



International Society for Neuroethology

Newsletter Nov/Dec, 2011

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President's Column

Paul S. Katz

President of the ISN

Can we be honest about the nature of science?

I have to say that I am getting tired of the

portrayal of science that is not intellectually honest. I understand why it has come to this, but I'm still not happy about it. Funding agencies are trying to appeal to various constituencies and this puts pressure on scientists to make believe that scientific discoveries are rapid and predictable. Of course scientific discoveries are by their nature incremental and discoveries that transform our thinking are rare. Furthermore, the major discoveries, when they come, are not predictable; that's what makes them major discoveries!

In the United States, the National Institutes of Health, which have a valid mission to serve public health, have funded basic research for years. Recently, however, there has been an unprecedented impatience to translate basic research into therapeutic intervention at the expense of basic research. Coincident with this increased emphasis on translational research, there has been pressure on basic researchers to make their research seem more translational. I think this pressure underlies the tendency to portray research as more directly relevant to human disease than it is.

Of course, this is not to say that we cannot learn about human diseases by studying animals; there are aspects of human physiology that are common across mammals or vertebrates or even metazoans. We are all aware of triumphs of animal research such as understanding the ionic basis of action potentials using squid axons or the discovery of Nerve Growth Factor using chicks and mice. However, it is essential to recognize what is common because of phylogeny, what is similar because of functional necessity, and what might be species-specific. Mice are not inherently better for understanding humans than fruit flies simply because they are mammals.

The problem of intellectual honesty is particularly acute in behavioral neuroscience. There is a logical problem when we start with the premise that human behavior can be classified by the performance of animals in behavioral tests that are not at all analogous to the human behavior of interest. For example, a standard measure for antidepressant efficacy is the performance of rats in the forced swim test. The implication is that a rat that continues to swim is not as depressed as a rat that gives up and floats. This is just one of a slew of standard tests that are used to equate rodent and human behavior.

There is a further inconsistency in that experiments must be conducted to prove that an animal condition is a valid model for a human condition. Seeking such proof, however, creates a bias in the experimenter, which could lead toward cherry picking the features that support the claim that the animal is a valid model. If the model is validated, then it becomes a self-fulfilling prophecy that understanding the model helps us understand human behavior.

Many human behavioral conditions do not have a single cause, but represent a spectrum of disorders. Therefore studying the etiology of a behavioral disorder by using an animal model to examine one single cause is not likely to produce a grasp of the system that has gone awry. Would it not be more productive to understand the way the system functions than to try to understand its malfunction? As Tolstoy is often quoted, "All happy families resemble one another, each unhappy family is unhappy in its own way."

The power of the neuroethological approach is that it examines the neural mechanisms of ethologically-relevant behavior without bias. There is no presupposition that the behavior is analogous to human behavior, yet neuroethological research can lead to understanding human conditions. This point was recently highlighted by Larry Young in a paper titled, "Can understanding social preferences in rodents lead to novel pharmacotherapies for social anxiety and avoidance in psychiatric disorders?" (*Neuropsychopharmacology*; 2011, 6:2151-2). Here he makes the case that basic research of the molecular mechanisms underlying social behavior in voles and other rodents has led to potential therapies for conditions in humans. The initial work on rodent social behavior was not undertaken with the goal of understanding human problems, but the science has led the way to new discoveries.

Krogh's principle is often invoked to justify the use of model systems: "For a large number of problems there will be some animal of choice or a few such animals on which it can be most conveniently studied." (Krogh A, *The progress of physiology. Amer J Physiol*; 90:243-251, 1929.) This is absolutely true in many cases where it is more convenient to use a rodent hippocampus instead of a human hippocampus or a squid axon instead of a rodent axon.

In many cases, it may be better to use a non-standard “model system” because of special advantages that it affords. As such, I have heard this principle applied to neuroethological research. But the difference in neuroethology is that the research is aimed more at what is actually relevant to the animal than to what is relevant to humans. Again, this is not to say that we don’t learn about humans by studying specialized animals, or “champion species” that are specialized for a task. Exaggerated abilities such as hearing in the Barn Owl permitted an earlier description of sound localization than was feasible in other systems.

