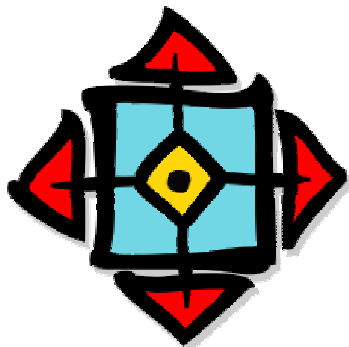




International Society for Neuroethology

Newsletter

November 2004

International Society for Neuroethology
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Next ISN Congress: Vancouver, Canada, in 2007. Local organizer: Catharine Rankin, Univ. British Columbia, Dept. Psychology, 2136 West Mall, Vancouver BC V6T1Z4, Canada. Phone: 604-822-5906; Fax: 604-822-6923; crankin@psych.ubc.ca

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The ISN President's Column

Edward A. Kravitz (edward_kravitz@hms.harvard.edu)
Harvard Medical School, Boston, Massachusetts, USA

Words of appreciation. First and foremost, I'd like once again to thank Al Feng for the magnificent job he did as President of the ISN over the last 3 years. Many important decisions were made during this time period (new management firm, much Congress-related business, maintaining membership rolls, establishment of the Heiligenberg Student Travel Awards, and others) and these were made wisely and in a timely fashion. My hope is that I will be able to continue and expand these policies and practices, and begin new initiatives that will continue to move the ISN forward as the major international organization focused on science and science education in neuroethology. I also want to thank Sheryl Coombs (our superb Treasurer), Janis Weeks (our excellent Secretary and editor of the Newsletter) and

Malcolm Burrows (our Past-President), whom I have had the pleasure of working with on the Executive Committee of the ISN these past 3 years. As a group, you could not ask for more loyal, hard-working and fun folks. Finally, once again, I would like to thank Sarah Bottjer, who did such a spectacular job of fund-raising and organization as Chair of the Congress Committee and who, along with her Co-chair, Martin Giurfa, planned an outstanding Congress. Axel Michelsen also must be thanked as Chair of the Local Congress Committee and for selecting the beautiful meeting venue, for making outstanding local arrangements for participants and accompanying family, and for generating much-needed funding from Danish sources for the 2004 Congress.

Governance of the ISN. I officially assumed the office of ISN President at the business meeting on Wednesday, August 11, during the highly successful Nyborg Congress. One problem with the presidency changing at the business meeting, however, is that none of the other officers of the Society change at that time; thus, the Treasurer and Secretary remain in office until the completion of a Fall election, the Council is non-functional until 7 new Council members are elected and all committees are officially dissolved. This situation means that we have limited governance of the Society during a 3-month period of time until we complete the election of new officers of the Society. Some further difficulties that we face are that our By-laws require a mail ballot for officers, and that By-law changes (for example, to allow electronic balloting for officers) require notification of proposed changes to the membership by mail, two months before we can implement any changes. Luckily, Al Feng (now as Past-President), Sheryl Coombs and Janis Weeks have continued the work of the ISN during this odd session, and we have been working as fast as possible to complete the ballot (which was mailed out at the end of October), to mail out notification of suggested By-law changes, to finish off the business and accounting of the Congress, and to generate another issue of our terrific Newsletter. In addition, Don Edwards has agreed to continue as Chair of the Membership Committee, so that this important function of the Society will not be interrupted.

Voting is important. *To ensure the continued success of the ISN, please consider seriously the candidates who have agreed to stand for election as officers of our Society when you receive the ballot, and please return the ballot to our management firm as soon as possible after you receive it. Please also review and consider the suggested By-law changes so that we can vote on them as soon as possible as well.*

Future directions of the ISN. The most serious challenge that I see facing our Society is that, to many of our members, our main event is a once-every-3-years Congress, with little to keep members involved with the ISN during the in-between years. As a consequence, we see membership fall off, and we see little or no involvement with the Society by members during the non-



Outgoing ISN President Albert Feng (USA) and incoming President Ed Kravitz (USA) model their ISN t-shirts in front of Egeskov Castle.

