International Society for Neuroethology

Newsletter/December 2013

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THIS ISSUE INCLUDES

Read about the 2013 Ig Nobel Prize in Biology & Astronomy on page 12 of this newsletter.

President's Column

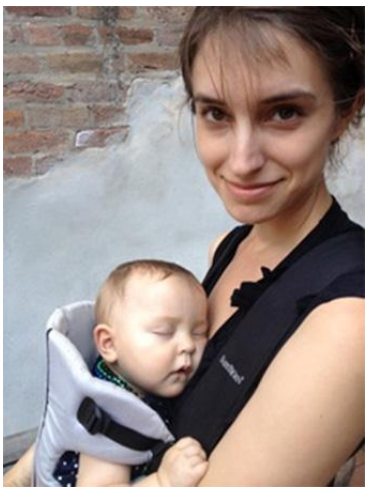
Alison Mercer
President of the ISN

Dear ISN Members,

A must-read article titled *Evolution of a vertebrate social decision-making network* by **Lauren O'Connell**

and **Hans Hofmann** appeared in Science magazine on 1 June 2012 (Volume 336). The work is a *tour de force*, an evolutionary reconstruction of the vertebrate social decision-making network that compared neurochemical gene expression profiles for the dopaminergic system, neuropeptide pathways, and sex steroid receptor pathways across 12 forebrain and midbrain regions in 88 species representing 5 major vertebrate lineages!

The paper demonstrates that neural networks contributing to social decision-making are remarkably conserved over 450 million years of vertebrate evolution. Interestingly, the spatial distributions of neuroendocrine ligands were found to be more flexible (in evolutionary terms) than the spatial distribution of their receptors. The work suggests that the diversity of social behaviour in vertebrates can be explained in part by variations on a conserved theme of neural and gene expression networks. High five to both authors, and a special note of congratulations to **Lauren O'Connell**. On the basis of this paper, Lauren was selected as the winner of the **ISN 2013 Capranica Prize**. There was very strong competition for this year's prize, so this is a fantastic achievement. Congratulations Lauren!



2013 Capranica Prize winner Lauren O'Connell and her daughter Evelynn. Photograph provided by Lauren O'Connell.

Speaking of high calibre research… now is the time to start thinking about the person you would like to nominate for the honorary position of *Fellow of the International Society for Neuroethology*. Nominations are due on April 30, 2014 (see Announcements). While this may seem some time away, it is best not to leave this to the last minute. **Make someone's day** - nominate him or her for this important award!

The ISN's finances are in a healthy state. As a result, ISN Council members have been discussing a proposal that would see ISN offer grants to support the research of its student members. The proposal has received strong support from ISN leadership, and the idea will be developed further over the coming months. Watch for further updates. Strong attendance at the 2014 Congress in Sapporo would undoubtedly enhance our ability to support early career researchers in this way – so please make attendance at this meeting your highest priority for 2014.

You will read later in this newsletter that the **Program Committee** has put together a truly outstanding program for the **2014 Congress in Sapporo**. Note also the fantastic line-up of one-day satellite meetings (the **Hokkaido Neuroethology Workshops 2014**), which will take place immediately before the Congress. These workshops have been planned with the help of the **Local Organizing Committee**. The Local Organizing Committee has also organized an **IBRO Advanced School of Neuroethology** for senior Ph.D. students and postdocs in the Asia-Pacific region. This is going to be a bumper Congress! Please write the dates in your diary right now: **July 28 – August 1, 2014.**

Thanks to **Susan Fahrbach**, and to the many others who have contributed to this edition of the newsletter. Enjoy!

Best wishes
Alison

2014 ICN/JSCPB

Visit the website: http://www.icn2014.jp/.

HONORING THE MEMORY OF HECTOR MALDONADO IN HUERTA GRANDE

Jose Pena and Ana Silva have provided an account of an important South American meeting (September 30 – October 2, 2013).

More than 170 South American neuroscientists gathered last month in Huerta Grande, Córdoba, Argentina, to honor the life and legacy of **Héctor Maldonado** (1927-

2010). It was a great time for neuroethology. Six symposia featuring 27 talks and 80 posters were presented in two very intense days. This exciting meeting was organized by **Eugenia Pedreira** (Argentina), **Arturo Romano** (Argentina), **Ana Silva** (Uruguay), **Lidia Szczupak** (Argentina), and **Daniel Tomsic** (Argentina). **Dan Shulz**, Editor-in-Chief of the **Journal of Physiology Paris**, invited the participants of the meeting to submit a manuscript for publication in a special issue highlighting the research presented at the meeting. Importantly, the ISN was present! ISN sponsored a session titled ***The International Society of Neuroethology in South America***. **Jose Pena** traveled from New York to join **Ana Silva** in hosting this event, which was designed to promote the ISN among South American researchers and encourage participation in ISN-sponsored meetings. Attendees at this session received information about the field of neuroethology, research funding opportunities, and awards given by the ISN. The **2014 Congress in Sapporo** was announced, and information was provided about the **2016 Montevideo Congress**. No fewer than three ISN presidents - past, present, and future - addressed the audience! **Alison Mercer** (present) was present through a welcoming PowerPoint presentation; **Peter Narins** (president-elect) greeted the audience in Spanish in a recorded video from his office at UCLA; and **Randolf Menzel** (past) spoke about the history of ISN in person. At the end, the audience enjoyed a social event during which they could enter their contact information to participate in a raffle with a prize of of two free registrations to Uruguay 2016, with the prize to be drawn in Sapporo.