It is much more intellectually honest to say that the research aims to understand the behavior of the animal than to say up front that it will cure human disease. Yes, it is possible that basic research will translate to bettering the human condition. But, isn’t it better to acknowledge that an understanding of the neural basis of behavior is a worthwhile goal in and of itself?

Still, I think it would be most intellectually honest if scientists were able to freely say, “I am studying this problem because it is interesting.” An interesting problem should be one that challenges current scientific knowledge and advances the field. The fascinating problems are not and should not all be directed at understanding humans. They should help us understand the bigger world around us. A deeper knowledge about the neural basis of animal behavior will undoubtedly enhance our comprehension of ourselves as members of the animal kingdom.

Even August Krogh was interested in comparative studies for their own scientific ends; in addition to his oft-repeated principle, that same paper contains the following statement, which is somehow not as well-known, “I want to say a word for the study of comparative physiology also for its own sake. You will find in the lower animals mechanisms and adaptations of exquisite beauty and the most surprising character, and I think nothing can be more fascinating than the senses and instincts of insects as revealed by the modern investigations.”—Now that is honestly interesting.



Broadening Participation in Neuroethology

Andrea M. Simmons
Brown University, USA

As part of its strategic plan, the National Science Foundation (NSF) aims to “to expand efforts to increase participation from underrepresented groups and diverse institutions throughout the United States in all NSF activities and programs.” The goal is to “prepare a diverse, globally engaged science, technology, engineering, and mathematics (STEM) workforce; to integrate research with education; and to expand efforts to broaden participation from underrepresented groups and diverse institutions across all geographical regions in all NSF activities.” To this end, in October 2011, NSF organized a workshop on “Broadening Participation” to which selected scientific societies in IOS disciplines were invited. By bringing together groups of scientific societies, NSF hoped to energize them to develop innovative ways to expand their diversity efforts. Catherine Carr, Heather Eisthen and Andrea Simmons attended as representatives of ISN.

NSF has funding available to support society-based diversity efforts, particularly for projects in which several societies pool their efforts. Successful proposals should be targeted towards increasing representation of groups that are underrepresented in science, and that each society could decide for itself what kind(s) of diversity we’d like to promote. Efforts need to focus on nurturing postdoctoral fellows or junior faculty members, but may also include recruiting undergraduate students and retaining graduate students. “Broadening participation” could also be expanded to include people interested in organismal biology as journalists, policy makers, and even as members of the lay public.

ISN will be coordinating with the Animal Behavior Society and the Society for Behavioral Endocrinology to develop a proposal to broaden participation in behavioral science. Our proposal centers on recruiting and retaining a more diverse scientific work force in the study of animal behavior, broadly defined. The basic goal is to provide “cradle-to-grave” mentoring for students and scientists interested in behavior, with “cradle” defined as “the day you show an interest in behavior” and “grave” defined as “the day you get



tenure.” Specific ideas that we are developing as part of this proposal include:

- (1) Multilingual websites that feature animal behavior. One will be targeted at k-8 students; one at the high school and undergraduate level; and one with career/professional information relevant to graduate students and postdoctoral fellows.
- (2) Common outreach plans and professional development modules for our societal meetings that can be duplicated across meetings and across societies. By sharing resources and expertise, we can more realistically gauge the success of our efforts.
- (3) The three societies will give undergraduate and graduate students and perhaps postdoctoral fellows, or at a minimum those in these groups who are members of under-represented groups, discounted registration fees (members’ rates) at each others’ meetings.
- (4) We will explicitly target society members or people with similar interests, particularly, and will subsidize their attendance at our annual meetings.
- (5) Finally, we will develop a common system to provide new people in the field with long-term mentoring.

We welcome input from Society members on these efforts.



