December 2015

Contents

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Australasian Neuroscience Society

Newsletter

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Message from the President

James Vickers

President, Australasian Neuroscience Society

The Council of ANS is currently developing a program to advocate for neuroscience research which we hope will be supported by both our individual members, as well as from the institutional level.

Finally, NHMRC results have been released since the last newsletter, and they are calamitous for health and medical research funding in Australia. Congratulations to those who did receive funding in the most competitive year on record, but also our best wishes to Members who missed out, especially those who would have been funded based on historic success rates of a few years back. I am particularly aware of the substantial impact on our Members of the low success rates in the Fellowships schemes. It will be some years before the Medical Research Future Fund results in substantially increased support for medical research, so it will be important for all medical researchers to advocate for support of this important research sector. The Council of ANS is currently developing a program to advocate for neuroscience research which we hope will be supported by both our individual members, as well as from the institutional level.

In this column, I would also like to acknowledge the contributions of 3 people who have contributed substantially to the Society.

Members will be aware that Alan Finkel has been recently appointed to the position of Chief Scientist of Australia, starting in 2016. Not all members may be aware though that Alan has a rich background in research, commercial development and philanthropy in relation to the neurosciences. Alan obtained a degree in Electrical Engineering from Monash University. He then started his PhD working with ANS Past-President, Stephen Redman, on chloride channels in snail neurons, before both moved to the ANU in the early 1980s.

Alan's postdoctoral studies involved the development of voltage clamping with a single electrode for studying excitatory and inhibitory synaptic currents. Previously, two electrodes were required and worked best with large neurons. This was a breakthrough in the field as the single electrode approach could be used with a wide variety of nerve cell sizes, and enabled both the stimulation and recording of currents at the same time. Realising the potential of this new approach for electrophysiology, Alan moved to the US to start 'Axon Instruments' which grew rapidly as a technology company to become the global leader in supporting voltage clamp and patch clamp research. Axon Instruments expanded further into gene array scanners and drug discovery physiological platforms. Axon Instruments was subsequently acquired by Molecular Devices, with Alan maintaining a role as Chief Technology Officer and Vice President, but then also able to spend more time in Australia pursuing his scientific and philanthropic interests.

In 2005, Alan Finkel, Steve Redman and key colleagues in the Australian electrophysiological research community envisaged a course to support young scientists in the development of their knowledge and skills in physiological and other advanced neuroscience techniques. This became the Australian Advanced Neurosciences Research Initiative (AANRI), with the first course on North Stradbroke Island using a marine research facility of the University of Queensland. Through the Finkel Foundation, Alan provided the key financial support to set up this course, which has now trained dozens of neuroscientists throughout Australia and New Zealand. AANRI has since become the Australian Course in Advanced Neurosciences (ACAN), officially owned by the ANS and run by the ACAN Management Committee. What ANS Members may not know is that Alan contributed a further $500,000 to the ANS as an endowment donation to support the course in a sustainable manner. This support of the Finkel Foundation for ACAN was an extraordinarily generous contribution to the Society, and will allow for the training of many future generations of neuroscientists in cutting edge techniques.

It is also worth noting that the Finkel Foundation supports many other educational and scientific endeavours. In this regard, Alan's contributions to advancing science in Australia has been much broader than his support of neuroscience. He is a Fellow, and current President, of the Australian Academy of Technological Sciences and Engineering, and he also founded the science magazine, Cosmos. Alan is currently serving as Chancellor of Monash

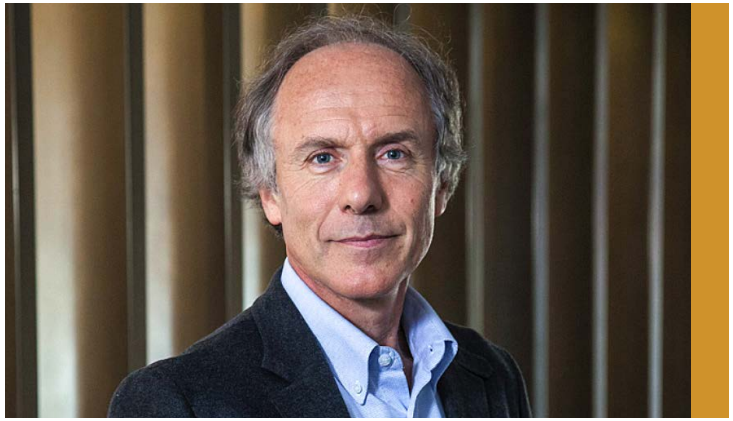
(Message from the President ...continued)

University until January, 2016, after which he takes up his new role as Chief Scientist of Australia. Neuroscience appear to be the specialisation of choice for Australian Chief Scientists, as Lyn Beazley has served as Chief Scientist for Western Australia, and the current Chief Scientist of Australia, Ian Chubb, originally trained in the neurosciences. During his tenure, Ian Chubb has clearly elevated the public profile of this office and has been a forthright champion for research. We congratulate Alan on taking up this prestigious mantle, and we look forward to the advances he can facilitate on behalf of scientific research and education across Australia.