Congress years. While some benefits already are in place for members during the non-Congress years, we would like to see the list of such benefits expand. Thus, for example, three issues of the Newsletter, put together by our hard-working Secretary, are distributed to all members each year. In addition, a newly implemented Heiligenberg Student Travel Award program allows student members of the ISN to attend meetings of their choice to present neuroethology-related posters or talks. During the coming year, we plan to begin a program of ISN-sponsored lectures by distinguished members of our Society, much like the Grass Lecture series sponsored by the Society for Neuroscience. We also have begun to discuss the formation of regional "Chapters" of the ISN. These could meet, for example, in association with the Nerve Net Meetings held at different sites in the United States each year, or at the yearly Neurobiology Meetings held in Göttingen, or at the US or European Society for Neuroscience Meetings. It might be possible that visiting lecturers sponsored by the ISN could be requested by "Chapters" to attend their meetings to deliver seminars.

I would be delighted to have suggestions of other ways in which the ISN could become a more important part of everyone's life during the inter-Congress year, and, obviously, having people volunteer to serve on Committees of the ISN is always helpful.

On a more personal note. I am honored to serve as your President. I promise that wherever and whenever possible I will do all I can to foster growth of our field, to encourage financial support of neuroethological research in all of its manifestations by funding agencies, and to work on devising strategies to advertise our field to present and future generations of scientists and to curious individuals who just want to know more about the world that surrounds them. Once new officers and a new Council are in place, we will form new committees and probably a new, more formal committee structure,

aimed at involving our membership in the planning and decision-making associated with the future growth of the fascinating field of neuroethology. Thanks for electing me as your President, please join me in running our Society, and have a great rest of 2004. ♦

The 2004 ISN Congress: This Time, Nothing was Rotten in the State of Denmark

Sarah Bottjer (bottjer@usc.edu)
University of Southern California, USA

Martin Giurfa (guirfa@cict.fr)
Université Paul Sabatier, Toulouse, France

William Shakespeare's famous sentence '*Something is rotten in the state of Denmark*' (Hamlet, I, iv, 90) proved to be more than inappropriate in the case of the 7th Congress of the International Society of Neuroethology, which was held at Nyborg, Denmark, from August 8th to 13th, 2004. The meeting took place at the Nyborg Hotel am Strand, which was situated just in front of the sea, thus providing the perfect scene for an exciting conference. This time, there were no ghosts beckoning the participants, as they did with Hamlet, but only scientists engaged in lively discussions about neuroethological topics.

The local committee presided over by Axel Michelsen did a fantastic job in choosing the place for the conference. The hotel provided all necessary facilities needed for such a big event (including the excellent food...). Approximately 530 attendants participated in the meeting, which included 10 symposia, 8 plenary talks that covered topics as diverse as colour vision in

butterflies and associative learning in rats, and two special lectures: the Heiligenberg Lecture delivered by Ron Hoy and the Founders Lecture delivered by Franz Huber. Furthermore, a special slot was assigned to the recipients of the Young Investigator Awards,

Yehuda Ben-Shahar, Anthony Leonardo, James Poulet and Daphne Soares (see profiles in this issue). Special thanks are due to Heather Eisthen and Ed Kravitz, who kindly accepted to give plenary lectures on short notice, as two of the original speakers had to cancel their participation due to personal difficulties. Their talks contributed to an outstanding scientific programme, which was intense and stimulating. At the end of each day, participants could simply relax or continue their discussions in the inspiring context of the beach in front of the hotel, sometimes with the also-inspiring help of Danish beer.

All in all, the meeting turned out to be a big success as the variety of animal models, behaviours and neural substrates represented in Nyborg made the ICN a true celebration of life in its integral diversity and complexity. This is certainly one of the most valuable aspects that characterizes our meetings and, more generally, our Society.

It is difficult to select some highlights as this would mean not acknowledging the impact of all contributions. In any case, if a couple of events had to be chosen, Franz Huber's Founders Lecture would certainly be one of them. In a particularly emotive talk, Franz summarized his personal recollections about the history of neuroethology. The whole text of this address will appear in an issue of *Journal of Comparative Physiology A*. To honour Professor Huber's prolific career and the leading



Franz Huber, for whom the Founders Lecture was renamed, and outgoing ISN Secretary Janis Weeks enjoy a break from touring Egeskov Castle, where ICN attendees took a half-day excursion.



Co-Chairs of the Program Committee Martin Giurfa (France) and Sarah Bottjer (USA) celebrate the successful Nyborg Congress.



In a spontaneous display of enthusiasm at the conference banquet, ICN attendees perform "the wave."

role he has played in the establishment and development of the field of neuroethology, the Society renamed the Founders Lecture as the Franz Huber Lecture, a wonderful homage that was received with great enthusiasm.