The Pleasure of Small Meetings

**The Third Annual Southern Hemisphere Bee-Fest Symposium
2nd – 3rd December, 2010**

Susan Fahrbach

Wake Forest University, USA

I had the good fortune to attend the Third Annual Southern Hemisphere Bee-Fest Symposium convened in Auckland, New Zealand, 2nd – 3rd December 2010, as a Northern Hemisphere interloper. This is the beauty of working on the neuroethology of a cosmopolitan (invasive, some might say) species: *Apis mellifera* is *Apis mellifera* the world over. The institutional host was the Faculty of Medical and Health Sciences of the

School of Medicine of the University of Auckland, in partnership with the Faculty of Science of the School of Biological Sciences. The organizers (Guy Warman and James Cheeseman of the Department of Anesthesiology and Craig Millar of the School of Biological Sciences) created a welcoming atmosphere that lasted from the first sips of wine at the Old Government House the night before the meeting proper through a celebratory formal dinner at the Harbourside Restaurant in the Ferry Building on Quay Street in Auckland City on through the closing workshop on Friday. The sense of camaraderie imparted by the focus on a single species and the inclusion of many students as speakers led to a lively exchange of unpublished data.

Several of the talks highlighted the relationship between physiology and honey bee behavior. For example, Rebecca Norris of the University of Auckland presented very interesting work on carbon dioxide in honey bee colonies and Naila Even of Macquarie University in Sydney, Australia, discussed stress sensitivity in honey bees. Other talks described clever new methods for the study of honey bee behavior. I was amazed by the presentations of James Cheeseman and Eva Winnebeck (both of the University of Auckland) on the use of anesthesia to study navigation and circadian rhythms in honey bees, and enjoyed participating in a discussion of methods for injecting drugs into bees led by Jo Yu, also from the University of Auckland. Several presentations, including my own plenary talk and presentations by Eirik Søvik and Lun-Hsien Chang, both from Macquarie, described modern bee brain research. Two talks likely signaled important future trends in the field of honey bee biology: Andrew Barron from Macquarie presented a quantitative model of honey bee colony population dynamics, and Ryszard Maleszka (Australian National University, Canberra, Australia) managed to squeeze a wonderful tutorial on neuroepigenomics into a 15 minute speaking slot!

Rather than describe the entire program – which would be a very pleasant task – I will skip immediately to the final scientific presentation on the first day of the meeting, by Dick Bellamy and Richard Gardner. The University of Auckland has a strong research focus on the microbiology of winemaking, and we learned not only about the

history of viticulture in New Zealand but also about the genetics of the all-important wine microbes responsible for those delicious New Zealand *sauvignon blancs*. A wine tasting followed, and I became convinced that, should I ever require a post-neuroethology career, I will enroll in the Wine Science study program and intern at one of the beautiful Waiheke island vineyards operated by the University of Auckland. Although I usually eschew sweet wines, I definitely enjoyed my first taste of New Zealand “stickies,” and look forward to drinking more stickies in the future. Given the context, it seems only fair to describe these luscious dessert wines as being enlivened by refined “notes” of honey.

I was able to attend this meeting because it fell during the time I was a sabbatical visitor to the laboratory of Dr. Andrew Barron in the Department of Biological Sciences at Macquarie University in Sydney. I am very appreciative of having been given this special opportunity to interact with my new Trans-Tasman colleagues in such a beautiful and historic city, but my goal in writing this piece goes beyond a celebration of honey bee brain and behavior research in Australia and New Zealand. Like other scientists, neuroethologists feast on international congresses, Gordon Research Conferences, and mega-meetings such as the Society for Neuroscience annual meeting. I’d like to encourage ISN members to add, every now and then, local taxon-focused meetings to their diet as a form of intellectual nutritional supplement. If no one else is organizing the small neuroethology meeting you want to attend, perhaps that is your cue to follow the lead of Guy Warman, James Cheeseman, and Craig Millar. Organize your own!



From Bee-Fest to Book: a Tribute to Randolph Menzel

Alison Mercer
University of Otago, New Zealand

In June of 2010, Randolph Menzel took a few days off of work to celebrate; the occasion was his 70th birthday. Giovanni Galizia, Dorothea Eisenhardt and Martin Giurfa, with help from the Menzel family, organized a “Bee-Fest” in Randolph’s honor.

Friends, family, former students, colleagues and collaborators gathered in Berlin to feast on food and wine, while enjoying a smorgasbord of exciting science on the side. It doesn’t get better than that! It was a true celebration – and a fitting tribute to the person responsible for putting “neuro” into honeybee neuroethology.

