hunter, Isabella Gregory, Ashleigh Goh and Francesca Beaton with their teacher Margy Gilpin. The 2nd and 3rd placed in the individual competition are well rewarded with a place in 'Hands on Otago' where they can experience a week of science in the summer vacation.

Kate will go on to represent the South Island in Round three when the New Zealand/Australia national winner will be decided. This winner will then compete in the 2015 International Brain Bee Championships which will be held in Cairns Australia at the joint International Society for Neurochemistry, Asian Pacific Society for Neurochemistry and the Australasian Neuroscience Society Meeting.

While in Dunedin all 80 students got a taste of what being a student at the University of Otago is like by attending a neuroscience lecture and taking part in a "NEURO 101" laboratory session.

Ruth Empson



October 2015

(ANS News from New Zealand ...continued)

North Island Brain Bee

On Thursday 2 of July, a total of 182 students from 40 North Island schools converged on the Faculty of Medical and Health Science's Centre for Brain Research at the University of Auckland to compete in both the Individual and Teams competitions of the annual second stage of the Brain Bee Challenge. Delegations from all over the North Island arrived in a frenzy of excitement and anticipation.

During the course of the day they were treated to an experience rich in science, fun and camaraderie. Hosted by Associated Professor Maurice Curtis, with Rutherford Discovery Fellow Jessie Jacobson as the Quiz Master, these year 11 students and their teachers explored the network of lecture rooms and laboratories that make up the Grafton campus in a day of learning.

Australasian Winter Conference on Brain Research 2015

Another successful AWCBR took place 29th Aug to 2nd September, preceded by a meeting of the new Brain Research New Zealand CoRE at the Copthorne in Queenstown NZ.

The meeting hosted some fantastic International speakers, George Koob, currently Director of the National Institute on Alcohol Abuse and Alcoholism (NIAAA) in the US; Michael Bruchas Washington University and Peter Mombaerts Max Planck Unit for Neurogenetics, as well as excellent local NZ and Australian speakers too. AWCBR was once again part of the growing Queenstown Research Week, QRW.

Goddard Prize winner for the best oral presentation from a PhD student was Christine de Lancea from Canterbury (below left) and the best poster presentation from Christine Arasaratnam (right) from Auckland, with A/Prof Ruth Empson, joint AWCBR chair with Jo Montgomery.



We are always interested in receiving articles or information from ANS members for the newsletter. Such material could include topics for discussion, meeting announcements, meeting reports, news about prizes and awards received by ANS members, obituaries, and any other items of potential interest to members of our Society. The copy deadline for the next newsletter is 1 December 2015.

ANS Policy on Requests for Publicity via Email Circulation

The policy of ANS is to minimise email traffic to members. Advertisements for meetings and other significant announcements such as job vacancies can be added to the website and included in the newsletter if appropriate. Such requests should be directed to the ANS Secretary.

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Final Minutes

Australasian Neuroscience Society Annual General Meeting

7.15pm, Wednesday 26th August 2015, Cairns Convention Centre

1. Attendance and apologies

A total of 58 members were in attendance. This list is available on request.

Apologies were received from David Vaney, Steve Petrou, Andrew Allen, Simon Gandevia and Margaret Morris.

2. Minutes of the 2014 Annual General Meeting

The minutes were previously circulated in the April newsletter.

- Motion: That the minutes of the ANS General meeting held in Adelaide on January 30st 2014 are accurate.

Moved: James Bourne.

Seconded: Louise Nicholson.

Vote: unanimous

3. President's report

Commercial and Institutional Sustaining Members

- James Vickers noted developments towards two types of sustaining members – Institutional and Commercial. It was proposed that the Institutional Sustaining Membership be for an initial period of 3 years, with funds used to support advocacy activities by the ANS.

- James Vickers noted the establishment of a social media presence through Facebook and LinkedIn. He thanked Amanda Place and Tom Keeble, from the Florey Institute, for their contributions to promoting ANS activities at the Cairns meeting. Potential advocacy plans for 2016 include an external report on the impacts of nervous system disorders in Australia, including how neuroscience research is contributing to our understanding of these disorders.

Australian Course for Advanced Neuroscience (ACAN)

- John Bekkers is stepping down after 11 years as ACAN director. ANS Council manages ACAN with the assistance of an ACAN management committee. Both ANS Council and the management committee have formally agreed to support the offer by QLD Brain Institute to take over operational leadership of ACAN. An MOU representing the relationship between ANS, the ACAN Management Committee and QBI to be developed.
- In recognition of John Bekker's outstanding contribution to this course, he was awarded an ANS Medal by James Vickers.