Another highlight of the meeting was the Student Poster Contest, which was implemented for the first time. Undergraduates and Ph.D. students who had not yet defended their thesis entered the competition in large numbers, such that 60 posters had to be reviewed by the ad hoc review committee presided over by Martin Giurfa. The intense work of the members of the poster contest committee made this task possible. Special thanks are due to Kentaro Arikawa, Jakob Christensen-Dalsgaard, Alison Mercer, Peter Narins and Catherine Rankin for the time spent evaluating posters. The Society awarded five 1st prizes of \$500 each, and ten 1-year subscriptions to *Nature Neuroscience Reviews* generously provided by Rachel Jones from *Nature*. Decisions on the awardees were very difficult because the general consensus was that all posters were of excellent quality. In fact, the poster committee decided to congratulate all students for the impressive quality of their work. An important point indeed, as the future of the Society resides precisely in the work performed by these young researchers. This point was underlined by the new President of the Society, Ed Kravitz, who closed the meeting and emphasized some of the future directions that, in his opinion, the ISN should follow. Scientific education for a vast audience of non-specialists should be one of these main objectives. The Student Poster Contest winners are listed at the end of this article.

When the conference was over, the first sensation was that it was difficult to believe that the many months of previous intensive work required to organize the event had vanished so rapidly. But in fact, they had not. The effort from all persons involved in this initiative are part



Outgoing ISN President Al Feng (USA) and Local Organizer Axel Michelsen (Denmark) enjoy the grounds of Egeskov Castle.



Catharine Rankin (center) will be the local organizer for the 2007 ICN in beautiful Vancouver, Canada.

of a continuum that will lead us to the next ICN in Vancouver, Canada, but more importantly, to the strengthening of the International Society of Neuroethology.

The five 1st place winners of the Student Poster Contest were:

- Erik Zornik, Columbia University, USA (poster 27).
Generating vocal patterns in *Xenopus laevis*
- Ram Gal, Ben Gurion University, Israel (poster 203).
Wasps use brain sensors to sting cockroaches
- K.L. Briggman, UC San Diego, USA (poster 250).
Linear discriminant analysis of behavioral choice in the leech CNS
- Noopur Amin, UC Berkeley, USA (poster 57).
Selectivity for natural sounds in the auditory system of song birds develops during vocal learning
- James Newcomb, Georgia State University, USA (poster 248).
Systematic investigation of the behavioral functions of homologous serotonergic neurons in nudibranch molluscs

The five recipients of Honorary Mentions were:

- Jason Gallant, Trinity College, Hartford, USA (poster 120).
Electrocommunication signal diversity within *Apterionotus* may be due to varied kinetic properties of glutamate receptors
- J. Castellano, Trinity College, Hartford, USA (poster 123).
Social influences on adult neurogenesis in weakly electric fish *Apterionotus leptorhynchus*
- Birgit Greiner, Lund University, Sweden (poster 154).
Optical and neuronal adaptations for nocturnal vision in a tropical halictid bee
- Shiva Sinha, University of Maryland, USA (poster 229).
Vocal pre-motor activity in the echolocating bat superior colliculus
- Yoshitaka Hamanaka, Osaka City University, Japan (poster 264).
Morphology and electrophysiological properties of neurons in the pars intercerebralis and lateralis in the blow fly *Photophormia terranova*.



Profiles of 2004 ISN Young Investigators

This issue features profiles of the four 2004 recipients of ISN Young Investigator Awards. The awardees — Yehuda Ben-Shahar, Anthony Leonardo, James Poulet and Daphne Soares — each received a \$1000 award and gave an oral presentation during the YIA Plenary Session at the Nyborg Congress in August, 2004. The ISN applauds the creative research of these outstanding up-and-coming neuroethologists! ♦

ISN Young Investigator Dr. Yehuda Ben-Shahar

Yehuda Ben-Shahar (yehuda-ben-shahar@uiowa.edu)
University of Iowa College of Medicine, Iowa City, Iowa, USA

As a child I always thought I wanted to be a scientist studying elephants and lions in the African savanna. My actual beginning was a bit more modest. I started as an undergraduate student working with Avraham Hefetz at Tel-Aviv University in Israel, studying the role of juvenile hormone in caste determination of bumble bees. It was there where I met Gene Robinson, who became my future thesis mentor. I was fascinated by Gene's ideas about using honey bees as a model for the function of genes in complex behaviors. I became a graduate student in Gene's lab at the University of Illinois, USA, and thus began my love affair with bees and their intriguing behaviors.

