



International Society for Neuroethology

Newsletter/January 2021

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The Prez Sez
Eric Warrant
President of the ISN



Hello everyone,

Just before putting pen to paper to write this final column of the year, a year I really didn't think could get any worse, I was shocked and saddened to learn of the death of a friend, and one of the greatest scientific inspirations of my life – **Professor Mike Land FRS**, from the University of Sussex in the UK. For those of you who were fortunate enough to have known this brilliant man, you will remember a warm, generous and

extremely funny character whose insatiable curiosity for the natural world was infectious. Mike was one of our ISN Fellows, an honor awarded only to the most distinguished scientists of our field. He was a worthy recipient. Mike has done probably more than any other person to illuminate the optical principles that govern the functions of eyes across the great expanse of the animal kingdom, from the weird concave mirror eyes of scallops to the remarkable variations in optical design found throughout the arthropods. His remarkable book with Dan-Eric Nilsson – *Animal Eyes* – is an impressive testament to his extraordinary career. His papers are not only rich with optical discoveries, they are also written with a wit and charm rarely found in scientific writing. For me personally, his work stands at the pinnacle of scientific excellence, a guiding light towards which I always look when writing my own papers. For all of us who knew and admired him, he will be sorely missed. Later in this newsletter, **Tom Cronin** reflects further on Mike's remarkable life.

So what a year! As I have described in recent columns, my year started out dealing with the worst drought in Australia's recorded history. This drought culminated in the most brutal and widespread bushfires the country had ever seen, wiping out tens of thousands of square kilometres of national parks wilderness (including most areas of the beautiful alpine national parks near our house), killing literally billions of terrestrial vertebrates and destroying the homes and lives of thousands of my countrymen. After evacuating with my family (and most expensive lab equipment) at the beginning of the year, I then watched with horror from Lund as fire bore down on our house and lab on three separate occasions, only to turn in another direction due to last minute weather changes. And as if this wasn't enough, at about the same time COVID-19 began spreading its ugly scourge across the earth... Large parts of the world are still facing the full brunt of it, and for many, sadly, the new vaccines will arrive too late. It pains me to realize that many of you have probably lost loved ones during this pandemic, and to all of you I extend my heartfelt condolences, not only personally, but also on behalf of your society.

Thankfully though it hasn't all been doom and gloom. Even though we had to postpone our Congress until 2022, we managed to hold one of our

best loved symposia online – the Young Investigator Award Symposium – for around 150 people! Organised by the Chair of the Young Investigator Award Committee, **Melissa Coleman**, together with our two Early Career Representatives – **Miriam Henze** and **Sara Wasserman** – this symposium was an enormous success! The symposium highlighted the work of our four highly talented 2020 Young Investigator Award winners: **Jerome Beetz** and **Pauline Fleischmann**, both from the University of Würzburg, **Angie Salles**, from Johns Hopkins University and **Rickesh Patel** from the University of Maryland (now University of Lund). We heard four wonderful talks on the echolocation and sound processing strategies of bats, and on the navigation and orientation behaviour of butterflies, mantis shrimps and ants. Once again, I found it remarkable how well something like this can work on Zoom! Thank you to Melissa, Miriam and Sara for all your hard work and enthusiasm while getting the symposium organised, and of course our heartiest congratulations again to the winners of our 2020 Young Investigator Awards!

And talking of our Early Career Representatives, we have just held an election for a new representative to take over from Sara. Sara has done a truly marvellous job in the role of Early Career Representative during the last four years, and it has been a real pleasure to work together with her on all the great initiatives for our younger members that she and Miriam have launched (such as our fantastic new Mentorship Program). So many thanks Sara for a sterling effort, and our best wishes to you for your next endeavours! Thus I am very pleased to announce our new early career representative – **Saumya Gupta**, a PhD student from the University of Minnesota. A very warm welcome Saumya! We all look forward very much to working together with you!