The satellite meeting was also an important opportunity for the steering organizing committee of the 2016 ICN to discuss how to make Uruguay 2016 an unforgettable experience.

The 2016 Congress will take place in Montevideo, Uruguay, March 29 through April 3, 2016.

2012 ISN FELLOW JOHN HILDEBRAND FEATURED

John G. Hildebrand, ISN Fellow

The Scientist, a monthly magazine that covers the life sciences for life science professionals **featured ISN Fellow John G. Hildebrand** in its October 2013 issue. The article, titled *An Olfaction Odyssey*, can be accessed online. In this piece, reported by Megan Scudellari, John reflects on turning points in his career, his scientific achievements, and the future of our field. Consider reading and discussing this fascinating article with your colleagues, especially younger neuroethologists.

http://www.the-scientist.com/?articles.view/articleNo/37612/title/An-Olfaction-Odyssey/

IBRO ADVANCED SCHOOL OF NEUROETHOLOGY

An IBRO Advanced School of Neuroethology will be held in Hokkaido University, Sapporo, from Thursday 24 July to Monday 28 July, 2014. This advanced school will be held in conjunction with the 2014 ICN / JSCPB Congress in Sapporo, Japan. This school will provide an opportunity for senior Ph.D. students and post-doctoral fellows in the Asia-Pacific region to acquire experimental skills and knowledge in neuroethology. The school will cover both the basics and advanced topics. Top scientists will give lectures and lead lab classes in the neurobiology and neuroethology of insects, birds, and primates. The participants will also attend a joint workshop titled *Do animals count number? Biological basis of numerical competence and arithmetic*. For further details and updates, visit our website (http://www.icn2014.jp/ibro/) or send an e-mail to ibro2014@icn2014.jp.

SUBMISSIONS FOR FUTURE NEWSLETTERS

Please send meeting announcements, advertisements, and other related information for the next newsletter (March/April 2013) to the ISN secretary, Susan Fahrbach **(**fahrbach@wfu.edu**).** Advertisements for jobs and graduate/postdoctoral positions should be no more than 150 words. Feature articles may be up to 1,500 words in length. If you have explained some aspect of neuroethology to a non-specialist audience please consider sharing a copy of your remarks with fellow members so that we can all be inspired to advocate for our field! Longer articles will definitely be considered, but should be submitted after consultation with the Secretary. Photographs related to research or relevant conferences are also welcome.

PROGRAM FOR THE INTERNATIONAL CONGRESS OF NEUROETHOLOGY 2014

In 2014, the 11th International Congress of Neuroethology (ICN) will meet jointly with the Japanese Society for Comparative and Physiological Biology (JSCPB). The Program Committee is pleased to announce the program for the Congress. See www.icn2014.jp for more information. Abstract submission opens in January 2014.

Plenary Speakers

Barbara Finlay (Cornell University)
Integrating brain diversity with conserved developmental mechanisms: the case of the isocortex

Martin Giurfa (CNRS - Université Paul Sabatier)
From simple to higher-order learning in an insect brain: Lessons from honey bees

Ryohei Kanzaki (University of Tokyo)
Analysis and synthesis of odor-source localization in insects: From genes, neural networks, and behavior to robot

Malcolm MacIver (Northwestern University)
Convergent evolution of mechanically optimal locomotion and its implications for information acquisition

Lidia Szczupak (University of Buenos Aires)
Motor control: Neuronal interactions at the lower levels of the network hierarchy

Sarah Woolley (Columbia University)
Neural mechanisms of auditory-vocal communication: Mapping receiver auditory tuning to sender behavior

Motojiro Yoshihara (MIT)
The Drosophila feeding circuit to connect synaptic plasticity to memory

Jochen Zeil (Australian National University)
Visual homing in insects

Heiligenberg Lecture

Harold Zakon (University of Texas at Austin)
Electric fish in the age of genomics

Huber Lecture

Alan Roberts (University of Bristol)
The formation and function of the first networks controlling behaviour in a very small vertebrate

Contributed Symposia

Action selection: The role of the insect central complex. Organized by Alberto Ferrús (Cajal Institute, Consejo Superior de Investigaciones Científicas).

Avian models of cognitive development. Organized by Brian McCabe (University of Cambridge).

Bats as neuroethological models: From echolocation and vocal production to 3D neural codes and navigation. Organized by Nachum Ulanovsky (Weizmann Institute of Science) and Hiroshi Riquimaroux (Doshisha University).