I soon realized that the risk of being stung by bees was outweighed by the fun and excitement of studying them. There are very few model organisms that allow you to combine observations of animals behaving in their natural environment with lab-based studies. The honey bee division of labor is a great model for studying mechanisms of behavior, especially how the function of



Yehuda Ben-Shahar with his most recent experimental subject for neuroethology: Itai Ben-Shahar.

specific genes may affect complex behavioral phenotypes. At the time we knew very little about the bee genome and brain transcriptome so we decided to take the "gene candidate" approach.

About the same time a *Science* paper was published from Marla Sokolowski's lab in Toronto, Canada. The paper discussed how natural polymorphisms in the *foraging* gene, which encodes a cGMP-dependent kinase (PKG), affects feeding behaviors in flies. I was captivated by the story and decided that *foraging* fitted well our "candidate gene wish-list": (1) it shows expression differences; (2) it has naturally occurring variations; and (3) it is associated with relevant behaviors. I cloned *foraging* from bees and showed that its temporal regulation is important for the regulation of honey bees' division of labor. As bees "graduate" from their in-hive period and start foraging outside, they show an increase in expression and activity of this PKG gene in their brains. I later showed that this increase in PKG brain activity may regulate division of labor, at least in part by changing the bees' behavioral response to light, which is known to attract foragers and repel younger nursing bees. The work on *foraging* led to a wonderful collaboration with Marla's lab, resulting in additional studies on the role of the gene in behavioral plasticity in the fly (data that we hope to publish soon).

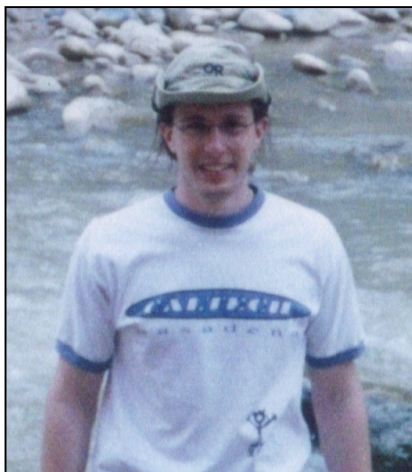
After a short postdoc in Gene's lab, which resulted in a publication on another pathway that affects foraging behavior (the manganese transporter *malvolio*), I moved to the University of Iowa as a Howard Hughes Medical Institute postdoctoral fellow with Michael Welsh. My general scientific interests are still mechanisms of behavioral plasticity. The focus of my current work is to understand the possible roles of Degenerin/ENaC-like sodium channels in various aspects of *Drosophila* sensory biology by using genetic, biochemical, and neurophysiological methods. We are trying to investigate the role of these genes in behaviors such as male courtship and the regulation of salt intake. As my career progresses I hope to be able to combine studies of the brain as well as the sensory system in both bees and flies to better understand mechanisms of behavioral plasticity.



ISN Young Investigator Dr. Anthony Leonardo

Anthony Leonardo (leonardo@fas.harvard.edu)
Harvard University, Cambridge, Massachusetts, USA

My path to neuroethology began in a strange and foreign land — the fields of artificial intelligence and computer science. As a student at Carnegie Mellon University (Pittsburgh, Pennsylvania, USA), I spent my undergraduate years in the group of Professor Herbert A. Simon, building expert systems of human cognition. This is about as far as you can get from neuroethology while still retaining your union card as a behaviorist. However, a few years of black-box modeling changed



Anthony Leonardo

my perspective. I became convinced that the algorithms that describe an organism's behavior are intimately linked to the dynamics of the neural circuits that generate those behaviors.

As I began graduate school, I was fortunate in joining the laboratory of Professor Masakazu Konishi at Caltech (Pasa-

dena, California, USA), for there was much to learn. The only wet biology I engaged in as an undergraduate was eradicating the mold colonies that fed on the occasional cola spill on my computer keyboard (Coke is widely known to be the primary fuel of computer programmers). My training in neuroethology began with behavior. In my second year at Caltech I developed a computer-controlled system to adaptively perturb the auditory feedback heard by singing birds. We found that chronically altered auditory feedback would destabilize the crystallized songs of adult birds. Most importantly, cessation of the altered feedback allowed the birds to hear themselves singing normally again and resulted in the slow recovery of their original songs. By tweaking the relevant dials we revealed what had long been suspected — the songs were stable not because they had become hard-wired but instead because they are maintained dynamically.