In other news, our new Inclusion and Diversity Committee (IDC), chaired by **Ana Silva**, has now completed its mission of finalising its membership with the addition of four new members! So in addition to its foundation members (**Ana Silva**, **Lauren O'Connell** and **Heather Eisthen**), the IDC welcomes the following new members to assist with its important work: **Amir Ayali** (Tel Aviv University), **Vivek Nityananda** (University of Newcastle, UK), **Ayelén Nally** (University of

Buenos Aires) and **Lukas Weiss** (University of Giessen). On behalf of your society, my warmest welcome and sincere thanks for offering your service.

Even though this newsletter may not be read by many of you until January, as I write Christmas is approaching rapidly. So too is a longer break from the strains of university life that many of us desperately need after a long and, especially this year, difficult semester. I would just like to wish each and every one of you a wonderful break whether you celebrate Christmas or not, and hope you have a chance to recharge your batteries to be ready for what I hope is a much brighter 2021!

Finally, as a boy in Australia, Christmas was a time of almost unbearable heat, and of children running half naked through the rainforests around our house. Of my mother and grandmother, red-faced and sweating, labouring over absurdly inappropriate oven-loads of turkey, baked potatoes and plum pudding. And of deafening heaving waves of cicadas calling through the eucalypts. It was also the time of bellbirds, a tiny fragile bottle-green bird whose calls literally sound like the clear “dong” of a tiny bell. Invisible in the trees, but everywhere, the bush would come alive with their pealing – loud and closer now, and then suddenly softer and further away. When I rang my parents at home from my student room in Sydney, I could hear them in the background, and the pangs of longing and homesickness would follow. I will leave you with the words of the early Australian poet Henry Kendall (1839-1882), who lived in a sandstone cottage near my childhood home, and who was as equally enthralled by bellbirds as I. A lovely poem, “Bell birds” (1869), to remind us all that there is still much beauty in the world, even in 2020...

*By channels of coolness the echoes are calling,
And down the dim gorges I hear the creek falling:
It lives in the mountain where moss and the sedges
Touch with their beauty the banks and the ledges.
Through breaks of the cedar and sycamore bowers
Struggles the light that is love to the flowers;
And, softer than slumber, and sweeter than singing,
The notes of the bell-birds are running and ringing.*

My warmest regards, and stay well and safe!

Eric

PS. I have the chance to add this small addendum after the transition to 2021, prior to publication of the newsletter! I wish you all a very happy year ahead! May it bring with it the hope of a brighter future as the vaccines do their job to wipe out COVID-19!

Eric Warrant
President, ISN



INTRODUCING SAUMYA GUPTA



Congratulations to our newly elected Early Career Representative, **Saumya Gupta**. Saumya will join our current ECR, **Miriam Henze** in running the ISN Mentorship Program, contributing to future newsletters, and serving on the Council.

I am a 5th-year graduate student at the University of Minnesota. I did my BS-MS from the Indian Institute of Science Education and Research Mohali, India, before moving to Minnesota to pursue a PhD in animal communication. I am broadly interested in auditory perception, and how various acoustically communicating animals have evolved diverse (and sometimes, common) solutions to similar auditory challenges. For my thesis, I am working on frogs and investigating questions such as: how do frogs process and extract information from auditory signals? How do they use this information to perceive signals of interest among several overlapping signals? And

how does information processing in the central nervous system constrain perception in noise?

During the course of my training as a researcher and educator, I have developed strong interests in inclusive teaching and mentoring. I am a part of an undergraduate mentoring initiative in which we guide undergraduates throughout their academic journey, including, grad school application process. I am also a part of a pilot program led by the University of Minnesota called CRUSE (Culturally Responsive Undergraduate Science Education) in which faculty and grad students discuss about inclusive, anti-racist teaching. And I have also served as a board member in an outreach program started by the University of Minnesota called Market Science whose mission is to start conversations between researchers and their communities through hands-on learning activities.

If elected as one of the ISN representatives, I want to be the voice of early-career scientists that raises their issues and concerns in front of the society. Having been associated with academic institutions in both developed and developing nations, I am acutely aware that conducting research in neuroethology can be a privilege that many of my peers with limited funding, resources, and guidance might not possess.

