

August 2022



Contents

[Message from the President](#)

[Message from the Secretary](#)

[Reconnecting the Network²](#)

[A focus on Neurotechnology developments in New Zealand](#)

[William Russell \(Bill\) Levick \(1931-2022\)](#)

[International Brain Bee Challenge 2022](#)

[40th anniversary of the publication of The Rat Brain in Stereotaxic Coordinates](#)

[Equity and Diversity Committee EOI](#)

[ANS EMCR Showcase](#)

[2021 Paxinos-Watson Award](#)

[ANS Developmental Neuroscience Forum](#)

[Post-doc position in the lab of David Attwell](#)

[Minutes for ANS Council Meeting](#)

Australasian Neuroscience Society Newsletter

ANS 2022 AUSTRALASIAN NEUROSCIENCE SOCIETY
40TH ANNUAL SCIENTIFIC MEETING

RECONNECT THE NETWORK²

Pullman Albert Park, Melbourne, Australia
5-7 December 2022

PLENARIES

Tara Spire-Jones
Imaging synaptic changes in Alzheimer's disease

Anthony Hannan
Gene-environment interactions modulating brain function within and between generations

John Bekkers
Understanding the brain through the nose

Helen Cooper
Deciphering the role of autism genes in cortical development from stem cells to synapses

Christopher Lind
Neurosurgery on the experimental spectrum

ANS 40th Annual Scientific Meeting in 2022

Notifications

Become an ANS member or student member!

Please join us by becoming a Member of ANS.

You can join online at any time!

<https://tas.currinda.com/register/organisation/172>

Check out our website and follow updates on the ANS Twitter account or via our Facebook page.



<https://www.ans.org.au>



<https://twitter.com/AusNeuroSoc>



<https://www.facebook.com/AusNeuroSoc>

Acknowledgements

ANS Executive

ANS President

Prof Peter Schofield
*Neuroscience Research
Australia (NeuRA)*
Sydney, NSW, 2031
T: +61-2-9399-1604
p.schofield@neura.edu.au

ANS Secretary

A/Prof Michael Lardelli
*Alzheimer's Disease Genetics
Laboratory, Department of
Molecular Bioscience
School of Biological Sciences
The University of Adelaide*
Adelaide, SA, 5005
T: +61-8-8313-3212
michael.lardelli@adelaide.edu.au

ANS Treasurer

Dr Jana Vukovic
*Faculty of Medicine
(Biomedical Sciences) /
Queensland Brain Institute
The University of Queensland*
St. Lucia, QLD, 4072
T: +61-7-3365-2818
jvukovic@uq.edu.au

ANS Conference Executive Chair

A/Prof Timothy Bredy
*Queensland Brain Institute
The University of Queensland*
St. Lucia, QLD, 4072
T: +61-7-3443-3005
t.bredy@uq.edu.au

Sponsors *(We thank our Society partners)*

- Melbourne Neuroscience Institute, The University of Melbourne
- Neurological Foundation of New Zealand
- Otago Division of Sciences, University of Otago
- University of Tasmania
- The Florey Institute of Neuroscience and Mental Health
- The Eccles Institute of Neuroscience, The John Curtin School of Medical Research, Australian National University
- Centre for Neuroscience, Flinders University
- Centre of Excellence for Integrative Brain Function, ARC Centre of Excellence
- South Australian Health and Medical Research Institute
- Hopwood Centre for Neurobiology, South Australian Health and Medical Research Institute
- Queensland Brain Institute, The University of Queensland

ANS Communication Committee

Newsletter Editors

Dr Marco Morsch
*Macquarie Medical School,
Faculty of Medicine, Health
and Human Sciences,
Macquarie University*
Sydney, NSW, 2109
marco.morsch@mq.edu.au

Dr Nathalie Dehorter
*Eccles Institute of
Neuroscience, The John
Curtin School of Medical
Research, The Australian
National University*
Canberra, ACT, 2601
nathalie.dehorter@anu.edu.au

Authorised by

A/Prof Michael Lardelli
*Alzheimer's Disease Genetics
Laboratory, Department of
Molecular Bioscience School
of Biological Sciences
The University of Adelaide*
Adelaide, SA, 5005
michael.lardelli@adelaide.edu.au

Message from the President

The year is already half way over, but that means it's time to submit an abstract and register for this year's Conference, being held at the Pullman Albert Park in Melbourne from the 5th to the 7th of December. I for one, am certainly looking forward to meeting in person once again and hope to see you there.



**Prof Peter R
Schofield AO**

President, ANS
p.schofield@neuro.edu.au

Annual Scientific Meeting – Melbourne

To increase the value of the Conference to all participants, the Local Organising Committee have made some significant changes to the program, which include fewer concurrent sessions, the introduction of data blitz speaker opportunities for ECRs and expanded oral sessions. Abstract submissions for oral presentations will close on Friday 12 August, so please consider presenting your work to your colleagues.

Thank you to those members who have already registered, and I encourage members to register to benefit from the early bird rates which close on Friday 19 August. And the first 150 student registrations are also being subsidised to encourage our emerging neuroscientists to present their work.

To help us all “Reconnect the Network2”, the program includes a specific ECR event being held on the night of the conference welcome and there are significant subsidies for ECRs to attend all activities during the meeting. I would also like to encourage you to stay at the conference hotels the Pullman Albert Park or the Mercure Albert Park so we can increase our interaction and engagement.

Annual Membership Renewal

Thank you to the many members who have renewed their membership of the Society. Your continued support is greatly appreciated. Council agreed that we should not increase 2022/23 membership fees, plus for those who can provide a long-term commitment through a 3-year regular membership, there is a 10% discount, making this choice even more economical!

To those who haven't yet renewed, there are many reasons and benefits of belonging to ANS, but one of the biggest incentives is the substantial discount for attending the Annual Scientific Meeting in Melbourne. An ANS member with an early-bird registration will save \$300 compared to non-member registrants, making your \$165 membership fee well worthwhile.