My next task was to learn how to record from neurons in freely moving, singing birds. I spent part of my graduate studies at Bell Labs (Murray Hill, New Jersey, USA), in the group of Professor Michale Fee, assisting in the development of a miniature motorized microdrive for chronic recording in small animals. Using the microdrive, we discovered that while the song itself contains sounds with both fast and slow time scales, the neural activity patterns in RA (a pre-motor nucleus) change rapidly, independent of song structure. This led us to propose a simple mechanistic model of song generation.

I returned to Caltech and, combining the technology from both prior projects, recorded from neurons in nucleus LMAN of the song control system while zebra finches sang with normal and altered auditory feedback. LMAN has long been thought to relay an error-correction signal, based on auditory feedback, to the motor control system. Surprisingly, we found that single neurons in LMAN had no measurable sensitivity to changes in auditory feedback during singing, and their activity patterns were in fact more consistent with a motor origin than an auditory one. The error-signal remains an elu-

sive puzzle, awaiting the hands of some future graduate student.

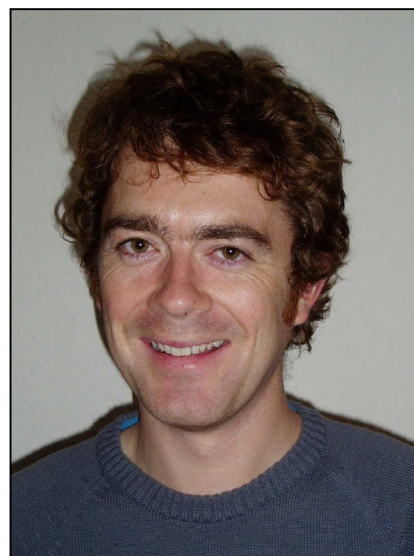
After finishing my dissertation at Caltech, I began a postdoc in the laboratory of Professor Markus Meister, at Harvard University (Cambridge, Massachusetts, USA). My project here is studying how the dynamics of populations of neurons in the retina of the tiger salamander encode the trajectory of moving targets. "The retina", you ask, "what could that possibly have to do with behavior?" The computations in the retina affect everything that comes after them, including behavior. Furthermore, our unprecedented anatomical knowledge and stimulus control in the retina enable certain types of experiments that cannot be done elsewhere. "What experiments?", you ask? That is a story best told at ICN 2007. ♦

ISN Young Investigator Dr. James Poulet

James Poulet (jfp2@cam.ac.uk)
Cambridge University, United Kingdom

From an early age I was convinced that I was going to play cricket for England! So it came as quite a surprise to my dad when I told him that my true interest lay with understanding of the neural control of behaviour. I was introduced to neuroscience research in Professor Alan Roberts' lab at the University of Bristol, England, where I realised that I found the questions surrounding the subject fascinating and enjoyed doing experiments. I then moved to the University of Cambridge to complete my Ph.D. under the supervision of Professor Berthold Hedwig...on a different sort of cricket.

I examined how crickets maintain auditory sensitivity during stridulation (or "singing") despite generating such loud sounds. When crickets are singing, their tympanic membranes remain fully responsive; however, cricket auditory neurons are inhibited by a neural signal (or corollary discharge) generated within the nervous system. The inhibition prevents desensitisation of the auditory pathway and allows the singing cricket to hear sounds from



James Poulet

the environment. Recently, using paired intracellular recordings in singing crickets, I have identified a neuron that mediates the corollary discharge inhibition. I presented this work at the 2004 ICN.

Berthold Hedwig and I have also examined pattern recognition and phonotaxis in female crickets using a combination of neuronal recordings and behavioural analysis. Our recent behavioural experiments analysed phonotaxis of female crickets to male song patterns on a new, highly sensitive trackball system. Much to our surprise, the new system demonstrated that females make reflex-like steering responses to individual sound pulses. These responses are too fast for a pattern recognition mechanism to be directly involved in steering. However, our experiments also revealed that a recognition mechanism modulated the amplitude of steering on a longer time scale. It was remarkable to see how new answers to an old question were generated following the application of a new technique.