Therefore, I want to reach out to my peers, by exploiting the power of social media, to create a more widespread community of current and aspiring early career neuroethologists. My main goal will be to work towards an equitable community by first understanding their needs, and second, by addressing them and providing them access to resources such as, workshops/courses, grant writing tools, and mentors to help an individual navigate the challenges of the academic system. My hope is that such need-based endeavors will foster an inclusive environment within our society and make everyone feel welcome in our small community of neuroethologists.

If early-career scientists have any topics they would like to get insights on, they should feel free to email me at gupta333@umn.edu. I will try to address those in the coming newsletters.

REMEMBERING MICHAEL LAND

Contributed by ISN member **Tom Cronin** from the University of Maryland, Baltimore County.



Michael Land

Neuroethology lost one of its true heroes late in 2020. Michael F. Land, of the University of Sussex (known to all of us as just “Mike”), passed away on December 14. Anyone who has ever met Mike recalls a talented, funny, charming, and thoughtful person. Those of us who were acquainted with him as a scientist will also remember that he was the consummate researcher: one who did painstaking research, made astonishing discoveries, and presented his work in erudite writing and captivating presentations. Reading one of Mike’s papers or attending a lecture or seminar leaves an indelible impression. I consider him the finest lecturer, and perhaps the best scientific author, I have ever met.

Mike Land was born in Devon, England, in 1942. Not surprisingly, given his career, both his parents were educators – his father a professor and his mother a teacher. He attended Cambridge University, studying natural science, and subsequently completed his PhD with John Gray in 1963 at University College London. His thesis topic turned out to be different from what was originally intended, fortunately for all of us. He studied the brilliant blue eyes of scallops, discovering that unlike any visual system previously described, these eyes form images using a combination of refracting and reflecting optics – a unique catadioptric visual system involving both lenses and mirrors. He explained how the blue-reflecting mirrors work (as quarter-wave reflectors) and how the overall system forms a clear image. This thesis research formed the foundation of the research of his career.

The completion of his degree was followed by a term as an assistant professor at UC Berkeley from 1969



to 1971, where once more he worked on an unanticipated project of his own devising, this time on the eyes of jumping spiders. By perching the spiders on a freely rotating paper ring, he showed how they orient using their peripheral eyes to view an object of interest with their large, anterior principal eyes. Following his return to England in 1971 he took up a lectureship in neurobiology at the University of Sussex. Here, he retained a lifelong interest in spiders – as well as in eye movements – but having now worked on two very different visual systems, he spent the rest of his career working out the optics, designs, and movements of eyes of creatures throughout the animal kingdom. Most neuroethologists probably know him for his book *Animal Eyes*, co-authored with Dan-Eric Nilsson. They might not realize that much of the content of this book was discovered or investigated by its authors. Mike also wrote an enlightening book with Ben Tatler, *Looking and Acting*, describing their work on human eye movements and explaining how (and why) fixations occur when driving, playing piano, and – most Englishly – making tea or batting at cricket. Very recently, he published a charming combination memoir and scientific exposition called *Eyes to See*. In this, his final book, he takes us on a very personal autobiographical journey through the animal kingdom, exploring how eyes work, how they contribute to an animal's survival, and what this might mean for the mental states of creatures. Over his career, research projects took him around the world and out into the ocean. One colleague remembers a research cruise when he boarded the ship with no clear project in mind and disembarked with a manuscript in hand. If you know the popularity of the bar, well stocked with Scotch whiskey and gin, on a British research vessel, you will understand why this colleague found such productivity (typical of Mike) astonishing!

Mike's research garnered him many awards, most prominently his election as a Fellow of the Royal Society of London in 1982 before he had even reached his 40th birthday. He won a number of prizes, but those of us in ICN are particularly proud to have admitted him in the inaugural class of Fellows in 2012.