Since the summer of 2010, Giovanni, Dorothea and Martin have gathered together a number of contributions from participants at the Bee-Fest and have skillfully woven them into an extraordinary new book entitled, “*Honeybee Neurobiology and Behavior – a Tribute to Randolph Menzel*”. The book, recently published by Springer (ISBN 940072098X, 9789400720985), highlights the remarkable progress that has been made in honeybee research over recent years. It has an interesting point of difference – the book includes commentaries by Randolph himself on the significance of key discoveries and on important issues that remain to be resolved. It also presents a vision for the future of honeybee neuroethology. It’s a treat to all neuroethologists.



Randolf celebrating with Ryszard Maleszka
(ANU, Canberra)



Program for the International Congress of Neuroethology 2012

ICN 2012 will run from Sunday evening August 4 through Friday afternoon August 10. See <http://icn2012.umd.edu/> for more information

****Abstract deadline is March 1, 2012****

Program for ICN 2012 cont'd

Plenary and Evening Speakers:

Malcolm Burrows (University of Cambridge, UK): How do animals move quickly: Interactions between brain, muscle and skeleton
<http://www.zoo.cam.ac.uk/zoostaff/burrows.htm>

Elke Buschbeck (University of Cincinnati, USA): The making of an eye: structural and functional diversity of stemmata

Carsten Duch (Arizona State University, USA): Probing motoneuron function with targeted genetic manipulation in *Drosophila*

Ole Kiehn (Karolinska Institute, SWE): Spinal motor networks – excitation moving us forward
Toshiya Matsushima (Hokkaido University, JP): Chick economics: Profitability, risk and competition

Arthur Popper (University of Maryland, USA): From blind cave fish to pile driving – a tale of translational neuroethology

Constance Scharff (Freie Universitat, GER): Is FoxP2 a candidate for 'deep homology'?

Walter Wilczynski (Georgia State University, USA): Reciprocal interactions of social signals and hormones in anuran acoustic communication

Founder's Lecture: Edward Kravitz (Harvard University, USA): Genetic manipulations in the fruit fly fight club

Heiligenberg Lecture: James A. Simmons (Brown University, USA): Understanding how slow neurons support fast timing behavior: Echolocating bats, electric fish, and Walter Heiligenberg

Contributed Symposia:

1. Animal visual search. Organized by Hermann Wagner (RWTH Aachen University) and Ohad Ben-Shahar (Ben-Gurion University).

2. Polarization vision: New discoveries of natural behaviours. Organized by Nicholas Roberts and Shelby Temple (University of Bristol).

3. Activity generated modulation of motion vision responses. Organized by Karin Nordstrom (Uppsala University).

4. Nociceptors in the real world. Organized by Zen Faulkes (University of Texas-Pan American),

Ashlee Rowe (University of Texas Austin) and Ewan Smith (Delbruck Center Berlin).

5. Multiple cues for orientation: Integration, hierarchy and representation of cues. Organized by Gerit Pfuhl (Lund University).

6. Fixed and flexible traits in mating signals: evolution, genetics and physiological background. Organized by Varvara Vedenina (Russian Academy of Science) and Michael Greenfield (Université François Rabelais de Tours).

7. Invertebrate models for locomotion research. Organized by Amir Ayali (Tel Aviv University).

8. No oxygen, no problem! The neuroethology of hypoxia tolerant mammals. Organized by Thomas Park (University of Illinois Chicago).

9. Variability in intrinsic properties of neurons and their synaptic connections: consequences for the functional output of neuronal networks. Organized by Ronald Calabrese (Emory University).

10. Automated social behavior analysis. Organized by Tali Kimchi (Weizmann Institute).

11. Correlated neural activity in tadpole and zebrafish studied by recent advanced technologies. Organized by Kazuo Imaizumi (Louisiana State University).

12. Roots of Neuroethology: Progress and Prospects. Organized by Peter Narins (UCLA).

Participant symposia. Following the success of the participant symposium format at the Salamanca Congress, we have scheduled 4 participant symposia, to be chosen from submitted abstracts. Preference for slots in these symposia will be given to young investigators. Details of the submission process will be posted on the Conference website.