Australasian Course in Advanced Neuroscience – ACAN

The Australasian Course in Advanced Neuroscience (ACAN) is an intensive three-week course that teaches both advanced theory and hands-on-practice of latest neuroscience techniques after covid-delays and a virtual course in 2021. Applications have now closed for this year, with a record number received. Twelve students - from all over Australia (WA, TAS, NSW, ACT, VIC, QLD) and New Zealand (Auckland and Otago) - have been selected to attend the 2022 course which will be held at the Florey Institute of Neuroscience and Mental Health and the University of Melbourne from the 9th to 29th of October. The course is designed to give students the skills to design and implement state-of-the-art experimental techniques in cellular and systems neuroscience. Key themes include the fundamentals of single-cell electrophysiology such as the excitable cell and synaptic transmission; cortical processing and neuronal networks focusing on in vitro and in vivo imaging techniques; and brain systems and behaviour focusing on neuromodulatory systems and behavioural neuroscience. By the end of the course, students will be proficient in patch-clamp recording, calcium imaging, optogenetics, pharmacogenetics and behavioural manipulation, amongst other techniques.

My sincere thanks go to the Course Director Chris Reid and Co-Directors Karl Iremonger, Ian Forster Lucy Palmer and Jay Bertran-Gonzalez for their outstanding commitment to delivering such an amazing opportunity to the early and mid-career researchers in the neuroscience community.

(Message from the President ... continued)

ANS Awards

The Society recognises the work and achievements of its members through a range of prestigious awards which are presented at the Annual Scientific Meeting.

A.W. Campbell Award

Awarded for the most outstanding contribution by a member of the Society in their first five postdoctoral years

Mark Rowe Award

Awarded annually for the best publication by an early career researcher.

Nina Kondelos Award

Awarded to a female neuroscientist for outstanding contribution to basic or clinical neuroscience research.

Paxinos-Watson Award

Awarded annually for the most significant neuroscience paper published by any member of the Society.

Nominations closed on Friday 31 July.

Contributions from our members

In this issue of the Newsletter, we have a range of contributions featuring the activities of our many members. One of the Society's founding scientists and past President, Marcello Costa has formally retired after many years of service. We wish him well. Another former President George Paxinos has endowed ANS awards with royalties received from his various brain atlases. First and perhaps foremost amongst these is The Rat Brain in Stereotaxic Coordinates, which is celebrating 40 years since first publication, and George has shared some insights about this and current work. The life of Bill Levick FRS FAA, one of our honorary life members and a wonderful contributor to discussions with students at ANS Conferences, is also celebrated.

Message from the Secretary

On Friday 24 June I had the very rewarding experience of attending the retirement symposium held for former ANS President and Honorary Life Member Prof Marcello Costa AO FAA at Flinders University. I will not describe the many eminent guests who spoke at the symposium for fear of insufficiently acknowledging someone's contribution. However ANS President Elect Janet Keast flew in from Melbourne to relate her time as a Ph.D. student under Marcello's guidance! She also extended congratulations to Marcello on behalf of the ANS at the celebratory lunch the following day.

Two things impressed me greatly at the symposium and lunch. The first was the variety of Marcello's interests, activities, and achievements. Political radical, musician, painter, mountaineer/explorer, philosopher, haranguer-of-administrators, friendly interrogator (of scientific colleagues, guests and their ideas), and world-renowned neuroscientist. And passionate Italian family man. And much more! He has written an historical overview of his life so far, "Marcello Costa Science History" and has kindly agreed that it can be made available for ANS members to access through the members only area of the ANS website. An extremely abbreviated and inadequate summary can be seen here. The second very notable impression I took from the retirement celebration was the curiosity, joy, creativity,

August 2022

(Message from the Secretary ... continued)

collegiality, and friendship that has held together the community of neuroscientists at Flinders University from the 1970s until today. It really has been one, big, mostly happy, very international but profoundly Australian family. I dream that our current era of excessive career uncertainty might one day cycle back to more carefree times like those earlier decades of neuroscience at Flinders University.

Of course, the ANS exists to promote community among neuroscientists – and their research – in our corner of the world. The society can only exist through the efforts of the volunteers who fulfill its various offices. Most positions on the ANS Council have terms of two years with the possibility of reelection to a further two, so many of the positions require new occupants soon. There are also observer-status positions available on the ANS Executive (Secretary Elect, Treasurer Elect, and Conference Executive Chair Elect) that allow people to familiarize themselves with these roles before taking them on. Please consider whether you might be interested in one of these positions to see how the ANS works from the inside. I will soon write to the membership to call for nominations to available ANS Council positions and I hope to hear from you then.

Michael Lardelli

Secretary, ANS
michael.lardelli@adelaide.edu.au



Marcello Costa retirement celebration symposium



Marcello Costa retirement celebration lunch

Reconnecting the Network²

The ANS annual society in-person meeting is happening December 5th to 7th in Melbourne!!! It's our 2nd attempt to 'Reconnect the Network' after the unfortunate cancellation of last year's face-to-face meeting, but even more reason why this year's event will be Reconnecting BOOSTED!

The LOC have worked hard tailoring this year's meeting to focus on key aspects we see valuable for society members. The meeting will be held at the Pullman Hotel Albert Park in Melbourne, a venue integrating both conference facilities and accommodation, to provide concentrated opportunities for interaction and engagement. Your registration fees will be fully inclusive of lunches and breaks so we have you fully covered.

Increasing EMCR representation, engagement and opportunities is a strong focus for this year's meeting so we have included multiple initiatives to address this. The program has been streamlined with 3 current sessions to maximise engagement. We have 12 stellar Symposia with international and national experts representing a breadth of neuroscience, that will also showcase exceptional ECR poster blitzes. This will be complemented with several Oral Sessions to be confirmed soon after the official oral deadline so get your abstracts in! The ANS Equity and Diversity Committee will also host an important panel session to discuss critical topics to drive change.

On the social front, there will be a fantastic Welcome Reception (cost included in registration). We are also having an Early Career Researcher (students and postdocs) quiz night with pizza and beer (just \$10; limited seats) so be sure to sign up when registering to meet some neuroscience friends or make new ones. Lastly, you won't want to miss the conference dinner either. Plenty of great food, drinks, a fabulous band plus maybe a couple of extras that we can't tell you about yet. Again, we've dug deep to make this affordable with dinner tickets heavily subsidised under cost price for students (only \$45!!) and members at \$99 so don't miss out.