Over the last few years, I have become especially interested in how the nervous system processes, and copes with, the mass of self-generated sensory information during behaviour. For the next step in my career, I aim to continue using *in vivo* recording techniques in combination with behavioural analysis. Alongside the crickets, I plan to examine a vertebrate model system to develop a broader understanding of sensorimotor neuroscience. ♦

ISN Young Investigator Dr. Daphne Soares

Daphne Soares (daph@wam.umd.edu)
University of Maryland, College Park, Maryland, USA

I grew up on a horse farm in Rio de Janeiro, Brasil, but immigrated to the USA with my parents when I was 13 years old. I had originally planned to become a helicopter pilot/spy and a world-famous artist after winning a medal in Dressage in the Olympics, but decided to postpone my plans when I realized that there were many other interesting things to do out there. Being socially conscientious, I became a firefighter for few years and the president of the local search and rescue group. In college I



Daphne Soares

swapped interests from art, to math, to history (where I concentrated on the Hellenistic period and the battle tactics of Alexander the Great) but, being the daughter of a biologist, I was forced to take a biology course. Everything changed when my professor said that a few specialized cells use electrical signals to communicate with each other. How absurd, I thought: Biology is gooey, not shocky... This was the most exciting thing I had ever encountered. Now, I find neural systems not only intellectually interesting but also beautiful, which appeals to my artistic side. In the study of neuroethology I have found ways to integrate my curiosity about nature, my artistic interests, and my desire to make a contribution to society.

As a graduate student I worked under the guidance of Professor Catherine Carr (University of Maryland, USA), and studied various aspects of sound processing in the brainstem of archosaurs. I was also a Grass Fellow at the Marine Biological Laboratory in Woods Hole, Massachusetts (USA), where I described a new sensory organ in crocodilians. I am currently a postdoctoral fellow with Professor William Jeffery at the University of Maryland, studying "Evo-Devo" using the teleost, *Astyanax mexicanus*. I will start my own lab at University of Maryland in the fall of 2006, where I will continue to work with crocodilians and fish.

I am interested in the evolution of sensory neural codes and learning what constraints are involved in modifying neural circuits. More specifically, I would like to understand how changes occur at the various levels of circuits. Determining how neural circuits have been modified by evolution and in what ways they can be reshaped during an animal's life time will provide insights into the level of evolutionary plasticity of the neural substrate. Evolutionary modifications introduced via adaptation can point to which structures are responsible for novel behaviors or specializations. Therefore, I hope my future studies will provide insights into the relationship between structure and function by merging for the fields of neuroethology and "Evo-Devo."

I still pursue art for its own sake, and I try to ride everyday at the crack of dawn, working regularly to refine my craft. A recent addition to my interests has been martial arts, and I practice the ancient art of Japanese archery, Kyudo, whenever possible. I have yet to become a helicopter pilot.

(Editor's note: The ISN thanks Daphne for her custom-designed T-shirts for the Nyborg Congress!) ♦

2004 ICN Highlights Appear in Science

The audience of the 2004 International Congress of Neuroethology included members of the scientific press. An excellent review of the meeting appeared recently in *Science*, authored by science writer (and card-carrying

neuroethologist) Greg Miller. The article, which includes a section entitled "Thinking Outside the Mouse," spotlights research reported at the Congress on dancing spiders, garden warblers, electric fish and frog tongues. The article can be found at:

Miller, G. (2004) Behavioral neuroscience uncaged. *Science* **306**: 432-434. ♦

ISN Symposium to be held at 2005 Göttingen Neurobiology Meeting



ISN member Martin Giurfa (France) has co-organized a symposium (with Brain Smith, USA) for the 6th Meeting of the German Neuroscience Society, and 30th Göttingen Neurobiology Conference, to be held in February, 2005. The symposium is entitled "Pushing toward the limits of what insects can know: case studies for comparative cognition." The session is identified in the conference program as a "Symposium of the International Society for Neuro-

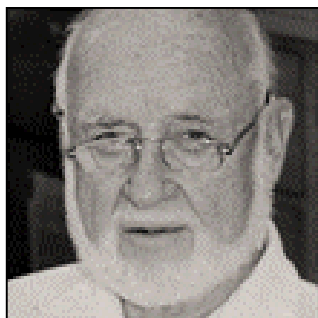
ethology" along with the ISN logo.