Other features of the program. As in Salamanca, we have scheduled a Young Investigator Symposium, during which winners of the Young Investigators Award will present their research. There will be two poster sessions, a student mixer, and a professional development workshop.





Plans for the 2014 ICN in Sapporo, Japan are in the works. See

<http://icn2014.wordpress.com/>
for more information.



Call for Proposals for the 2016 Congress

Alison Mercer, President-Elect of the ISN
University of Otago, New Zealand

We hope that you are already considering the possibility of hosting the 2016 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 (alison.mercer@otago.ac.nz) for pre-approval. **Proposals should include the following information:**

Host information

- Name and contact information of host
- A list of the faculty, students and staff who will form the local organizing committee
- Availability of local support from your home institution, local sources, government sources (note that the Program committee will be responsible for writing grants, but if there is local support available to offset costs this is very helpful)
- An estimate of registration fees (if possible)

Proposed Dates for the Congress

- please offer a number of choices, if possible

Meeting Venue Information. This can include the following if available:

- Location
- Rooms available with seating
- Poster room locations

- Facilities for meals
- Off-site availability of food
- Internet services
- Projection services
- Childcare services

Housing information. This can 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 relative to meeting site

Transportation information

- Current airline prices from: New York, Los Angeles, Chicago, Atlanta, London, Berlin, Frankfurt, Tokyo, Sydney, Buenos Aires (this is just to compare relative costs)
- Cost of transportation from nearest international airport to meeting site
- Transportation 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 12, 2012*****

Prospective hosts who receive pre-approval will give a 10-minute presentation at the College Park Maryland Congress in August detailing the advantages of their venue. Information about the proposals will be available online and a poll will be conducted shortly after this year's Congress to decide where the 2016 Congress will be held. Once this has been decided, the Executive Committee will appoint two Program Chairs who will assemble a Programme Committee to determine the content of the Congress.

I would greatly appreciate receiving a brief email from you if you are considering submitting a proposal (alison.mercer@otago.ac.nz).
Many thanks.



THE 2012 ISN CAPRANICA PRIZE

The Capranica Neuroethology Prize is named in honor of Robert and Patricia Capranica to provide an annual cash prize for recognition of outstanding achievement or future promise in the field of neuroethology. The 2011 International Society for Neuroethology Capranica Prize went to Paloma T. Gonzalez-Bellido in recognition of her paper, which was judged among the submissions to be most scientifically significant in the field of Neuroethology in 2010: Gonzalez-Bellido PT, Wardill TJ, Juusola M. (2011) Compound eyes and retinal information processing in miniature dipteran species match their specific ecological demands. *Proc Natl Acad Sci U S A*. 108: 4224–9.

<http://www.pnas.org/content/108/10/4224.long>

The prize consisting of \$1,000 (US) will be awarded to a promising young investigator who is the author of a paper published on line or in print during the 2011 calendar year, which is judged to be the most outstanding in terms of scientific significance in the field of neuroethology on the basis of criteria including: novelty of the scientific discovery, implications for scientific technical advancement, or importance for advancement of knowledge. The student must be first author on the submitted paper and must have played a major role in the inception and execution of the study. A secondary consideration shall be the accomplishments of the investigator such as other papers published, awards earned, leadership in societies and student organizations.

Eligible candidates must be either graduate students or postdoctoral trainees who have received their doctoral degree after 2007. Either the nominee or the advisor must be a member of ISN.

Applicants should submit (either by postal mail or by e-mail in PDF format) a brief statement of their qualifications and the significance of their published paper, a copy of the paper, a *curriculum vitae*, and a letter of reference from their graduate or postdoctoral advisor that details the role of the applicant in the published study as well as the overall accomplishments of the young investigator. The cash prize will be awarded to the recipient and

their name will be announced at the next International Congress of Neuroethology

*****All materials must reach the ISN office by April 30, 2012*****

Inquiries, as well as all application materials, should be addressed to:

Capranica Prize Selection Committee
International Society for Neuroethology
P.O. Box 1897

Lawrence, KS 66044, USA

Email address: lhardwick@allenpress.com

Selection of the recipient of the Prize will be based entirely on scientific merit, irrespective of race, creed, sex, age, or nationality. Donations to the fund supporting this Prize are welcome; please contact the above address.