Retirement of ANS Executive members.

- James Vickers noted the substantial contributions of Joe Lynch and John Rostas as retiring members of the ANS Executive.

International Brain Bee

- James Vickers noted the tremendous success of the International Brain Bee final run in Cairns, and thanked those involved in running the competition.

Hobart 2016 Update

- Planning is well underway and dates confirmed. A LOC is established and promotional material has been produced.

4. Secretary's report

Society Administration

Joe Lynch noted that this was his last AGM as Secretary. He thanked ANS members for their patience during the dramatic changes to Society administration that occurred in the past three years. This included Sally Jay's resignation, the establishment of a new integrated website and membership database, new professional conference organisers (All Occasions Group) and a movement towards total electronic communication with the membership.

He also noted that the Treasurer and Editor aimed to step down at the next AGM and called for members to consider volunteering for these positions.

Constitution clean up:

special resolution required

The current ANS Constitution contains several clauses that do not reflect long-standing ANS practice. The ANS Council had previously agreed on a series of updates to the Constitution so that it reflects the way that ANS currently operates. A copy of the Constitution highlighting the proposed changes was published in the April 2015 newsletter and in a news article on the website. The ANS Secretary will move that these changes be accepted, with voting being conducted on a paragraph by paragraph basis. Success of each vote requires the approval of 75% of the members present.

- Motion: That the Constitutional changes as advertised on the ANS website and April 2015 newsletter be accepted.

Proposed: Joe Lynch.

Seconded: John Rostas.

All proposed changes were unanimously accepted except one paragraph (Section 5.6, concerning the establishment of a research committee) which was not. This paragraph will stay as it is.

Final Minutes

5. Treasurer's report

Joe Lynch (standing in for Andrew Allen) presented details of the Society's finances and provided a summary of the financial statement for the year ending September 30th 2014, outlining assets and investments and major items of expenditure.

His main points were as follows:

- The Secretariat role is handled by our long-term accountancy firm HLB Mann Judd, using a database and website management system purchased by ANS.
- HLB Mann Judd SA also handle our annual account audit – this is performed by a separate group within HLB Mann Judd. Their view is that there is no conflict in retaining all of these roles.
- ANS current cash and other financial assets total \$1,346,699.
- Of this, ACAN assets (General Reserve) total \$478,965 and are set aside to continue the objectives of ACAN, and do not enter into ANS operating budgets.

- Motion: That the financial statement be accepted for the year ending September 30th 2014.

Moved: Charles Watson.

Seconded: Elspeth McLachlan;

Vote: unanimous: motion carried.

- Motion: That HLB Mann Judd SA be re-appointed as ANS auditors for the financial year 2014/2015

Moved: Andrew Lawrence.

Seconded: John Bekkers.

Vote: unanimous: motion carried.

Joe Lynch then provided a breakdown of student travel awards, noting there were 114 eligible ANS applicants all of whom travelled long distances to the meeting. ANS Council decided to split a total pool of \$35,000 equally among all eligible applicants, which equates to \$300 per student.

6. Editor's report

Due to the editor's absence and the fact that ANS had no input into abstract processing for the 2015 Cairns meeting there was no report (Steve Petrou was listed as an apology).

7. 2015 ANS Awards and Prizes

AW Campbell Award for best contribution by a member of the Society in their first five postdoctoral years was awarded to Lucy Palmer from the Florey Institute of Neuroscience and Mental Health, Melbourne. There was strong competition for this award, with five excellent applicants.

Nina Kondelos Award. This is made possible by a donation from George Paxinos and named after his late sister and is for a female neuroscientist who has made an outstanding contribution to basic or clinical neuroscience research. It was awarded to Professor Cindy Shannon-Weickert from NEURA, University of NSW.

Two Paxinos-Watson Awards were presented, one each for the most significant neuroscience paper published by a Society member in 2013 and in 2014. This award has been made possible by a generous donation to the Society by Professor George Paxinos and Professor Charles Watson, commemorating the publication of their important key reference text "The Rat Brain in Stereotaxic Coordinates".

The Paxinos-Watson prize for a 2013 publication was awarded to Benjamin Sivyver and Stephen R. Williams for: Direction selectivity is computed by active dendritic integration in retinal ganglion cells. *Nature Neuroscience* 16, 1848-1856 (2013) The authors were from Queensland Brain Institute, University of Queensland.