Coordination of multi-legged locomotion. Organized by Carmen Smarandache-Wellmann (University of Cologne) and Brian Mulloney (University of California, Davis).

Decision making in worms, insects and vertebrates: Are there common principles or mechanisms? Organized by Kenji Doya (Okinawa Institute of Science and Technology) and Hitoshi Okamoto (RIKEN Brain Science Institute).

Deep homology of circuits underlying behavioral actions. Organized by Nicholas Strausfeld (University of Arizona).

Emergence of simple behavior: Channels, neurons and networks controlling swimming in developing vertebrates. Organized by Shin-ichi Higashijima (National Institute for Physiological Sciences, Japan) and Wen-Chang Li (St. Andrews University).

Evolution of parental behaviors. Organized by Lauren O'Connell (Harvard University) and Cheryl Rosenfeld (University of Missouri).

In the footsteps of Karl von Frisch: 100 years of investigations into insect color and polarization vision. Organized by Kentaro Arikawa (Graduate University for Advanced Studies, Japan) and Adrian Dyer (Royal Melbourne Institute of Technology and Monash University).

Insights from molluscan studies into the evolution of neural mechanisms for simple and complex learning and memory systems. Organized by Binyamin Hochner (Hebrew University).

JSCPB symposium: Third-generation photobiology and its relevance to chronobiology. Organized by Yoshitaka Fukada (University of Tokyo) and Akihisa Terakita (Osaka City University).

Learned vocal communication in songbirds: Recent developments. Organized by Melissa Coleman (Claremont McKenna College) and Yoko Yazaki-Sugiyama (Okinawa Institute of Science and Technology).

Other Symposia

The program will also include a special symposium in honor of **Mark Konishi**, organized by Catherine Carr (University of Maryland). Winners of the Young Investigators Award will present their research in a special **Young Investigator Symposium**. Finally, we have scheduled three **Participant Symposia**, to be chosen from submitted abstracts. Preference for slots in the symposia will be given to young investigators. Details of the submission process for the participant symposia will be posted on the congress website (www.icn2014.jp).

Other Notable Features of the Program

The congress will be preceded by a set of one-day satellite workshops (**Hokkaido Neuroethology Workshops 2014**) and an IBRO advanced school of neuroethology for senior Ph.D. students and post-doctoral fellows in the Asia-Pacific region. There will be two poster sessions and the following social events: a welcome reception, a student and postdoc mixer, and a farewell party.

CONNECTING WITH THE ISN OFFICE

Did you have an announcement you would like to share with the membership of the ISN, or did you encounter a glitch when you tried to renew your membership? Did you have a problem using the ISN website? The ISN office stands ready to come to your aid. Don't hesitate to contact Joyce Lancaster at jlancaster@allenpress.com!

Suggestions for improvement to the website should also be directed to Joyce Lancaster, who will ensure that the appropriate officers of ISN get the word. And note that up-to-date full contact information for ISN officers is always available on the first page of the newsletter.

CALL FOR NOMINATIONS

FELLOW OF THE INTERNATIONAL SOCIETY FOR NEUROETHOLOGY

April 30, 2014 is the deadline for submitting nominations for the honorary position of Fellow of the Society for Neuroethology. Plan now to write a nomination, keeping in mind that you will also need to recruit at least two other current ISN members to write letters in support of your nomination. Fellows honored in 2012 were **Robert G. Capranica**, **John G. Hildebrand**, **Masakazu Konishi**, **Michael F. Land**, **Randolf H. R. Menzel**, and **Rüdiger Wehner**. Our new Fellows will be recognized at the 2014 ICN in Sapporo.

Eligibility: Candidates must have been a member of the ISN continuously for at least six years prior to nomination. Candidates must be a current member.

Criteria: Fellows are recognized for meritorious efforts to advance the science of neuroethology. These include:

- a significant body of published research
- leadership in educational and outreach efforts
- extraordinary service that promotes science, particularly neuroethology

Who can nominate? Fellow nominations may be made by any current regular, lifetime, or emeritus member of the ISN. The nominee must not be a member of the nominator's current department nor be a doctoral or postdoctoral associate of the nominator (either currently or within the past 10 years).

Nomination procedure: A letter from the nominating member must be submitted detailing the qualifications of the nominee and providing evidence of achievements that demonstrate fulfillment of the criteria. Supporting letters must be submitted by two additional current members of the ISN. The nomination should include a brief biographical sketch of the nominee (< 250 words) that summarizes his or her educational and professional background and a description of major achievements. Send materials in the form of a single pdf file to Joyce Lancaster at jlancaster@allenpress.com.

Selection of ISN Fellows will be based entirely on scientific merit, irrespective of race, creed, sex, age, or nationality.