Other ISN members are likewise encouraged to organize neuroethology-themed symposia at local and international conferences, as an excellent mechanism for raising the profile of neuroethology and of our Society. Further details on the Göttingen symposium can be found at: www.neuro.uni-goettingen.de/nbc.php?sel=symposia&symp=s4 ♦

Meetings and Courses

Society for Integrative and Comparative Biology to Honor Neuroethology Pioneer Ted Bullock

The Society for Integrative and Comparative Biology (SICB) will honor Professor Ted Bullock at its upcoming annual meeting (January 4-8, 2005) in San Diego, California, USA, with a plenary session of invited speakers entitled "The Neuron Doctrine Revisited: An homage to T.H.



Bullock." The "Neuron Doctrine," developed and defended over a century ago by Ramón y Cajal, is the assertion that the nervous system is composed of cells that originate from single neuroblasts during development

and that maintain cellular individuality and integrity in the adult nervous system. In 1959, T.H. Bullock published an influential review about the Neuron Doctrine, emphasizing the ways in which findings from electrophysiological studies had modified or strengthened Cajal's proposition. The plenary session that will open the SICB meeting in San Diego has two purposes: (1) to consider the ways in which studies over the past 45 years have further substantiated or changed the Neuron Doctrine as developed by Cajal, and (2) to honor Theodore Holmes Bullock for his many contributions to neurobiology.

T.H. Bullock, who will celebrate his 90th birthday in 2005, is a past president of SICB (when it was the American Society of Zoologists). The participants in the symposium are: Michael Bennett (Albert Einstein College of Medicine, USA), "Cajal's neuron revisited: Neoreticularism and dynamic polarization"; Daniel Johnston (Baylor College of Medicine, USA), "Insights from the Neuron Doctrine applied to dendrites"; R. Douglas Fields (National Institutes of Health, USA), "Glia and the Neuron Doctrine"; Charles Stevens (Salk Institute, USA), "Evolutionary scaling laws in neurobiology"; Eve Marder (Brandeis University, USA), "Stability and plasticity in identified neurons." The plenary session is being organized by Robert Josephson (UC Irvine, USA).

ISN members are cordially invited to attend the meeting: active ISN members can register at the SICB member rate (check box under "affiliated societies" on the registration form). For more information, go to the SICB website, www.sicb.org, and click on the "2005 San Diego meeting" line near the top, or contact Richard Satterlie (Program Officer, Division of Neurobiology, SICB), satterlier@uncw.edu. ♦

Summer Course in Neural Systems & Behavior, Woods Hole, Massachusetts (USA)

The course in Neural Systems and Behavior (NS&B) at the Marine Biological Laboratory, Woods Hole, Massachusetts, USA, will run from June 11 to August 6, 2005. The co-directors are Sarah Bottjer, Univ. Southern California, USA (bottjer@usc.edu) and Michael Dickinson, Caltech, USA (flyman@caltech.edu). The central theme of NS&B is how neurons and neural circuits produce behavior and plasticity. Through a series of intensive laboratory exercises and complementary lectures, the NS&B course has helped train many of today's leading behavioral neurobiologists.

The course is divided into a series of four, two-week exercises, each taught by a team of leading researchers. The exercises train students in a variety of techniques including sharp electrode recording, whole-cell patch clamp, brain slice, tetrode recordings from intact animals, and quantitative behavioral analysis. The exercises deliberately cover different levels of complexity, from the electrical properties of identified neurons to the behavior of whole animals. We encourage applications from outstanding pre- and postdoctoral students. The application deadline is FEBRUARY 1, 2005.

Information about course faculty, content, and application procedures can be obtained at the MBL website <http://www.mbl.edu> or directly at http://www.mbl.edu/education/courses/summer/course_neural_sys.html. Interested students are also welcome to contact the co-directors for the course. ♦

Positions Available

Two Course Assistants are needed for the 2005 Neural Systems and Behavior (NS&B) summer course at the Marine Biological Laboratory (MBL), Woods Hole, Massachusetts, USA. Neural Systems and Behavior (NS&B) is an intensive, 8-week laboratory/lecture summer course for pre- and postdoctoral students. The NS&B Head Course Assistant (HCA) and Course Assistant (CA) work under the supervision of the two course Co-Directors. Duties include preparation of solutions, overseeing inventory, ordering supplies, assisting faculty, running errands, helping to organize social events, and many other diverse and important functions. Training is provided by MBL before the course begins. The HCA and CA must be in residence between about June 4th and August 7, 2005. Hours are flexible but include late nights and weekends. Applicants should have at least 2 years of undergraduate training in biology or a related field. Both positions require initiative, flexibility, organizational skills, basic familiarity with laboratory techniques, and the ability to work well with other people in an intensive environment. Compensation includes weekly minimum salary of \$300, room & board, and round-trip travel to Woods Hole. Questions regarding the positions should be directed to the Co-Directors: Sarah Bottjer, USC (bottjer@usc.edu) or Michael Dickinson, Caltech (flyman@caltech.edu). Applicants should send resume, a written statement of qualifications & interest (2 pages maximum) and three letters of reference to the following address by February 15, 2005: Human Resources Office, Attn: NS&B, Marine Biological Laboratory, 7 MBL Street, Woods Hole, MA, 02543-1015, USA. E-mail, resume@mbi.edu; voice, 508-289-7422; web, www.mbl.edu; MBL is an EEO Affirmative Action Institution. ♦