We understand international borders are now open and everyone is keen to get to overseas meetings, so you might be evaluating which ones to go to. But don't forget the immense value and necessity of supporting our national neuroscience. If you value it, you need to show it #StrongerTogether. The #ANS2022 LOC has invested enormous time and energy to see our national meeting succeed from both an academic and social community perspective. Let's Reconnect the Network. We are looking forward to seeing you all there.

Zane Andrews and
Jess Nithianantharajah

ANS2022 LOC Co-Chairs, On behalf of the LOC

ANS 2022 AUSTRALASIAN NEUROSCIENCE SOCIETY
40TH ANNUAL SCIENTIFIC MEETING

RECONNECT THE NETWORK²

Pullman Albert Park, Melbourne, Australia
5-7 December 2022

Australasian Neuroscience Society

PLENARIES

- Tara Spires-Jones**
Imaging synaptic changes in Alzheimer's disease
- John Bekkers**
Understanding the brain through the nose
- Christopher Lind**
Neurosurgery on the experimental spectrum
- Anthony Hannan**
Gene-environment interactions modulating brain function within and between generations
- Helen Cooper**
Deciphering the role of autism genes in cortical development: from stem cells to synapses

SYMPOSIA

- The diverse actions of stress on appetitive and anticipatory behaviour**
Chris Dayas | Zane Andrews | Jaldeep Bains | Leigh Walker | Roberta Anversa
- Seedlings to forests: Growing a collaborative cerebrovascular research pipeline from the ground up. The StrokeCORE model.**
Michelle Rank | Tara Walker | Quynh Nhu Dinh | Kirsten Coupland | Michael Tymianski | Christoph Hagemeyer
- Breaking New Ground: The brain, its development and disease**
Sarah Stephenson | Annette Schenck | Ryan Lister | Dad Abu-Bonrah | Silvia Velasco | Laura Fenfen
- Restructuring the striatal mosaic: macro and micro-circuit interactions in learning-related plasticity**
Bernard Balleine | Raffaella Tonini | Simon Fisher | Miriam Matamalas | Nathalie Dehertor
- Glial dysfunction and morphological changes in neurodegenerative and neuroinflammatory diseases**
Erika Gyengesi | Caterina Scuderi | Markus Hofer | Amy Smith | David Gansbaek
- The new era of psychedelic neuroscience and pharmacotherapy: A multidisciplinary perspective**
Ilysa Conn | Chris Lettby | Adeel Razi | Devon Stolker | Sarah-Catherine Rodan | Claire J Foldi
- Adaptation: neural basis of context-dependent sensory processing**
Daisuke Shimaoka | Saba Gharazi | Elise Rowe | Maureen Hagan | Ethan Scott | Luke E Hallum
- Advances in autonomic control of visceral organs**
John Furness | Stewart Christie | Natasha N Kumar | Kelsi Dodds | Phillip Jobling | Janet R Keast
- Once upon a time**
Adam Walker | Seth Masters | Mouna Haidar | Catherine Blizzard | Lezanne Goo | Anthony White
- Gene therapy for neurological disorders**
Cliff Abraham | Sophie Mathiesen | Deberah Young | Lucia Schweltzer | Thomas Edwards | Sam Nayler
- Neuroscience Teaching**
Kay Doukle | Gabrielle Todd | Jack Wang | Lila Landowski | Bianca De Wit
- Advances in Neurogenetic Techniques**
Nick Spencer | Harald Janonjak | Mariana Del Rosso de Melo | Brett Graham | Rachael Richardson

Early Bird Registration Closes
Wednesday 31 August 2022
*bonus subsidy for the first 150 students that register

Abstract Submission Closes
Friday 12 August 2022 (oral)
Friday 21 October 2022 (posters)

ANS 2022

Early Career Researcher Quiz Night

December 5

A focus on Neurotechnology developments in New Zealand

August 2022

Te Titoki Mataora, a new initiative which brings together the MedTech Research Network and the Aotearoa Brain Project, hosted a combined conference in Auckland during the HealthTech week (27-30 June) run by Medical Technology New Zealand, The Consortium for Medical Devices, and Callaghan Innovation.

The Aotearoa Brain Project – Kaupapa Roro o Aotearoa, developed out of the Brain Research New Zealand Centre of Research Excellence to strengthen translational neuroscience research activity in New Zealand, is partnering with the MedTech Research Network to run Te Titoki Mataora as an initiative to foster more research activity in the neurotechnology field.

The conference was intended to encourage networking and interaction with a strong focus on Early Career Researchers or Future Leaders. To this end the program (<https://healthtechweek.nz/Programme/19596/>) included mentoring sessions, team ideation activities and 'speed dating', along with inspiring talks and panels highlighting successful neurotechnology developments and the translational journey to commercialization.

As a principal speaker, Associate Professor Samantha Holdsworth from the University of Auckland and Mātai (a Charitable Trust) gave a fascinating and inspiring presentation on the development of Mātai, an outstanding clinical and research MRI imaging initiative based in Gisborne, a small, rural centre on the East Coast of the

North Island of New Zealand. Essentially Mātai (<https://matai.org.nz>) is focused on enhancing the capabilities of medical imaging using new and advanced software, post-processing and artificial intelligence. But, importantly it is intensely collaborative, supporting and involving its local community, encouraging research that addresses community interests (for example TBI, and a longitudinal study of children and youth from the community) and encouraging skill development locally and bringing high tech industry to this small remote town.

In an excellent panel discussion facilitated by Paul Breen from Western Sydney University, Richard Little (CE of Exsurgo), Professor John Reynolds (University of Otago), Professor Maggie-Lee Huckabee (University of Canterbury) and Associate Professor Soroush Safaei discussed innovation and collaboration in neurotech research. Drawing on their own experiences, they highlighted the huge need and importance of developing technologies that will improve brain health and alleviate neurological conditions. They also talked of the importance of interdisciplinary collaboration, having the courage to back your ideas as well as communicate them effectively, and to consider relevant ethical issues.

In the TE KETE MATA KOI session, researchers with various backgrounds provided insights into their neurotechnology projects. Te Kete Mata Koi translates in English as 'the basket with the sharp edge' which here refers to the sharp edge of the blade and alongside it is the suggestion of success – thus stories from the cutting edge.