Announcing a New Honor: Fellows of the International Society for Neuroethology

The International Society for Neuroethology is pleased to announce the establishment of the honorary position of **Fellow** of the ISN. Fellows are recognized for meritorious efforts to advance the science of neuroethology. These include any of the following:

- A significant corpus of published research that forms a distinct and important contribution.
- Leadership in educational and outreach efforts including public science education, international education, and/or educational methods
- Extraordinary service that promotes science and particularly neuroethology.

Candidates for Fellow must have been a member of the ISN continuously for at least the six years prior to nomination and must currently be a member of the ISN.

Fellow nominations may be made by any current regular, lifetime, or emeritus member of the ISN.

We encourage you to nominate someone who you think deserves our highest recognition.

- The Nominees must not be a member of the nominator's current department or immediate institute nor be a doctoral or postdoctoral associate of the nominator (current or in the past ten years).
- Nominations must include:
 - o a letter from the nominating member detailing the qualifications of the nominee and providing evidence of achievements that demonstrate fulfillment of the criteria
 - o supporting letters from two additional current members of the ISN
 - o a full *curriculum vitae* of the nominee
 - o a brief biographical sketch of the nominee (<250 words) that includes educational and professional background and a description of the achievements for which the nominee is being recognized.

Fellows will be formally recognized at the International Congress of Neuroethology. All materials should be sent by Feb 28, 2012 in the form of a single pdf file to Linda Hardwick at: lhardwick@allenpress.com

Selection of the recipient of the Prize will be based entirely on scientific merit, irrespective of race, creed, sex, age, or nationality.



Reminder: January 12, 2012 is the Deadline for NSF IOS Biology Preliminary Proposals.

The IOS Division of the Biology Directorate of NSF has changed its policy with regard to general grant submissions:

The Division is instituting an annual cycle of preliminary and full proposals. Preliminary proposals will be accepted in January and a binding decision will be made to invite/not

invite full proposals for submission in August. Full proposals received that were not invited will be returned without review. A limit on the number of submissions of preliminary proposals accepted from each proposer is also described in this solicitation.

<http://www.nsf.gov/pubs/2011/nsf11573/nsf11573.txt>

This policy does not apply to 1) proposals submitted in response to the CAREER, OPUS, RCN, PGRP or DDIG solicitations; or (2) special proposals that are described in the Grant Proposal Guide, i.e., RAPID, EAGER, workshops, and supplement requests.

For more information see:

<http://www.nsf.gov/pubs/2011/nsf11078/nsf11078.jsp?org=NSF>



Top Ten Reasons for Being a Member of the International Society for Neuroethology.

10. To get a discount on registration for the Neuroethology Congress
9. To be eligible for Student Awards
8. To be eligible for Capranica Prize for best paper
7. To be eligible to be a Fellow of the ISN
6. To get funding for a Neuroethology course that I'm planning.
5. To propose a symposium at the Neuroethology Congress
4. To support an organization that promotes the field of Neuroethology
3. To be surrounded by people who are interested in my work.
2. To meet incredible researchers from around the world.
1. Neuroethology? I thought this was Neurotheology.

Website:

<http://www.neuroethology.org/membership/benefits.php>



MATERIAL FOR FUTURE NEWSLETTERS

Send news, job advertisements, meeting announcements and other related information for the next newsletter to the ISN secretary, [Karen Mesce](mailto:mesce001@umn.edu) (mesce001@umn.edu). All materials should be sent via email.

Advertisements for jobs and graduate/postdoctoral positions should be no more than 150 words.

Suggestions for *feature articles*, including autobiographical sketches, research group reports, and Neuroethological Viewpoints, should also be sent to the ISN secretary. Please do not submit full articles of this type without a response from the Editorial Board. Feature articles may be up to 1,500 words in length.

We also welcome research commentaries, book reviews, and other material that might be of interest to the ISN community. These should be no longer than 450 words in length, and should only be submitted after consultation with the editor.