I have spent most of this article describing Mike as a scientist, but those who met him know he was far

more. Any conversation revealed his wit, charm, and intensely British sense of humor. It's likely that many of his personal friends knew little of his excellence in science. Among other things, he was an incorrigible lover of Renaissance music, playing his curtals and shawms (sometimes mercilessly) and singing in local choruses – generally dressed for the part. He adored gardening, always keeping a spectacular English garden in which he also carefully cultivated rare English orchids. He once told me nostalgically that if he hadn't been sidetracked into science, he would have become a gardener, sounding a bit disappointed with the decision he actually made! He also painted and made jewelry. Any conversation with Mike would generally devolve to several of these topics, ending up in a local pub before it was over.

Today, it's common for researchers to band together in large teams, but Mike came from a time when scientists worked alone or in teams of two or three – a research tradition still followed by many in neuroethology. One can't avoid superlatives when describing his legacy. His publications are invariably approachable, elegantly written and presented, and brilliant in concept. As already noted, attending any lecture he gave was a memorable experience; his presentations were beautiful, humorous, gorgeously spoken, and utterly riveting. We will very much miss reading, seeing, and hearing him. Mike was particularly mindful of young scientists, and many who have first encountered him at a meeting remember how easily their initial intimidation evaporated due to his interest in and support for their work. It was this attitude that led to my spending an early sabbatical in Sussex 30 years ago, a year that my family remembers as uniquely special. Mike subsequently did his own sabbatical with me, and we have been close friends and frequent guests in each other's homes for many years. It's hard for me to say goodbye, as it is for all his colleagues, friends, and family.



REMEMBERING KAREN SIGVARDT

Written by **Brian Mulloney** from the University of California, Davis.



Karen Sigvardt

Dr. Karen Sigvardt, Adjunct Professor of Neurology and a member of the Center for Neuroscience at the University of California Davis, died Friday, December 18, from COVID-19. She had been afflicted with early-onset dementia and was a resident in a nursing home when she contracted the disease and died. Karen's professional career grew and flowered at UC Davis, and she played important roles in the Graduate Program in Neuroscience.

Karen earned her Ph.D. at the University of Iowa, and then joined Brian Mulloney's group at UC Davis as a postdoc where she did excellent work in experimental electrophysiology and neural pattern generation. From there she did further postdoctoral stints at Stanford, the Karolinska Institute, and UCSF before joining UCD Neurology as Adjunct Assistant Professor. Following her promotion, she served two terms as an NSF Program Director for Neurobiology where she was influential in developing mathematical and computational components of the field. Upon returning to the UCD campus, she served as Chair of the Neuroscience Doctoral Program.

Her research program at UCD focused on circuit coordination in lamprey spinal cord, and was marked by astute combinations of experimental electrophysiology and mathematical analysis. She had a long-term collaboration with Nancy Kopell, Thelma Williams and Bard Ermentrout on the dynamics of chains of coupled oscillators. She later moved into work on oscillator function in Parkinson's disease. She was recruited to the team led by Dr. Conrad Pappas at Kaiser Northern California to perform microelectrode recordings for brain mapping in patients undergoing neurosurgical

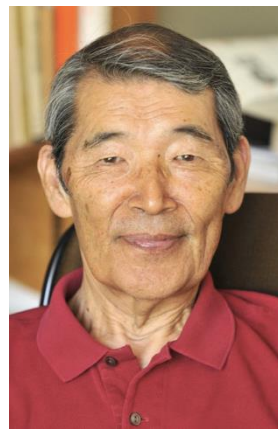
procedures for Parkinson's disease and other movement disorders. Her research led to the publication of a landmark paper about the temporal oscillations of neurons in patients with Parkinson's disease. Karen later became the intraoperative neurophysiologist for the Deep Brain Stimulation program at UC Davis Health in the departments of Neurology and Neurosurgery. As a talented and generous mentor, Karen contributed to multiple papers exploring cognition and functional brain networks in patients with Parkinson's disease.

She is survived by her wife, Audrey Webb, and by her sister Marsha Peterson.