In other highlight presentations, Professor John Reynolds talked about his development of a novel approach to deliver drugs through the circulation to the brain in a timed way for Parkinson's disease, Dr Sebastian Koenig the CEO at Katana Simulations talked about the lessons learned from industry-academia partnerships, Professor Maggie-Lee Huckabee, gave a fascinating account of her work in voice therapy and by learning from her clinical patients with voice disorders she developed a biofeedback system to assist people to learn how to swallow again, and Professor Mark Billingham from the Empathic Computing Lab at the University of Auckland talked about the importance of collaboration, using their work to enable human-computer interaction with a greater mix of voice, gesture, speech, gaze and body motion as an example.

The issues of ethics in neuroscience research was highlighted in a talk by Professor Ali Knott, University of Otago, on AI modelling in neuroscience. Using his research on AI and human-computer interfaces and the creation of Digital People (BabyX as an example), he highlighted the potential ethical issues in AI and neuroscience research involving human-computer interfaces and even the development of Digital People and the interaction with them in a digital world.

August 2022

*(A focus on Neurotechnology developments
in New Zealand ... continued)*

A major theme throughout the meeting was the importance of engaging and partnering with Māori and Māori communities with the aim of reducing inequities in brain health and identifying ways to include Māori in designing and implementing brain research. There were many opportunities throughout the meeting to hear from Maori in formal presentations but highlights were the panel discussions with Māori, particularly students from the Bachelor of Nursing (Māori), to hear of their experiences participating in research projects or connecting with researchers.

Underpinning this theme was the strong view that diverse teams, comprising people with different backgrounds and experience, provides an advantage in working with complex problems like those found in neuroscience. Not only were teams often diverse in interesting ways, with people from different disciplines enabling strong progress in problem definition and finding novel approaches to address these issues, but many presenters also had a diverse set of roles in their careers, further strengthening the perspectives and knowledge bases of their teams.

Prof Wickliffe Abraham

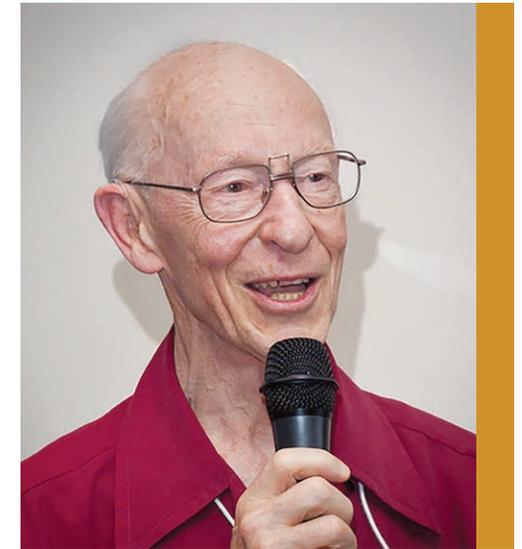
*FRSNZ, Post-Doctoral Department of Psychology and Brain
Health Research Centre, Aotearoa Brain Project-Kaupapa
Roro o Aotearoa, University of Otago
PO Box 56, Dunedin 9054 New Zealand T: +64-(0)3-479-7648
<https://www.otago.ac.nz/psychology/staff/cliffabraham.html>*

William Russell (Bill) Levick (FRS, FAA), Professor Emeritus, The Australian National University (1931-2022)

Bill was one of Australia's most distinguished neuroscientists, making fundamental contributions to our current understanding of the neural circuitry of the retina and the visual pathways.

*Right: Bill at the Vision
Down Under meeting in the
Gold Coast hinterland, 2012.
Photo taken by David Vaney.*

Bill grew up in Bondi and studied medicine at the University of Sydney, winning two gold medals, for physiology (1952) and for medicine (1956). After two years of residency at the Royal Prince Alfred Hospital Sydney, Bill embarked on a research career with the support of NHMRC's C.J. Martin Fellowships at the Universities of Cambridge, and California at Berkeley. Working with Horace Barlow at Cambridge and Berkeley, he produced one of the most influential papers in visual physiology (*Journal of Physiology*, London, 1965), by proposing a mechanism for direction selectivity of the eye's output neurones (retinal ganglion cells). The model proposed from their experiments, in which inhibition plays a crucial role in sculpting response properties of sensory cells, has inspired hundreds of studies in various fields. Levick, Barlow, and colleagues also showed that retinal ganglion cells could respond even to very small changes in quantal absorption of photons, with reliability limited ultimately by the stochastic nature of light.



On returning to Australia from the USA, after a short period as senior lecturer at the University of Sydney, Bill took up appointment as Professorial Fellow in the John Curtin School of Medical Research at the Australian National University in 1967. There he launched a series of studies on the cell types in the retina and their projections to the thalamus. Bill and colleagues demonstrated the relationship between structure and function in the early visual pathways, providing crucial evidence for parallel channels carrying different types of signals from the sense organs to visual centres of the brain. They also developed an intricate technique for obtaining simultaneous recordings from directly connected cells in retina and thalamus. They thereby demonstrated, contrary to the prevailing anatomical

August 2022

(Bill Levick (1931-2022) ... continued)

consensus, that the excitatory input to a thalamic neurone came from one or just a few retinal ganglion cells.

Further work by Bill and colleagues challenged the prevailing orthodoxy that the cerebral cortex is the first site where neural integration happens in vision. They showed that many aspects of visual processing are already determined in the retina, where there is rich diversity of receptive field classes, temporal and spatial selectivity, and even systematic preference for oriented stimulus contours, a complex property which was long believed to be first generated in the cortex.

Though he officially retired in 1996 at the age of 65, Bill shifted his lab to the School of Psychology at the ANU as a Visiting Fellow in Psychology and Emeritus Professor of ANU, and continued to work for a number of years. Bill's influence outside the lab continued well into his eighties. He always attended the annual meetings of the Australian Neuroscience Society (from its early days), interacted intensely with the attendees (old and young alike), and was elected an honorary member of the society. He also collaborated in producing a highly influential paper in Science in 2000, which vindicated using modern techniques the model he had proposed with Horace Barlow in 1965.

In recognition of his extensive and significant contributions to visual neuroscience, he was elected to the Fellowships of the Australian Academy of Sciences (1973), the Optical Society of America (1977) and the Royal Society (1982).