"BÄCKASKOG" TO THE FUTURE

Kate Feller, 2013 Heiligenberg Travel Award winner, has provided a first person account of the meeting she attended with her award, the International Conference of Invertebrate Vision (ICIV) held August 1 – 8 at Bäckaskog Castle, Sweden.

The iconic clock tower of Bäckaskog Castle. Photo by Michael Bok.

For many young researchers there is a cast of senior scientists within our fields that we venerate and even consider a localized brand of "science celebrities." These are the researchers whom we frequently reference in our manuscripts and grant proposals, the people whose research informs and influences our own scientific path. Now imagine getting to spend a week with your entire cast of science celebrities, and not only are they just as nice as they are brilliant, but you are all in a castle in the rolling countryside of southern Sweden. This would be a defining moment in the life of any young researcher. It's also exactly how I would describe my week at the third meeting of the **International Conference of Invertebrate Vision** (ICIV) at Bäckaskog Castle.

The 2013 chapter of this roughly quinquennial conference was regarded as an equal to, if not greater, success by previous attendees. Sporting the largest attendance in its history at about 160 people, the scientific program highlighted almost every subfield within invertebrate vision research, which provided a program as equally entertaining as it was scientifically stimulating. A plenary lecture set the tone of each day, followed by shorter talks from researchers both new and experienced within the plenary theme. Some of my personal favorites among the lectures that highlight the diversity of science presented include the unusual ocellar morphology in orchid bees (**Emily Baird**, Lund University, Sweden); hawkmoth navigation in a virtual reality (**Yonatan Monk**, University of Washington, USA); aerial prey capture strategies in killer flies (**Trevor Wardill**, Woods Hole Oceanographic Institute, USA); and a plenary lecture on protein trafficking in *Drosophila* eyes by **Nansi Jo Colley** (University of WI, USA). If I were handing out an award for "best in show," however, it would go to **Michael Dickinson** (University of Washington, USA) for his charismatic stage presence and fascinating research on multimodal cues involved in *Drosophila* tracking of odor plumes.

Though brief and highly populated, the two poster-sessions served as a concentrated period of scientific diversity and awesomeness within each 2-hour time slot. As with the talks, both graduate students and science celebrities could be found side-by-side gesticulating over distillations of their most recent work. Some of the most memorable posters included the sensory structure of trilobite eyes discovered in a fossil (**Bridgette Shoenemann**, University of Cologne, Germany); new ideas surrounding the possibility of tripolar visual systems with three analyzers for e-vector light orientation (**Thomas Labhart**, University of Zurich, Switzerland); and the ICIV award winning poster, by **Hanne Thoen** (University of Queensland, Australia), on a novel colour vision processing system in stomatopod crustaceans. One left each session bursting to capacity with information. It was an intellectual paradise.

While the science presented at ICIV was first rate, several non-scientific aspects of the meeting made it

truly a one of a kind experience. The key to the conference's success can be in part attributed to the venue itself: historic Bäckaskog Castle and Conference Center. Located about 20 km from the nearest town, Bäckaskog Castle holds its guests in delightful captivity in the Swedish countryside. The physical separation from the world aided the overall feeling we had traveled to a different plane of space and time. Meals were served at long, communal tables, so one could not help but forge both professional and personal connections during the down time of the conference. The food, in general, was worth bonding over, representing the diversity of Swedish cuisine prepared by Bäckaskog's 5-star dining staff. When not filling ourselves with fine science or fine dining, attendees were encouraged to explore the manicured property, which straddles a narrow spit of land between two lakes, either by foot, bicycle or in one of the canoes provided by the castle. Several Swedish cultural experiences also highlighted the non-scientific schedule, including traditional folk music and dance performances; an open invitation to play Kubb, a Viking stick-throwing game, in the courtyard; and a crayfish feast, which was obviously quite appropriate for a group of invertebrate researchers.

The physical design of the castle, with a rectangular fort and open courtyard, promoted interactions among the conference participants. During breaks, researchers could be seen milling about in Greek philosopher style, casually conversing beneath the flawless Swedish summer sky. One could witness the birth of new ideas and collaborations simply by looking out over the courtyard.

As a senior Ph.D. student in the field of invertebrate vision, this conference was a defining moment for my own career in research. Many thanks to the **Lund Vision Group** (Lund University, Sweden), in particular **Anna Gislén**, **Eric Warrant**, and **Dan-Eric Nilsson**, for all the hard work making ICIV happen a third time this century. I left Bäckaskog brimming not just with a week's worth of world class Swedish cuisine, but also with knowledge of the state of our field, new contacts and collaborations, research inspirations and some terrific memories.

INTERNATIONAL WORKSHOP ON LEARNING AND MEMORY CONSOLIDATION (JULY 10-12TH, 2014, SAN SEBASTIAN)

From Nicolas Dumay and Doug Davidson, conference organizers.

As part of its wider scientific and knowledge-transfer activities, the Basque Center on Cognition, Brain and Language (www.bcbl.eu) is delighted to announce a workshop dedicated to the mechanisms of learning and memory consolidation.