The Paxinos-Watson prize for a 2014 publication was awarded to Lucy M Palmer, Adam S Shai, James E Reeve, Harry L Anderson, Ole Paulsen and Matthew E Larkum for: NMDA spikes enhance action potential generation during sensory input. *Nature*

Neuroscience 17, 383-390 (2014) Lucy is from the Florey Institute of Neuroscience and Mental Health, Melbourne.

The Mark Rowe Award is an early career award for 'first or senior author publication based on research completed as a PhD student or postdoc, and published within 3 years of the award of PhD'. Awards were presented for papers published in both 2013 and 2014.

The award for a 2013 publication was presented to Mehdi Adibi from the School of Psychology, University of NSW for:

Mehdi Adibi, James S McDonald, Colin WC Clifford and Ehsan Arabzadeh
ADAPTATION IMPROVES NEURAL CODING EFFICIENCY DESPITE INCREASING CORRELATIONS IN VARIABILITY.
Journal of Neuroscience 33, 2108-2120 (2013)

The award for a 2014 publication was presented to Kalina Makowiecki from the School of Animal Biology, University of WA for:

Kalina Makowiecki, Alan R. Harvey, Rachel M. Sherrard and Jennifer Rodger
LOW-INTENSITY REPETITIVE TRANSCRANIAL MAGNETIC STIMULATION IMPROVES ABNORMAL VISUAL CORTICAL CIRCUIT TOPOGRAPHY AND UPREGULATES BDNF IN MICE.
Journal of Neuroscience 34, 10780-10792 (2014)

Final Minutes

8. Presentation of ANS Distinguished Achievement Awards to Fred Mendelsohn and George Paxinos

The ANS Distinguished Achievement Award is an occasional award for an outstanding contribution by an individual to both neuroscience research in Australia and to the Australian Neuroscience Society. The Award was founded in 1992 and was first awarded in 1993 to Lawrie Austin, the foundation President of ANS. A total of 7 awards have been made to date. Council voted unanimously at its January 2013 meeting to award it to Perry Bartlett. The large bronze medallion DAA award was presented to Fred Mendelsohn and George Paxinos by the President, James Vickers. Andy Lawrence spoke glowingly in support of Fred Mendelsohn's contributions whereas Charles Watson did the same for George Paxinos.

9. Vote on Award of Honorary Membership to Glenda Halliday

- Motion: that Council recommends the award of Honorary Membership of the Australasian Neuroscience Society to Glenda Halliday in appreciation of both her outstanding service to the Society, including as ANS President-Elect, President and Past-President from 2005-2008, and her sustained contributions to the development and promotion of neuroscience in Australia.

Moved: Elspeth McLachlan.

Seconded: James Vickers;

Vote: unanimous: motion carried

10. Vote on Award of Honorary Membership to David Vaney

- Motion: that Council recommends the award of Honorary Membership of the Australasian Neuroscience Society to David Vaney in appreciation of both his outstanding service to the Society, including as ANS President-Elect, President and Past-President from 2007-2010, and his sustained contributions to the development and promotion of neuroscience in Australia.

Moved: James Bourne.

Seconded: Joe Lynch;

Vote: unanimous: motion carried

11. Future ANS meetings

The ANS 2016 meeting will be held in Hobart from 4th – 7th December, 2016.

The ANS 2017 meeting will be held in Sydney in December, 2017, dates to be advised.

12. Council members for 2015/6 Executive

President	Prof James Vickers
President-elect	Prof Linda Richards
Secretary	A/Prof Kay Double
Treasurer	Prof Andrew Allen
Editor	Prof Steve Petrou

State and National Representatives

ACT	Dr Jason Potas
New South Wales	Dr Thomas Fath
New Zealand	Dr Ruth Empson
Queensland	Dr Michael Piper
South Australia	A/Prof Stuart Brierley
Tasmania	Dr Tracey Dickson
Victoria	A/Prof Chris Reid
Western Australia	A/Prof Stuart Hodgetts

Public Officer

Prof John Bekkers

13. Other business

On behalf of those present, Louise Nicholson welcomed the new members of the Council and Executive (Linda Richards, President Elect and Secretary Kaye Double) and especially thanked the outgoing Secretary (Joe Lynch)

and past President (John Rostas) for all their work on the executive. These sentiments were supported by the majority present.

Elspeth McLachlan and Andy Lawrence both commented on the fact that the complete audited ANS financial reports were formerly made freely available at the AGM for inspection by members. Joe Lynch promised to investigate the best way of making this report available to the membership.

Several members commented that the red text was very similar to the black text on powerpoint slides, which may be an issue for those members who may be colour-blind. Joe Lynch promised to avoid this problem in future.

Close 9.15 pm.