Two long-serving members of the ANS have recently retired from the Council and the Executive of the Society, John Rostas and Joe Lynch. Notably, John also previously served for many years as Editor for the Society. John's leadership as incoming, current and then past-President of ANS has been marked by many accomplishments. These have included the formal establishment of the Society as the representative organisation for neuroscientists across Australia and New Zealand, with the change of the name to the 'Australasian' Neuroscience Society. John also has a key role in bringing the International Society of Neurochemistry meeting to Australia, and served on the Program Committee and was the LOC Chair for this combined meeting. John was also active on the IBRO Subcommittee for Global Advocacy on behalf of our Society, and also contributed to the growth in the advocacy profile of ANS through meetings and publications of the Federation of European Neuroscience Societies (FENS). John also played an important role in the development of the Australia-Israel Research Exchange (AIRE), which included support of Fellowships for a number of Australian early to mid-career neuroscientists to visit research institutions in Israel. We would like to express our deep thanks to John and we also congratulate him on his recent appointment as Emeritus Professor at the University of Newcastle, a further recognition of his substantial contribution to neuroscience research.

On behalf of the ANS Council and Executive, I would also like to pass on our significant gratitude to Joe Lynch for his many years of service as Secretary of the Society. Hopefully I can speak on behalf of past-Presidents of the Society where I note that the Secretary of the Society is the hardest working Member of ANS! There is a tremendous volume of administrative work and management that sits with the role of the Secretary, and Joe has worked tirelessly and successfully across the operations of the Society for many years. Joe had a particularly significant challenge in managing the affairs of the ANS with the separation of the Society from our previous conference organiser. Joe also drove the development and establishment of the excellent new web site for the Society, which brought increased functionality that will serve the ANS well for years to come. Joe was also singularly vital to the awards, prize and student exchange processes of the Society, and saw through some much needed changes to our constitution. Many thanks for all this Joe, as well your continued support of the ANS Exec in transition.

Wishing you all the best for the grant-writing season, sorry, I meant Christmas! I hope that Members get the chance to have a break and recharge your academic batteries for a happy and successful 2016.



December 2015

Professor Bartlett receives the CSL Florey Medal

Professor Bartlett, the founding director of UQ's Queensland Brain Institute, received the prestigious CSL Florey Medal and the Research Australia Lifetime Achievement Award in November this year, which recognise his significant lifetime achievements in neuroscience research and in the promotion of neuroscience internationally.

"I am delighted to receive these awards but they're also a recognition of the very talented young scientists I have been lucky enough to work with and also the breadth and depth of research being done at the Queensland Brain Institute," he said.

"At QBI, we have some of the world's leading neuroscientists investigating how the brain works and what happens when it dysfunctions.

"We have groups working on understanding the mechanisms that underpin dementia, anxiety and depression, schizophrenia, brain injuries, stroke and motor neuron disease.

"In the next two to three years we're taking several of the discoveries we've made into the clinic, and that's when another chapter will begin.

"When I started researching the brain in the late 1970s, the general dogma was that the adult brain was fixed and unable to change.

"So it was very exciting when we were able to show that there were actually stem cells in the adult brain, which meant that the adult brain has the capacity to create new circuitry.

"This has significant implications for treatments for people with brain diseases."

Professor Bartlett and his team have recently been successful in using exercise to reverse the effects of dementia and recover memories in animal models. He said human exercise trials were expected to start in 2016.

"The effect of dementia on hundreds of thousands of Australians is debilitating and devastating," Professor Bartlett said.

"If we can show that exercise can actually slow down or reverse the onset of dementia, then we can potentially make a positive difference to a lot of people's lives."

Queensland Brain Institute director Professor Pankaj Sah said Professor Bartlett had shown an unwavering dedication to unlocking the secrets of the brain.