Our aim is to provide a multidisciplinary platform for discussion of the processes of memory formation, with a strong emphasis on the offline neural changes leading to memory stabilization and enhancement. Our hope is to bring together researchers working on these issues at various levels of analysis, i.e., cellular, systemic and behavioural, and with data coming from humans as well as other species.

The **International Workshop on Learning and Memory Consolidation** is to take place from Thursday the 10th to the Saturday 12th of July 2014, at the **Palacio Miramar in Donostia-San Sebastian, Spain**.
Invited speakers include:

Jan Born (Universität Tübingen, Germany)
Michael Hasselmo (Boston University, Massachusetts, USA)
Daniel Margoliash (University of Chicago, Illinois, USA)
Matthew Wilson (MIT, Massachusetts, USA)
John Wixted (University of California, San Diego, USA)

Important dates:

Abstract deadline: March 2, 2014
Notification of abstract acceptance: March 17, 2014
Early registration deadline: April 9, 2014
Online registration deadline: June 22, 2014
Conference dates: July 10-12, 2014

For more information, please visit our website:
http://www.bcbl.eu/events/learning/en/

We look forward to seeing you in July!

Breaking news!

ANNOUNCEMENT OF THE SITE OF THE 2015 NEUROETHOLOGY GORDON RESEARCH CONFERENCE

The **2015 Neuroethology Gordon Research Conference** (GRC) and associated GRS will be held in **Tuscany, Italy**. This venue marks the return of the Neuroethology GRC to Europe. The dates have not been finalized but the meeting will likely be scheduled during June.

The Chairs of the 2015 Neuroethology GRC are **Karen Mesce** (University of Minnesota, USA) and **Eric Warrant** (University of Lund, Sweden). The Vice Chairs are **Melissa Coleman** (Claremont McKenna, Pitzer, and Scripps Colleges, USA) and **Annemarie Surlykke** (University of Southern Denmark, Denmark).

HOKKAIDO NEUROETHOLOGY WORKSHOPS 2014 (HNW2014)

The **HNW2014** is a satellite event to the 2014 ICN/JSCPB, and will be held on July 26 (Saturday) and 27 (Sunday) on the **Sapporo Campus of the Hokkaido University**. This event is sponsored by the Faculty of Science and is hosted by Laboratories of Behavioral Neurobiology in the Department of Biological Science at the Hokkaido University. The following nine workshops are open *free of charge* to all registered participants to the 2014ICN/JSCPB. For further details and updates, contact the organizers and visit the website.

www.icn2014.jp/satellite/workshop.html

July 26

Birdsong and imprinting. Organized by Brian McCabe (University of Cambridge, UK), Johan J Bolhuis (University of Utrecht, Holland), and Kazuo Okanoya (University of Tokyo, Japan).

July 27

Small brains, bright minds: Learning and memory in invertebrates. Organized by Randolf Menzel (Free University, Berlin, Germany) and Makoto Mizunami (Hokkaido University, Japan).

Insect dorsal ocelli. Organized by Joshua van Kleef (University of California at Berkley, USA).

Evolution of social cognitive ability based on neural coding of fictive and other outcomes. Organized by Kenji Matsumoto (Tamagawa University, Japan).

Dynamic analysis of biosonar and predator-prey interactions. Organized by Hiroshi Riquimaroux (Doshisha University, Japan).

Neurological insight of behavioral control by parasites or symbiosis. Organized by Takuya Sato (Kobe University, Japan), Mamiko Ozaki (Kobe University, Japan) and Midori Sakura (Kobe University, Japan).

Amphibian neuroethology workshop. Organized by Ian Hall (Columbia University, USA), James Carr (Texas Technical University, USA) and Kim Hoke (Colorado State University, USA).

Ethology, neuroscience and genetics in crickets: **How can they meet?** Organized by Berthold Hedwig (University of Cambridge, UK) and Gerald Pollack (McGill University, Canada).

2013 HEILIGENBERG TRAVEL AWARDS WRAP-UP

All of the 2013 Heiligenberg Travel Award winners have provided the ISN with reflections on their experiences. Kate Feller described the ICIV earlier in the newsletter. Here are the accounts of the winners who attended the 2013 Neuroethology GRC held at the Mount Snow Resort in West Dover, Vermont, USA, August 18-23, 2013. The GRC was preceded by a weekend Gordon Research Seminar (GRS; August 17-18, 2013).