The pre-eminence of Australia in retinal neurobiology owes much to Bill's personal contributions as well as those he worked with and others he influenced. Bill had a unique knack of getting quickly to the crux of a concept or a finding and exposing any flaw or inconsistency in a polite and collegial manner. With his inimitable style of intellectual engagement and his wide and profound scholarship he influenced many neuroscientists, who will remember and treasure their encounters with Bill with gratitude.

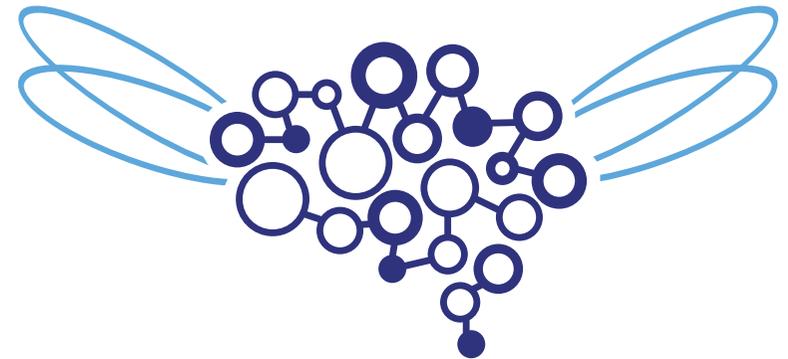
Bill Levick passed away peacefully on the 5th of May 2022 in Canberra at age 90. He is survived by his wife Patricia, son Greg and daughter Cathy.

Text prepared by

**Trichur (Sagar)
Vidyasagar**

International Brain Bee Challenge 2022

Calvin (Jiaxi) Zhu, of Yarra Vally Grammar School in Melbourne represented Australia at the International Brain Bee 2022 as the Australian National Champion for the Brain Bee Challenge. The IBB was held as a virtual competition spread over three days, all under invigilated conditions. He was placed 4th out of 31 international competitors, a performance that the IBB described as outstanding and impressive.



40th anniversary of the publication of The Rat Brain in Stereotaxic Coordinates

August 2022

Is the brain in the Goldilocks zone?



Figure 1. Prof Charles Watson
and Prof George Paxinos

On the 40th anniversary of the publication of *The Rat Brain in Stereotaxic Coordinates* (Paxinos and Watson, 1982), I take the opportunity to write something of my journey through the brain and a bit beyond.

Atlases can be likened to scientific theories. Like theories they provide a means for finding our way in strange domains.

The idea of constructing an atlas came to me while on a sabbatical at Cambridge in 1976. There, I used acetylcholinesterase (AChE) as a proxy (poor at that) for acetylcholine. Looking at the brain stained for AChE was like looking at a coloring-in book that was already colored. I was immediately convinced I would be able to construct an accurate atlas of the rat brain, notwithstanding I was only a psychologist. In 1977, I sought help from Charles Watson who was a real anatomist and we subsequently worked together for 45 years. Fig 1 is a 1981 photo with Watson to my left.

The most satisfying part of working on an atlas is stumbling on a nucleus not known to science or establishing an unknown homology. When that happens, we stop work and Watson, who plays the saxophone, plays the saxophone.

The gain in the brain is mainly in the stain (Floyd Bloom, 1973). Chemoarchitecture did not only assist in deciphering the boundaries of structures in the brain of one species, but also in establishing the homologies between species (mouse, rat, monkey, bird, human).

Some of my other closest colleagues on these atlases have been Juergen Mai, Ken Ashwell, Keith Franklin, Matthew Kirkcaldie, Xu-Feng Huang, Gulgun Sengul, Luis Puelles, Pascal Carrive and Teri Furlong.

An MRI atlas of the living human brain now keeps us busy: Steve Kasse, Mark Schira and I are segmenting images from Mark's brain, images which permit us to make segmentations of the living human that approach in detail those of histological atlases. Fig 2 shows, from left to right, Kasse, Schira and Paxinos delineating images of Schira's brain. Fig 3 shows axial (horizontal) images and a diagram of the atlas we are constructing.

Neuroscientists have convinced much of the public that the mind is the puppet and the brain is the puppeteer. Given the importance of the brain, it would be nice to know if it is the right "size." My syllogism is that if the brain were smaller than what it is, it would not have been able to support language which permitted the development of science and technology that today threaten existence. If, on the other hand, the brain were larger than what it is, it might have understood the problem and even solved it. My conclusion: The brain is not in the Goldilocks zone - it is not the right "size".

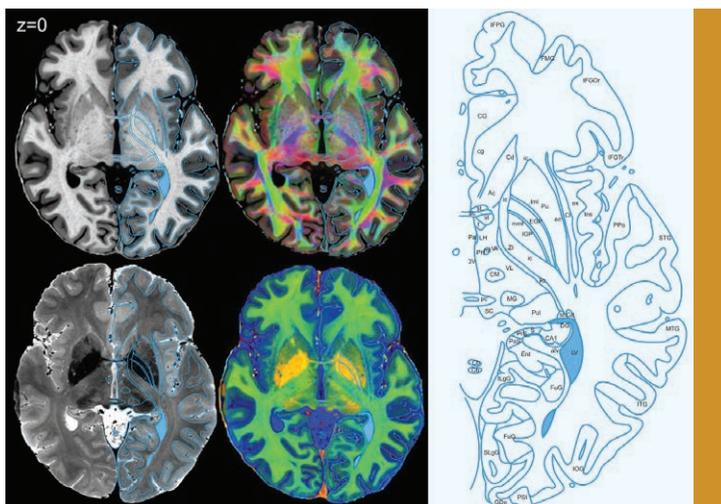
August 2022

(40th anniversary of the publication of The Rat Brain in Stereotaxic Coordinates ... continued)

I think there is no chance humans will construct a sustainable society, but also there is nothing more important than attempting this. Considering this issue, I wrote an eco-fiction novel *A River Divided* that might have broken a record in the time it took me to complete – 21 years. Neuroscience principles were used in the formation of charters, such as those related to the mind, soul, free will and consciousness. Environmental issues are at the centre of the novel, including the question of whether the brain is the right “size” for survival. Please see <https://www.georgepaxinos.com.au>

I leave you with a wish: may your brain shrink less than expected for your age.