"Perry launched himself out of the starting blocks when he switched from immunology to neuroscience in the 1970s," he said.

"Since then he has discovered that the brains of adult mice have stem cells, which means the neurons can regenerate.

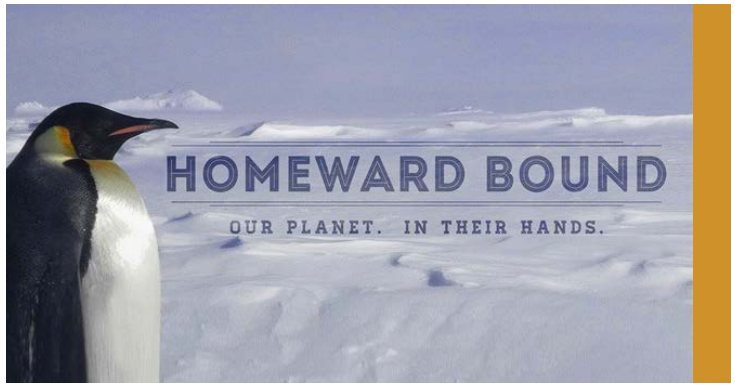
"This opens up avenues for further research into treatments for people with brain injuries and diseases.

"On top of that, he established the Queensland Brain Institute at The University of Queensland in 2003, starting with a cohort of about 10 and building it to a thriving neuroscience hub with more than 500 staff and students.

"During his tenure as director, he helped forge strong links with China, establishing two joint laboratories with the Chinese Academy of Science in Beijing and one with the Second Military Medical University in Shanghai.

"I would like to congratulate Perry on receiving these awards for what has been a true lifetime of achievements."

Empowering women scientists



Caption

The UWA Homeward Bound participants; from left Amanda Blythe, Ghislaine Platell, Lindy Fitzgerald, Sandra Kerbler. Picture courtesy of The University of Western Australia

Teams with an equal gender balance solve problems more effectively. However, women constitute only 10-15% of high level scientists [1]. We are therefore in danger of losing 50% of the brain power that could be used to solve scientific problems in neuroscience and science generally.

78 women scientists from around the world have been selected to take part in Homeward Bound, a world-class leadership and strategy program for women scientists that will build a global collaboration and empower women to redress the gender imbalance. This world-first initiative is the start of a 10 year outreach to build a 1,000 strong global collaboration of women in science. The program is run as an expedition to Antarctica, where climate change is used as an example as to how women can make a pronounced difference in the world today.

ANS member Lindy Fitzgerald has been selected to participate in Homeward bound. She is one of one of only two neuroscientists to be selected and one of four scientists from The University of Western Australia (UWA). Participants will gain advanced strategic and leadership skills which they will employ in local mentoring programs, policy change at an institutional level and high impact goal directed Projects with broad community reach. The aim is to increase the participation of women in the higher levels of science including neuroscience, to enable a fresh approach to tackling major scientific questions.

The cost of the Homeward Bound program is approximately US $40,000 per person, a significant proportion of which is covered by in kind contributions from partners in the program. The remaining $25,000AU per person will be raised via a number of sources including at https://www.chuffed.org/project/homeward-bound-empowering-women-for-a-more-sustainable-future for the UWA team or click on the picture for Lindy's personal fund raising page. Any support would be very gratefully received.

[1] *Bell S Women in Science in Australia. Federation of Australian Scientific and Technological Societies 2009. Lindy Fitzgerald (WA)*

Lindy Fitzgerald

ANS2016 Hobart

We are now officially only 12 months away from our next Annual meeting to be held in Hobart, 4-7th of December. Planning is well underway with the conference to be held on the waterfront at the Grand Chancellor Hotel, and the dinner held at MONA. Calls for plenary nominations were made earlier in the year and voted on by ANS Council. Many excellent nominations were received and we are now pleased to be able to announce the plenary speakers for the meeting are as follows:

Professor Michael Hausser
ANS International Plenary

Associate Professor Massimo Hilliard
ANS Plenary

Professor David Small
Lawrie Austin Plenary

Professor Jeffrey Rosenfeld
Eccles Lecture

Calls for symposia (see this edition of the newsletter) provide another opportunity to contribute to the meetings scientific programme.

We are sure that that the 2016 ANS meeting will provide a brilliant mix of science and socialising.