Jeffrey W. Brown, Ph.D. Candidate in Biophysics and Computational Biology at the **University of Illinois at Urbana-Champaign**, wrote:

"This August marked the second time I attended the Gordon Research Conference (GRC) and Seminar in Neuroethology. As I am a senior graduate student who is beginning to consider my long-term research and career goals, this GRC was not only a wonderful opportunity to stay abreast of current research in neuroethology (and many other related fields) but also a unique venue in which to talk with fellow graduate students, post-docs, and senior scientists alike about their research and career experiences and insights or to engage in some scientifically provocative conversation in a casual, relaxing environment. The relatively small size of the conference, highly interactive format of the various talk and posters sessions, and ample time allocated for

simple R&R in the beautiful backdrop of the Green Mountains left me feeling that everyone participating, no matter his or her career position, was on genuinely equal footing when it came to exchanging thoughts about and passion for science. I appreciated the GRC chairs and vice-chairs organizing sessions devoted to more traditional but cutting-edge neuroethological research, highlighted by speakers such as **Paul Katz**, **Eve Marder**, and **Kathy French**, while also allowing time to discuss elegant cross-disciplinary work from related fields that I came in knowing little about, such as artificial neural networks, social cognition, and genomic evolution and the nervous system. You can't help but leave the GRC having expanded your scientific horizons!

Perhaps the pinnacle of the entire meeting was my time at the Gordon Research Seminar, diligently organized by co-chairs **Brian Dias** and **Paloma Gonzales-Bellido**, where I had the opportunity to present a talk on my dissertation research and mull over the perennial, delightfully vexing issue of how to "close the [sensorimotor] loop" in neuroethological research. I made many new friends among the fellow grad students and post-docs in attendance and caught up with old friends at the GRS sessions, during several hikes up and down Mt. Snow (we cheated on our first one and took the chairlift directly to the summit!), and over meals and fun activities throughout the week at the GRC. I am extremely grateful to the ISN for generously supporting my travel and registration and for allowing me to derive the most from this unique, career-enriching meeting."

Charuni Gunaratne, Ph.D. Candidate in Neuroscience at the **Georgia State University**, wrote:

"I am honored to have received a Heiligenberg Student Travel Award to attend the 2013 Neuroethology GRS/GRC in scenic Vermont. I am a Ph.D. student in the lab of Paul Katz at Georgia State University, where we study swimming sea slugs and the evolution of the neural circuits underlying swimming. Thanks to the HTSA, I was able to present my recent findings that indicate that different neural mechanisms underlie the production of a similar swimming behavior that most likely evolved independently in three species of sea slugs. When comparing the three swim neural circuits side by side, it was striking that each species came up with a different neural solution to the same task of configuring a swim, by using different combinations of the same building blocks consisting of specific homologous neurons, connectivity and modulation. This suggests that there are evolutionary constraints on the nervous system organization of related species and shows, at a single neuron level, that analogous behaviors may evolve from a restricted neural palette. Participating in the GRC was an invaluable experience (not to mention a lot of fun!). I particularly found the affiliated trainee oriented Gordon Research Seminar to be wonderful opportunity for students and postdocs to orally present their research at a prestigious conference while connecting with other young neuroethologists. The talks at the GRC/GRS spanned a diversity of fascinating animal behavior and their neural control, leaving one with a sense of awe at the natural abilities displayed by these animals. Coupled with the small size of the conference and the many opportunities to interact and learn from peers and senior investigators alike, the neuroethology GRS/GRC was an all-round excellent experience!"

Eva Fischer, Ph.D. candidate in Biology at **Colorado State University**, wrote:

"The 2013 Gordon Research Conference in Neuroethology was wonderful! The GRC chairs put together a very interesting and diverse program that included everything from pattern generators in *Aplysia* to echolocation in humans. The research presented was interesting in its own right, and both talks and posters sparked a great deal of conversation. Beyond the specifics of any particular presentation, the diversity of subject material also lead to two broader conversations I found particularly stimulating. First, the diversity in research questions and approaches facilitated discussion of general themes in Biology (Do they exist? At what level? Are they meaningful, and if so how and why?). Second, the fact that such incredibly different research approaches were all presented under the umbrella of neuroethology led to discussions (which were sometimes heated!) of what people feel really constitutes neuroethology. I think this conversation is not only an interesting one, but one that is increasingly important in the face of the rapid technological advances that have taken place in the last 10-20 years.

As during my previous GRCs, I was struck by the amount of interaction I had with other participants, and in particular, that these interactions were not limited to other graduate students and postdocs, but rather included all attendees from undergraduates to full professors. I find this level of interaction unique to the GRC, and view it as the greatest strength of the meeting. This year was especially exciting, because I have now been attending the GRC and the ISN Congress for the last 4 years, and getting to see many familiar faces has given me a sense of belonging in the neuroethology community. Especially at this point in my career, when I am preparing to complete my dissertation and move on to a postdoctoral position, the opportunity to have

meaningful interactions with a wide range of Neuroethologists is critical. I was only able to attend the GRC thanks to support from the Heiligenberg award, and I am incredibly grateful to ISN for support and to the GRC chairs for a great meeting."