*Top: Figure 2. Dr Steve Kassem, Dr Mark Schira and Prof George Paxinos.
Bottom: Figure 3. Images and a diagram of the atlas under construction.*



Equity and Diversity Committee EOI

The Equity and Diversity Committee is committed to providing equality of opportunity to the ANS members by (i) promoting gender balance in committee and conference positions; (ii) supporting increased opportunities for caregivers to engage with ANS; (iii) increasing awareness of the obstacles to gender equity and strategies to address them; (iv) promoting initiatives to support conference attendance by researchers from underrepresented areas in our region; and (v) being an influence for positive change in academic institutions, funding bodies, and society more broadly.

We seek an EOI for an additional member, preferentially from WA, Tasmania, ACT, or NT (states that are currently not represented in the committee) but not necessarily. ANS members from diverse cultural backgrounds, LGBTIQ+ individuals, individuals with disabilities, and Aboriginal and Torres Strait Islander or Māori individuals are particularly encouraged to apply.

If you are passionate about E&D and are interested in joining, please provide a brief document explaining your interests in being part of the E&D Committee and how would you like to contribute, and attach your CV.

Please send your application to the E&D Committee Acting Chair:
A/Prof Gila Moalem-Taylor, email: gila@unsw.edu.au

**A/Prof Gila
Moalem-Taylor**

*E&D Committee Acting Chair,
with input from the ANS E&D
Committee*

ANS EMCR Showcase

Dr Teodora Georgescu

*Postdoctoral Research Fellow, Centre for Neuroendocrinology,
University of Otago, Dunedin, New Zealand.*



I have been working in the field of neuroendocrinology since completing a PhD which focused on the regulation of feeding by hypothalamic neurons. At the end of my doctoral training, I joined the laboratory of Prof. Dave Grattan (Centre for Neuroendocrinology) where I had the opportunity to apply my skills in a key area of women's health, the adaptation to pregnancy. For the past 2 years, I have worked in the laboratory of Dr Rosie Brown (Centre for Neuroendocrinology) to investigate how the brain regulates maternal responsiveness. Together with Dr Brown, I have generated exciting data demonstrating a crucial role for hormones in modulating postpartum behaviour. In particular, our study was focused on understanding how maternal protective behaviours of mothers are regulated by prolactin during lactation. The functionally pleiotropic hormone, prolactin, is high during pregnancy and lactation and controls numerous other maternal adaptations. We initially hypothesised that prolactin would induce maternal protective behaviours by acting on its receptors located in the ventromedial nucleus of the hypothalamus. Conversely however, we revealed a role for this hormone in restraining aggressive protective behaviour so mothers can concentrate more on caring for their offspring. This study is particularly important since up to one in five new mothers struggle with some form of mood disorder. Having a better understanding of how mood is regulated during pregnancy and in the postpartum period will help identify amenable therapeutic targets to treat these women. This study was recently published in PNAS: <https://www.pnas.org/doi/10.1073/pnas.2116972119>

I am particularly excited about the possibility of coming up with new and innovative ways to understand specific brain functions and linking those to behavioural and physiological changes. I have been very fortunate to be supported by excellent mentors (Dr Rosie Brown & Prof. Dave Grattan) who have encouraged me to develop my own ideas and projects. This independence and ability to innovate is what I enjoy most about my job. Academia is very competitive but it can be a lot more bearable if we help each other. My long-term ambition is to establish an independent laboratory that seeks to understand how brainstem circuits govern neuroendocrine processes, with a particular focus on the adaptations required for pregnancy and lactation. Most of my hobbies revolve around my dog, but I particularly enjoy photography, hiking, and dog sports.

teodora.georgescu@otago.ac.nz

<https://www.otago.ac.nz/neuroendocrinology/research/dave-grattan.html>

2021 Paxinos-Watson Award

I am both grateful and proud that our recent paper in *Cell* was selected for the 2021 Paxinos-Watson award. We all know these icons of Australian neuroscience and to receive an ANS medal engraved with their names is just very, very special to me, particularly so because I have been lucky to get to know Charles personally.

Charles and I met in 2007 because I was looking for someone to help me identify brain structures that were infiltration sites for blood-borne immune cells. Many meals later, an enduring friendship developed. To now have this medal in my office makes me smile, every time I look at it, as it reminds me of the fun times we had together, his mentorship and also the many obsessions he has in and outside of neuroscience, including the patterning of the isthmus, Luis Puelles, rice pilaf, and many more.

It is also interesting to reflect on the fact that my career may have taken a different turn if I had not met him. It was indeed Charles that facilitated my move to UQ upon completion of PhD studies in WA. I am hoping that this illustrates to the upcoming researchers how important it is to connect with people at a personal level. Sometimes interactions that appear just amusing at the time, turn out to be absolutely defining moments for your career and life path.

We have the ANS 2022 conference in Melbourne to look forward to at the end of the year. To our students and early career researchers, this could be your opportunity to meet your own 'Charles' (or THE Charles). Take the opportunity to meet people, soak in the science and have some genuinely fun times (sprinkled with few awkward conversations and that's just fine). On that note please do approach me - I would love to meet you. Come along, put yourself out there and share our passion for neuroscience. Personally, I think that after all this, I have to put on my brave shoes, reach out and introduce myself to George.

In the meantime, when it comes to thinking about your scientific career, I find that the Ikigai diagram offers a concise summary. Note that the bubbles should be thought of as dynamic, vibrating and floating in time and space, and that there are many times when they don't overlap but that we live for those moments when they do. We must always remind ourselves that we are active agents with a certain amount of influence to make the bubbles overlap. Which bubble is important to you, and which bubble do you need to move and how? Tell me what you think during the morning tea @ANS 2022!



Dr Jana Vukovic received the 2021 Paxinos-Watson medal

ANS Developmental Neuroscience Forum

The ADNF board is saying goodbye to one of their co-chairs, Dr Julian Heng, who is stepping down from his committee organisation roles to allow the transition of new members, Dr Laura Fenlon, The University of Queensland. Julian was instrumental in establishing the concept of the ADNF, and we owe much of the success of the event to his tireless enthusiasm and selfless ambitions to build and strengthen the developmental neuroscience community. We are sure the broader community will join us all in thanking Julian for his efforts to build this forum and wish him all the best for his future endeavours.