The Australasian Neuroscience Society Council is now receiving proposals for the Annual Meeting

Symposia will normally have 4 speakers and be arranged in themes of interest to the broad membership of the society. Funding will be available to contribute to the costs of ONE invited overseas speaker per symposium. Overseas speakers (not from Australia or New Zealand) can receive free registration, social tickets and up to $2500 to cover costs of travel and accommodation. All financial support will be paid directly to the overseas speaker at the Annual Meeting. No Society funding will be available to support costs of Australian or New Zealand speakers, chairs or organisers. The Society wishes to emphasize it is not necessary for a symposium to have an overseas speaker, as high quality proposals with all speakers coming from Australia and New Zealand are most welcome. Although proposals will be considered primarily on scientific merit, Council will take into consideration the geographic and gender diversity of the proposed speakers. In general, speakers in each symposium should come from different institutions. Symposium proposals that include early career researchers as the proposer, chair or speaker are encouraged. Symposium proposers need to ensure that all **Australasian** speakers are current members of ANS, although exceptions can be made with appropriate scientific justification. Please note that for all selected symposia it is the organiser's responsibility to ensure that all speakers register and submit their abstracts by the deadline (Friday August 5th). Please visit the ANS website for full application details and the application form.

All symposium proposals should be submitted by email to the Society Editor, Prof. Steven Petrou (spetrou@unimelb.edu.au) no later than Friday February 5th 2016.

Expression of interest for Satellite Meetings

Satellite meetings can enhance the experience of our members attending the ANS meeting. ANS Council is keen to hear from members who would like to hold a satellite meeting in conjunction with the ANS 2016 meeting in Hobart. Registration for ANS Satellite meetings will be available through the ANS Hobart 2016 conference website once delegates have registered for the ANS meeting. Plans for satellite meetings must include the proposed dates, venue and program (if known at this stage) and a statement by the organisers of how they will encourage delegates to the satellite meeting to attend the ANS meeting.

Proposals can be sent by email to the ANS Secretary A/Prof Kay Double (kay.double@sydney.edu.au).

A date for your diary – ANS Sydney

The Local Organising Committee for the 2017 Annual Meeting of ANS would like to pre-announce the meeting to be held in early December 2017 in Sydney.
Keep an eye out for more details to come!

Thomas Fath

... on behalf of the 2017 Local Organizing Committee (Thomas Fath, University of New South Wales; Greg Sutherland, University of Sydney; Lezanne Ooi, University of Wollongong; Melissa Tadros, University of Newcastle; Andrew Affleck, Neuroscience Research Australia)

ACAN 2016 – Call for Applications

Graduate students and postdoctoral fellows interested in using electrophysiological and optical techniques in their research are encouraged to apply for a place on the Australian Course in Advanced Neuroscience (ACAN) 2016, which will be held from 10th to 30th of April 2016 at the Moreton Bay Research Station, North Stradbroke Island, Queensland.

Stephen Williams

Queensland Brain Institute

srw@uq.edu.au

Graduate students and postdoctoral fellows interested in using electrophysiological and optical techniques in their research are encouraged to apply for a place on the Australian Course in Advanced Neuroscience (ACAN) 2016, which will be held from 10th to 30th of April 2016 at the Moreton Bay Research Station, North Stradbroke Island, Queensland.

ACAN is an intensive three-week course that guides participants through the theory and practice of electrophysiological recording and optical imaging techniques using a unique balance of small group lectures and hands-on laboratory work. Lectures from experienced national and international faculty will outline in an informal atmosphere the theoretical basis of cellular and systems neuroscience, and the principles of electrophysiological and optical recording techniques. During the course each participant will become proficient in patch-clamp recording, both in vitro and in vivo, calcium imaging, optogenetics, and many other techniques through unbridled access to state-of-the-art equipment, guided by the faculty. The course is also a lot of fun, with many ACAN students developing close friendships and collaborations during and after the course.

In 2016 ACAN faculty will include George Augustine (Singapore), Brad Baker (Korea), Andreas Frick (France), Yukiko Goda (Japan), Maarten Kole (The Netherlands), Matthew Larkum (Germany) and Mala Shah (UK) together with prominent faculty from across Australia and New Zealand.

Twelve students will be selected to attend ACAN 2016. The application deadline is Monday 11th Jan 2016. For full details about the course, including the program, please visit: http://acan.qbi.uq.edu.au

In order to apply for ACAN 2016, you must: be a currently-enrolled PhD student, a postdoctoral fellow, or junior faculty (preferably with no more than 5 years after completing your PhD).