Rayna Harris, Ph.D. Candidate in Biological Sciences at the **University of Texas, Austin**, wrote about her experiences at the **Marine Biological Laboratory** and the subsequent GRC:

"Last summer I had the amazing opportunity to be a Course Developer for the Neural Systems and Behavior (NS&B) course at Marine Biological Laboratory (MBL) in Woods Hole, MA under the directorship of **Hans Hofmann** (my advisor) and **Andre Fenton**. As you may know, the NS&B course is the premier discovery-based training opportunity for the next generation of neuroethologists, and many members of the International Society for Neuroethology (ISN) have been affiliated with the course at some time in their career. My role as Course Developer was to enhance and expand the course by incorporating stimulating yet robust and feasible procedures for molecular analyses that could be integrated with existing behavioral and electrophysiological approaches.

I applied for the Heiligenberg Travel Award, so that I could discuss the fruits of my efforts at the 2013 GRC, where many past and current NS&B faculty and students would be in attendance and could offer feedback. The poster I presented at the 2013 GRC was quite different from any other poster I ever presented because it had a strong training component in addition to research. First, I described the research of three NS&B students I trained in the use of molecular approaches to examine the neuromolecular circuitry underlying coordinated movements in the stomatogastric ganglion and reproductive behavior of the medicinal leech. Then, I described our results from the collaborative project between the two Course Directors, a second Course Developer (**Juan Marcos Alarcon**) and myself that yielded novel insights into the molecular and physiological mechanisms regulating hippocampal learning and memory in a rodent model system. Because I do not work on any of these model systems as part of my PhD thesis, I was quite nervous about presenting these results to *bona fide* experts, but they gave me very positive and constructive feedback! The GRC attendees seemed to like how we incorporated molecular approaches into the NS&B course, and they were also intrigued by the collaborative research between the two course directors. The best part about presenting a poster was listening to the conversations that it sparked among the viewers. Never before had one of my conference posters elicited such exciting and passionate discussion, and I think it was because there was something on my poster that everyone could relate to, whether it was a past affiliation with the course or an interest in a particular approach or result that I reported. Thus, I believe my poster was a huge success on multiple levels, and I am very glad the Heiligenberg Travel Award committee saw the potential in my somewhat out-of-the-ordinary application.

Overall, the GRC was excellent. The discussion leaders of each session gave great introductions that really set the stage for the speakers. The sessions were thematically quite diverse, providing attendees with a broad overview of the current state of neuroethology. It was great to hear talks from those who have been pioneers in the field for years, those just beginning their research programs, and those came in from neighboring fields. There was abundant opportunity to meet new colleagues and to talk to current collaborator and former members of my lab. I am looking forward to seeing everyone again at future neuroethology meetings.

Jessica Hanson, Ph.D. candidate in the Evolution, Ecology and Behavior Graduate Program in the Department of Biology at **Indiana University** wrote:

"I was fortunate to receive the Heiligenberg travel award this year, which funded my first-time attendance at the neuroethology Gordon Research Conference, and it was a great experience! I was most impressed by the level of interaction that was made possible by the long duration and small number of attendants at the conference. Not only did I meet many new people, but I got to know them over multiple meals through the week. The talks spanned a broad swath of techniques, but the speakers made even topics I was less familiar with approachable. At the end of each evening I wanted to try something new. One night it was modeling evolution with robots and another night it was echolocation! Because the posters were up for several days, I was able to visit all the posters as well as present my project to many different people at a conversational pace. With all the feedback I was able to improve latest round of experiments. The lobster dinner was a nice touch at the end!"

Bryce Chung, Ph.D. Candidate in Neuroscience at **Georgia State University** wrote:

"Meeting fellow researchers in the field of neuroethology was invaluable to providing perspective on my research goals. Not only was it a wave of encouragement, but it helped to put our work in context

with the work of others. Being able to converse with colleagues about their research in biomechanics made it clear that the problems we are addressing in our lab have far-reaching implications beyond the scope of locomotion in crayfish. For example, closing the loop - running real-time simulations with online sensory feedback, called reafference - has held back progress in neuroethology. Recent advances in technology, including the software/hardware interface in our lab, are affording us with an opportunity to answer questions previously unaddressable. We are now able to carry out experiments to test the role of sensory feedback and to determine the role of reafference during locomotion."

Katrina Schrode, Ph.D. Candidate in Neuroscience at the **University of Minnesota** wrote:

"I very much enjoyed the GRS and GRC in Neuroethology this year, and was grateful for the Heiligenberg prize that allowed me to attend. I was impressed by the diversity of research represented at the meeting, and I really enjoyed hearing about research that I was less familiar with, including sessions on social networks, gene networks, and artificial neural networks. Because the meeting was small and located at a comfortable resort, it had an informal and intimate feeling which I particularly liked. The environment facilitated networking, and I interacted with faculty that I might not have been bold enough to approach otherwise. The relaxed setting also allowed plenty of time to catch up with friends and make many new acquaintances that I look forward to seeing at future meetings."

CALL FOR PROPOSALS FOR THE 2018 CONGRESS

From Peter Narins, President-Elect of the ISN.