Post-doc position in the lab of David Attwell

Post-doc position in the lab of David Attwell to work on control of cerebral blood flow in dementia

*Department of Neuroscience, Physiology and Pharmacology
University College London, UK*

Applications are invited for a post-doctoral position in a friendly, international and highly interactive neuroscience research group in London, studying how cerebral blood flow decreases in dementia and other neurological conditions, and how blood flow changes may be reversed therapeutically.

Two-photon, CCD and confocal imaging, electrophysiology, calcium imaging, histological techniques and mathematical modelling will be used in vivo and on brain slices to study the control of blood flow in the brain and retina, in rodents and in human tissue from neurosurgical operations, both in health and in pathological conditions.

The current focus of our vascular work is on the control of blood flow at the capillary level, and on how immune cell function impacts on this, but the post-doc will have considerable freedom to devise their own projects. The salary will be according to experience and number of years from obtaining a PhD (~£40K/year straight out of a PhD). Start date is flexible, but could be immediate.

Further information is available from David Attwell, by emailing a CV and names of referees to d.attwell@ucl.ac.uk

<https://www.ucl.ac.uk/biosciences/david-attwell>

Australasian Neuroscience Society

Held on Zoom 05/04/2022 @ 14:00 AEST

1. Attendance, Apologies, Quorum (PS)

In Attendance: Peter Schofield (President and Chair), Michael Lardelli (Secretary), Jana Vukovic (Treasurer), Janet Keast (President-elect), Timothy Bredy (Conference Executive Chair), Nathalie Dehorter, Jason Mattingley, Marco Morsch, Tara Walker, Nicole Jones, Johanna Montgomery, Catherine Blizzard, John Bekkers, Tony Hannan, Greg Stuart, Chris Reid, Aaron Lucas (TAS).

Apologies: Zane Andrews, Hamid Sohrabi, Ashleigh Geiger, Jess Nithianantharajah

The Chair welcomed the Council and opened the meeting at 2:03pm (AEST) with an Acknowledgement of Country.

2. Declaration of Conflicts of Interest (PS)

No conflicts were declared for this meeting.

3. Confirm Minutes of Previous Meeting (PS)

3.1 Resolution: That Council RESOLVE to ACCEPT the Minutes of the previous meeting of 7 December 2021.

The minutes of the previous meeting held 7 December 2021 were accepted.

Motion Carried.

4. Matters Arising from Previous Meeting (PS)

The action tracker was reviewed and updated.

Create an action plan on ANS's response to funding and research changes and how this may effect neuroscience research and careers in the future – was on hold as ANS engaged with STA and supported their approach. 2022 Federal Budget did contain funds for commercialisation for universities. Tony Hannan commented that the NHMRC restructure had been to the detriment of neuroscience. The 2022 Federal Election would result in a new Federal Health Minister which was an opportunity for renewed advocacy. Jason Mattingley provided an outline of the Australian Brain Alliance advocacy platform and activities.

5. President's Report (PS)

5.1 President's Report – DISCUSSION

The questions from the ARC Consultation on the inclusion of preprints in the ERA were

Minutes for ANS Council Meeting

discussed by the Council. ANS' response would be provided to STA to form part of their response to the consultation.

The Council was broadly supportive of the inclusion of preprints, noting they provide quicker access to new research. Journal publications remain important.

Jana Vukovic reported on the STA member briefing for the 2022 Federal Budget, advising that there had been no change in funding for NHMRC.

6. Secretary's Report (ML)

6.1 General Report – DECISION/DISCUSSION

Michael Lardelli reminded Council members of the ANS Dropbox and outlined the reasoning behind using it.

Motion: That the Council approve the adoption of the Australasian Neuroscience Society (ANS) Neuroscience Research Representative Position Description as detailed in the Secretary's Report.

Moved: Jason Mattingley

Second: Jana Vukovic

Motion Carried.

The Council discussed issues facing award assessment panels when reading submissions from neuroscientists working in different disciplines. There were some concerns about

making the assessment criteria too structured and too openly available.

The Chair, Peter Schofield, proposed to the Council that it would provisionally approve the updated language in the ANS Awards assessment criteria, pending circulation of the updated documents by the Secretary, Michael Lardelli for comment. Any issues arising from the comments would be delegated to the ANS Executive for resolution. This would expedite the approval of updated ANS Awards criteria for publication and maintain the expected timeline for the Awards process. Council members present agreed with this approach.

Peter Schofield asked that Council members who are in their first term to consider if they will continue for a second and to make their intentions known to himself or Michael Lardelli. Peter also reminded Council members that similar to the President-elect role currently occupied by Janet Keast, there can be a Secretary-elect and Treasurer-elect.

John Bekkers confirmed that wording and spirit of the constitution indicates that while two consecutive terms can be served by Council and Executive members, nominations and an election still need to be called for even if a Council or Executive member indicates they are willing to serve a second term.

Minutes for ANS Council Meeting

Actions #6.1

(Not Yet Started) Michael Lardelli would add language to the assessment criteria that indicates that the assessment panel would provide a recommendation to the ANS Council for final decision on the award recipient. This would be circulated via email to Council members for discussion and final approval.

Michael Lardelli

6.2 TAS Management Report

The report was tabled as read.

6.3 ANS Membership Report

The report was tabled as read.

7. Finance Reports (JV)

Jana Vukovic reported on issues with accessing the ANS bank accounts, advising the Council that a compliance activity by CBA had resulted in her being the only person able to access the accounts.

Chris Reid updated the Council on the purchase of specific equipment for ACAN to use in executing the course.

7.1 Finance Report – DECISION

Jana Vukovic provided background to the relationship ANS has with GFM wealth, and updated the Council on the proceedings of the

recent meeting between the Executive, ACAN representatives and GFM Wealth.

The Council discussed ethical investment options, not just in terms of scientific and/or medical research and health outcomes but also environmental considerations.

Motion: That the ANS Council adopt the ANS Investment policy as detailed in 7.1.A

Moved: Timothy Bredy

Seconded: John Bekkers

The motion was carried unanimously.

7.2 STA – Member Event – 2022 POST-BUDGET BRIEFING

This item was not discussed at the meeting.

8. Conference Update (TB)

Timothy Bredy updated the meeting on the ANS2022 meeting.