In your application you should include:

1. A completed application form (obtained from http://acan.qbi.uq.edu.au).
2. Your CV.
3. A cover letter that clearly states how you will apply the skills taught at ACAN to your research.
4. A reference from your supervisor, including a confirmation that funds are available to allow you to attend the course.

The fee for ACAN 2016 is A$4500, which covers all meals, accommodation, laboratory supplies and teaching materials. Scholarships from the Neurological Foundation of New Zealand are available for NZ citizens/permanent residents.

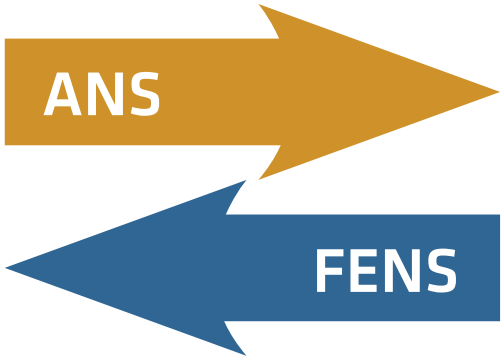
I look forward to receiving your application.

December 2015

ANS-FENS Young Researcher Exchange Program Report

Call for applications from ANS members

ANS, in collaboration with the Federation of European Neuroscience Societies (FENS), support under the Young Researcher Exchange Program (YREP) travel of young researchers to attend research training in a laboratory in Europe or to attend an approved training course in Europe. Total stipends to the value of €2000 are awarded to cover partial travel costs and accommodation expenses during the training period which must have a minimum length of two weeks. YREP stipends can be complementary to other financial support such as support from the sending and/ or receiving laboratory* or obtained by the student for the course participation. Applicants must be Masters or PhD students or Early Career Researchers up to three years postdoc. All applicants from Australasia must be current members of ANS.



Exchange

Deadlines for application are twice annually (25th April and 15th September) and further information, including the application form, can be obtained at:

- http://www.fens.org/Training/Training-Grants-and-Stipends/NENS-Grants/Young-Researchers-Exchange-Programme/FENS-ANS-Programme-2016/

Applicants from Australasia must send their application directly to FENS (link to nens@fens.org). Note that an equivalent scheme is available for young researcher members of FENS societies to attend training courses or research training stays in Australasia.

* *FENS and ANS encourage a contribution of up to a maximum of €500 from the sending or receiving laboratories to the expenses of the applicants or that course organisers waive course fees up to a maximum of €500.*

ANS-FENS YREP Award recipient heads to Bordeaux

I went to the FENS CAJAL 'Bioinformatics for the Neuroscientist course' in Bordeaux and all I got was a glimpse of the future

Josien de Bie

Josien de Bie is a Dutch Neuroscientist who has just submitted her PhD thesis 'Oestrogen, Progesterone and the central kynurenine pathway' at Macquarie University. She received a ANS-FENS YREP Award to attend the FENS course 'CAJAL bioinformatics for the Neuroscientist' in Bordeaux earlier this year. This is her experience.

I went to the FENS CAJAL 'Bioinformatics for the Neuroscientist course' in Bordeaux and all I got was a glimpse of the future

In neuroscience, as in much biology we generally feel we don't need much in the way of computing. Sure, we need our word processors, our reference management tools and the all-important excel and stats programs, but we tend to use them at a very basic level. Bioinformatics is in an entirely different league. It is what our future is going to be, and we have some catching up to do.

The course group was a mixed bunch. There were eleven of us and we were from all over the world. It's funny how academics end up answering seemingly uncomplicated questions like 'Where are you from?' We had a Russian young man, who worked in Sweden, and American-Korean young lady who worked in Japan, and surprisingly; three Dutch people, including myself, only one of which actually worked in the Netherlands. Our backgrounds were similarly mixed. While we were all neuroscientists, some of us had never been in a wetlab, others had never done any bioinformatics. Talking to each other about our work and lab environments was almost as informative as the course itself!

The first thing I need to tell you about is The Galaxy Project (https://galaxyproject.org/) it is an online tool (which you can install locally if you want) for manipulating large datasets without any programming. It is free, open source, and absolutely fabulous for any large dataset. If you're doing anything genetic, or hoping to get into it, this tool is especially good. It connects directly to online databases and helps you import your selection of a particular database and manipulate it.

If you are going to learn a new language – make it R (and not French, even though I had a lovely time, some of the city French are really offended if your French is not up to their standards). R studio is also freely available online and has a great community supporting it. It is relatively easy to learn and is an incredibly powerful tool for manipulating datasets and running complicated statistics. Now if you're into genomics, you should definitely be doing Bioinformatics.