We hope that you are already considering the possibility of hosting the 2018 Congress. Now is the time to begin thinking about this in earnest and planning your proposal. Keep in mind that the conference generally attracts between 500-700 people, so it is important that you have a lecture hall that is large enough to accommodate this many people. If you are interested in hosting the Congress please put together a proposal and send it to me (pnarins@ucla.edu) for pre-approval. Proposals should include the following information:

Required host information
1. name and contact information of host
2. a list of the faculty, students and staff who will form the local organizing committee
3. availability of local support from your home institution, local sources, government sources (note that the program committee will be responsible for writing grants in support of the conference, but if there is local support available to offset costs this is very helpful)
4. an estimate of registration fees (if possible)

Proposed Dates for the Congress. Please offer a number of choices, if possible

Meeting venue information. This should include the following information if available: location, rooms available with seating, poster room locations, facilities for meals, off-site availability of food, internet services, projection services, and childcare services.

Housing information. This should include the following if available: estimate of the number of rooms/beds for students and/or faculty at the meeting site, if limited, list of local hotels, approximate cost of housing, location of housing relative to meeting site.

Transportation information. This should include current airline prices from: New York, Los Angeles, Chicago, Atlanta, London, Berlin, Frankfurt, Tokyo, Sydney, Buenos Aires (to compare relative costs); cost of transportation from nearest international airport to meeting site; transportation availability at meeting site (if applicable).

Local attractions and/or possible daytrips.
If your university or local convention center regularly hosts meetings of this size, then there may be a professional conference organizer who can assist you in gathering this information.

***** The deadline for submitting your proposal is June 4, 2014*****

Prospective hosts who receive pre-approval will give a 10-minute presentation at the Sapporo, Japan Congress in July, 2014, detailing the advantages of their venue. Information about the proposals will be available online and a poll will be conducted shortly after the Japan Congress to decide where the 2018 Congress will be held. Once this has been decided, the Executive Committee will appoint two Program Chairs who will assemble a Program Committee to determine the content of the Congress.

Peter Narins notes: I would greatly appreciate receiving a brief email from you if you are considering a proposal (pnarins@ucla.edu).

ISN MEMBER WINS 2013 IG NOBEL PRIZE!

Eric Warrant shares his reactions to winning a top scientific honor with ISN Secretary Susan Fahrbach.

Ten new **Ig Nobel Prizes** were introduced to the world at the 23rd First Annual [sic] Ig Nobel Prize Ceremony held at Sanders Theatre, Harvard University, Cambridge, USA, on September 12, 2013. Among the new laureates was one of ISN's own: **Eric Warrant** of **Lund University, Sweden**. Congratulations, Eric!

Warrant, along with colleagues **Marie Dacke**, **Emily Baird**, **Marcus Byrne**, and **Clarke Scholtz**, was recognized for *"discovering that when dung beetles get lost, they can navigate their way home by looking at the Milky Way."* These researchers were honored with the **first joint prize ever awarded in biology and astronomy**. Marie, Emily, Marcus, and Eric were able to attend the awards ceremony in person.

From left to right: Emily Baird (Lund), Eric Warrant (Lund), Marie Dacke (Lund), and Marcus Byrne (Witwatersrand, South Africa). Photograph by Eric Warrant, who explained that the red balls represent dung balls and the pith helmets represent "the little hats that we taped on the beetles to obscure their view of the sky."

Eric reported that it was not only fun to get the award, but that it was also an *"amazing way to lift science up to the public."* He spoke for the entire team, noting with pride and pleasure: *"The prize ceremony was probably the most hilarious event in my scientific career, a combination of opera, comedy and an unashamed exultation of the value of scientific curiosity. All four of us were deeply honored to receive this prize."*

How can you learn more about this amazing prize-winning research? In addition to the reading the paper cited below (highly recommended), you could also watch the video of the Ig Nobel ceremony (http://new.livestream.com/cs50/igs; fastforward to about minute 52) or the pertinent episode of the popular TV series, The Big Bang Theory.

Dung Beetles Use the Milky Way for Orientation, Marie Dacke, Emily Baird, Marcus Byrne, Clarke H. Scholtz, Eric J. Warrant, *Current Biology*, epub January 24, 2013.

The traditional "throwing of the paper airplanes" at the 2013 Ig Nobel Awards ceremony. Photograph by Eric Warrant.

SUPPORTING THE ISN AND ITS PROGRAMS

Feeling inspired by thoughts of an Ig Nobel in your future? Consider making a donation to support the ISN and it programs. You can contribute to the ISN **General Fund** or designate any of the following special funds: **Capranica Prize** (recognition of an outstanding achievement or future promise in the field of neuroethology); the **Bullock Visiting Lecturer Fund** (supports travel of invited lecturers); the **Developing Neuroethology Fund** (supports scientists in non-western countries having trouble acquiring travel funds to attend an ISN Congress); and the **Heiligenberg Travel Award** (supports student travel related to neuroethology, including lab visits to learn new techniques). Honor a friend, colleague or a milestone in your own career by making a donation in support of the ISN.