- Discussions with the Pullman in Melbourne are ongoing
- 16 Exhibitors signed
- Responses from potential sponsors have been positive

Tim also reminded the meeting of the unused FENS Scholarship funds from 2020 & 2021, they are mostly unspent due to the COVID-19 pandemic. He asked the Council if the unspent funds could be used to support student attendance at the gala dinner. This would also be in place of a dedicated EMCR event on the first night of the ANS2022 meeting. At the time of this Council meeting, there had been no formal discussion between the meeting LOC and EMCR committee.

The Council is supportive of finding ways to encourage student and EMCR attendance and participation at the ANS2022 meeting gala dinner.

9. Committee and State Reports (PS)

9.1 ACAN Update (CR) – DECISION

Motion: That the Council accept the changes to the ACAN Management committee as outlined in 9.1.A

Moved: Peter Schofield

Seconded: Johanna Montgomery

Motion Carried.

Chris Reid provided an updated on the 2022 program and current applications for the course.

9.2 Communication Chair Report (ND & MM)

No report was provided for this meeting.

9.3 Equity & Diversity Committee Report (LCP) – DECISION

Motion: That the Council approve the committee leadership changes as detailed in 9.3.A

Moved: Nathalie Dehorter

Seconded: Nicole Jones

Motion accepted.

9.4 Neuroscience Education and Outreach (NEO) Committee Report – DECISION/NOTING

Motion: That the Council agree to collect information about member teaching activity at the time of 2022 conference registration.

Motion carried.

9.5 Student Body Report (AG)

Ashleigh Geiger provided the following update for the Council. Peter Schofield read the update in her absence.

- The committee is almost entirely in place for 2022, including myself as Chair and with the VIC representative position yet to be determined: I will send through a full list ASAP
- Several of the committee have indicated a willingness to step into the role of Chair so I am able to step down - I anticipate this will happen mid-year. I'll remain involved in an advisory capacity (if they'll have me!)
- Our goals for 2022 will focus on re-engaging the student membership, recruitment, and conference promotion. To this end it would be fantastic to know at some stage:
 - If there will be budget for ANS SBC this year
 - If so, what that budget will be
 - If that budget is 100% tied to the conference running "in person"

9.6 Sponsorship Committee Report (CA)

Peter Schofield provided an update to the Council on recent meetings between ANS Executive, meeting LOC, ACAN and TAS, that had resulted in a renewed approach to overall sponsorship for ANS.

9.7 New Zealand Regional Report (JM)

Johanna Montgomery reported on very early stage discussions around moving the ANS 2023 meeting to be held in conjunction with the AWCBR.

9.8 ACT Rep Report (ND)

No report was provided for this meeting.

9.9 SA Rep Report (LC)

No report was provided for this meeting.

9.10 QLD Rep Report (TW)

No report was provided for this meeting.

9.11 VIC Rep Report (AH)

No report was provided for this meeting.

9.12 WA Rep Report (HS)

No report was provided for this meeting.

9.13 Brain Bee Report (RR)

No report was provided for this meeting.

9.14 TAS Rep Report (CB)

No report was provided for this meeting.

9.15 EMCR Update (RSG)

No report was provided for this meeting.

Minutes for ANS Council Meeting

10. Any Other Business

Peter Schofield thanked Nathalie Dehorter and Marco Morsch for their work on the most recent ANS Newsletter.

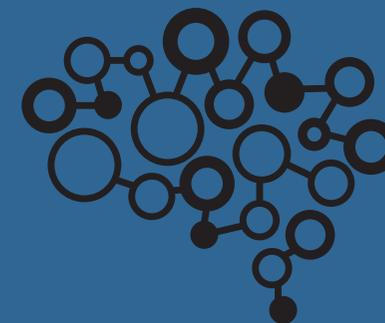
Timothy Bredy provided an outline of his idea of combining similar scientific meetings such as AWCBR, BPA and ACNS under the ANS meeting umbrella. While this is not a formal proposal at this stage, he asked that Council members consider the idea for future discussion. Tim also provided some options for different dates that the ANS meeting could be held for the Council to consider. He invited the Council to provide him feedback on these ideas directly.

Peter Schofield reiterated the Executive's support for Tim to explore these ideas to bring them to a formal proposal for decision in the future.

11. Next Meeting/Close

The Chair, Peter Schofield closed the meeting at 4:02pm AEST.

11.1 2:00 PM - 4:00 PM (AEST) Tuesday, 19 July 2022



August 2022

Communications

Is there information you would like included in our ANS Newsletter, published in our monthly online Bulletin, posted on our website, or Facebook page, or tweeted?

ANS has a Communications Committee to help members disseminate information and assist the Society in publicising its activities to Members and the public. This committee is Co-chaired by Dr Nathalie Dehorter (Australian National University) and Dr Marco Morsch (Macquarie University). It oversees the production of the newsletter and ensures that current content is posted on the ANS website, published in our monthly online Bulletin prepared by the ANS Secretariat, posted on the ANS Facebook page (curated by Dr Nathalie Dehorter) and disseminated through postings on the ANS Twitter account (by Dr Lila Landowski, University of Tasmania) and LinkedIn (curated by Prof Thomas Fath, Macquarie University).

-  <http://www.ans.org.au>
-  <https://twitter.com/AusNeuroSoc>
-  <https://www.facebook.com/AusNeuroSoc>
-  <https://www.linkedin.com/groups/8362021/>

If you have content for us, please email Marco Morsch (marco.morsch@mq.edu.au).

Become an ANS member or student member!

Please join with your colleagues in Australia and New Zealand by becoming a Member of ANS. You can join online at any time!
<https://tas.currinda.com/registerorganisation/172>

www.ans.org.au



Policy

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 and monthly bulletin if appropriate. Such requests should be directed to the ANS Secretary.

Newsletter Editors

Dr Marco Morsch
*Macquarie Medical School,
Faculty of Medicine,
Health and Human Sciences,
Macquarie University
Sydney, NSW, 2109
marco.morsch@mq.edu.au*

Dr Nathalie Dehorter
*Eccles Institute of
Neuroscience, The John
Curtin School of Medical
Research, The Australian
National University
Canberra, ACT, 2601
nathalie.dehorter@anu.edu.au*

Authorised by
*A/Prof Michael Lardelli
Alzheimer's Disease Genetics
Laboratory, Department of
Molecular Bioscience,
School of Biological Sciences,
The University of Adelaide
Adelaide, SA, 5005
michael.lardelli@adelaide.edu.au*