BIRDSONG SATELLITE MEETING IN HONOR OF MARK KONISHI

Members of the birdsong community invite all neuroethologists to this special, "in memorium" event. Questions may be directed to **Sarah C. Woolley** at McGill University (sarah.woolley@mcgill.ca).



Masakazu (Mark) Konishi

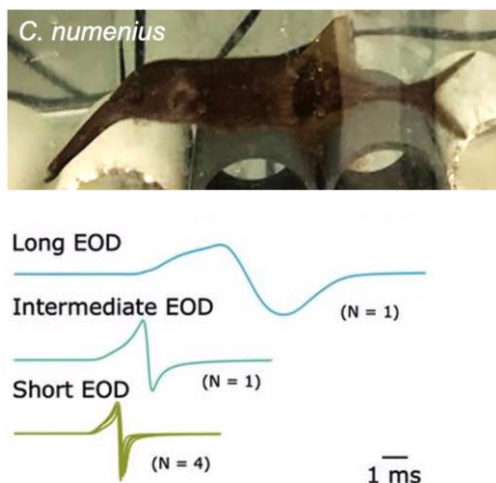
In honor of Mark Konishi, we are holding a special session of the Society for Neuroscience Birdsong Satellite meeting on February 17, 2021, beginning at noon Eastern US time. The symposium will include two sessions of short talks by Konishi lab alumni; one on auditory processing in owls and a second on bird song neurobiology. The symposium will conclude with contributed reminiscences.

To register for the meeting and to receive further updates including the schedule of sessions and a link to attend the virtual symposium, please fill out the form here: <https://forms.gle/o988vv6VBVK1yb9S6>. All are welcome to attend, and please feel free to forward the registration link to your friends and colleagues.



2021 ELECTRIC FISH VIRTUAL SEMINARS

Kent Dunlap, Vicky Salazar, and Ana Silva invite ISN members to attend an ongoing virtual seminar series on electric fish.



When the pandemic forced the postponement of the Congress on Neuroethology in Lisbon, many satellite meetings were also cancelled. But the **electric fish community** rebounded with abundance and vigor! We decided to hold both a replacement virtual meeting on the date of the original **Electric Fish Satellite Meeting**, and then continue with monthly virtual seminars until we can meet in Lisbon in 2022. The response has been outstanding, with 90-125 attendees per meeting... numbers that exceed even the largest of our previous in-person meetings.

The Electric Fish Virtual Satellite Meeting featured three distinguished researchers, one from Europe, South America and North America. **Jan Benda** (Univ Tuebingen, Germany) spoke about methods for recording and analyzing electric signals from free-living fish. **Laura Quintana** (Instituto Investigaciones Biologica Clemente Estable, Uruguay) spoke on the role of brain steroids in the control of aggressive behavior. **Harold Zakon** (Univ Texas, USA) spoke about the evolution of the sodium channel in South American and African electric fish.

Recognizing that the pandemic has caused cancellation of so many meetings that disseminate new research, we devote our monthly seminars to the work of early-stage researchers (graduate students, post-docs, early PIs). Each month, two speakers

present their research and answer questions in one hour Zoom meetings. Our reach is truly international, with the audience joining us from at least nine nations. So far, we have heard seminars from

Stefan Mucha (Humboldt Univ, Germany)
Sophie Picq (Michigan State Univ, USA)
Mariana Marquez-Machorro (McGill Univ, Canada)
Avner Wallach (Columbia Univ, USA)
Heba Ali (Florida International Univ, USA)
Matasaburo Fukutomi (Washington Univ, USA)

Our seminar series has also prompted us to expand connections among electric fish researchers on social media, with a new presence on Facebook and Twitter and re-activation of a Slack account.

For more information on the virtual “renaissance” of the electric fish community, check our new Efish Connections website:

<https://efishconnection.wixsite.com/connect>

Also, we invite all neuroethologists to join us for our seminars; see the website to join the email list for announcements and Zoom invitations.

The dates for our upcoming seminars are: Feb 25, March 25, April 29 and May 27.



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