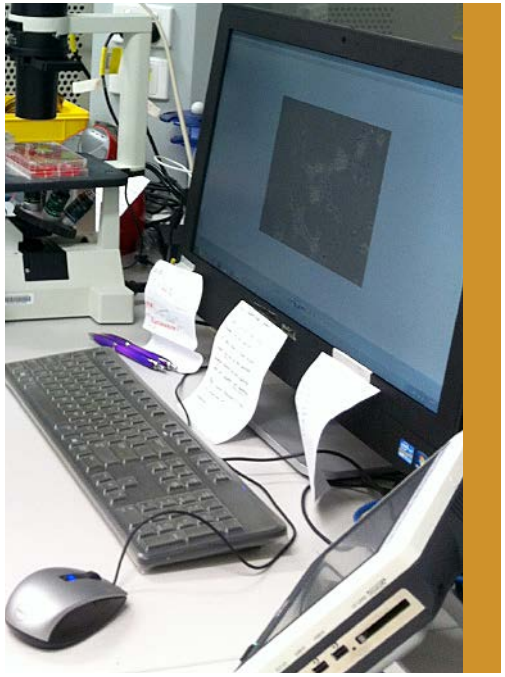
(ANS-FENS YREP Award recipient heads to Bordeaux ...continued)

As a lowly lab biologist I never realised how much the 'omics' approach is about collecting an insane amount of data and then most of the work consisting of trimming away known sequences and false positives. The lectures on differential gene expression using RNA-seq and microarrays left me reeling. If you're doing anything genomics, have a look at GSEA (http://software.broadinstitute.org/gsea), DAVID (https://david.ncifcrf.gov/) which can help annotate and disambiguate your microarray data and MeV (http://www.tm4.org/mev.html) for clustering of expression. For proteomics there's Mascot (http://www.matrixscience.com/) or CORUM (http://mips.helmholtz-muenchen.de/genre/proj/corum/) and for anything Mass-spectrum related there is a list of tools at MS-utils (http://www.ms-utils.org/).

Apart from 'omics' there was a considerable part of the course devoted to electrophysiscs. As someone who used to do nerve recordings I was pretty excited about this part and was blown away by the amazing (open source!) projects that have been going on while I was holed up in the lab. Firstly, there is Neuron (https://www.neuron.yale.edu/neuron/) with which you can simulate neurons, saving you the trouble of having to isolate and measure them. The open brain project (http://www.opensourcebrain.org/) behind neuron is fantastic and well worth having a look at if you're electrophysiologically inclined. The simulations are derived from real recordings, and are specific to types of neurons and different species. Other simulation software which works for both neural networks and metabolic pathways are copasi (http://copasi.org/) and cytoscape (http://www.cytoscape.org/). With these you won't have to start from scratch either, a lot of people have been uploading entire pathways and networks that are ready to use.

At the pinnacle of simulation is the Open Worm Project (http://www.openworm.org/) the founder actually came over to give a lecture on simulation and it was absolutely mind blowing. This completely open source project uses all we know about C. elegans (genetics, neural cells, muscle cells) and codes it into an accurate simulation. Anyone who wants to contribute, can do so and is duly credited. This is the future. It can only be a matter of time until the launch 'open chicken'. Needless to say, I spent the entire lecture with a manic grin on my face. Finally, there was another glimpse of the future with DisGenNet (http://www.disgenet.org/web/DisGeNET/menu) a fantastic open source initiative that trawls the literature for you in search of gene-disease associations.

With ten days of 9-7 days of non-stop Bioinformatics (and amazing French cuisine lunches) the course was a rollercoaster, and mostly just gave us a whole lot of starting points. I can thoroughly recommend going to a FENS course. And I most certainly recommend having a good look at how bioinformatics can further our work. The future is now!



December 2015

Merry Christmas & Happy New Year

Thanks you to all that have contributed to the newsletter over the last twelve months.

It has been a good year. A lot has happened from following the pursuits of ACAN graduates to finding out who was winning the Brain Bee and reporting on the successful Cairns meeting. There were some notable topics that included an article on the development of 'A National Neuroscience Teaching Toolbox' and articles on the development of women in neuroscience. The newsletter is a fantastic way of communicating to the broader neuroscience audience! If you have something to say please keep an eye on the deadlines and send through your articles. Remember to send a picture or two as well.

Chris Reid

Editor

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 3 April 2016.

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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