A **postgraduate studentship** will be available for 3 years starting in October 2005 to investigate how young frog tadpoles control swimming and struggling behaviour. The position is open to European Union students interested in EITHER learning how to apply whole-cell patch, single neuron recording methods to reveal the brain neurons in *Xenopus* tadpoles that control simple responses, OR combining computer modeling of *Xenopus* CNS circuits with simple physiological testing. For more details see: <http://www.bio.bris.ac.uk/research/neuro/xgroup.htm>. Contact: Alan Roberts, School of Biological Sciences, University of Bristol, Bristol, BS8 1UG, UK. E-mail: a.roberts@bristol.ac.uk. ♦

A **post-doctoral level position** that combines neuroscience research with training in undergraduate education is available in Darcy Kelley's laboratory at Columbia University, USA. The Columbia Neuroscience Fellowship will be involved (with D. Kelley and R. Yuste) in the teaching of an undergraduate course in *Developmental and Systems Neuroscience*, will help mentor undergraduate researchers and will carry out original research. The position is available as early as January 1, 2005, is renewable for up to two years and carries a stipend of \$45,000. Inquiries to: dbk3@columbia.edu. Information on ongoing research and how to apply at: www.columbia.edu/cu/biology/faculty/kelley/index.html. ♦

Assistant Professor position, Cornell University, USA. The Psychology Department (in conjunction with the New Life Sciences Initiative and the Program in Neuroscience) expects to fill a tenure-track position at the assistant professor level for the 2005-2006 academic year. We seek applicants with research interests in integrative approaches to central nervous system function. Research interests could include, but are not limited to: the organization of sensory or motor systems; social communication, social cognition, and social behavior; emotion; or any other aspect of cognition such as learning and memory, spatial navigation, or decision-making. A variety of current recording or imaging techniques are welcome. The appointment will begin July 1, 2005. Review of applications will begin November 15, 2004, although later applications will be considered until the position is filled. Interested applicants should submit a letter of application indicating specific research interests, a curriculum vitae, reprints or preprints of completed research, and three letters of recommendation sent directly from three referees to: Secretary, Psychology Search Committee, Department of Psychology, 278D Uris Hall, Cornell University, Ithaca, NY 14853-7601, USA. Applications from women and minority candidates are especially welcome. Cornell University is an Equal Opportunity/Affirmative Action Employer. ♦

Assistant Professor in Experimental Biological Physics at Washington University in St. Louis, Missouri, USA. The Department of Physics invites applications for a tenure-track appointment in experimental biophysics at the assistant professor level, to begin Fall 2005. We seek individuals with an outstanding research record and independent creativity in applying experimental tools combined with quantitative models to study living systems at an integrated level. Applicants should have a strong background in physics and an aptitude for teaching and mentoring. Applicants should send their curriculum vitae with a publication list and a statement of research interests and future plans, and ask three referees to send letters of evaluation to Prof. John W. Clark, Biological Physics Search, Dept. of Physics, CB 1105, Washington University, 1 Brookings Dr., St. Louis, MO 63130-4899 or by e-mail to jwc@wustl.edu. Washington University is an Equal-Opportunity/Affirmative-Action

employer. Women and minorities are encouraged to apply. ♦

Tenure-track faculty position (rank open), Department of Biology, University of Maryland, USA. We seek outstanding faculty conducting research in cellular or molecular approaches to sensory neuroscience or sensorimotor integration, especially using genetically modifiable organisms. We prefer areas complementary to our strengths in auditory neuroscience, visual system development and plasticity, and sensorimotor integration. We also seek to expand into chemosensory systems. For more information visit www.life.umd.edu/biology. To apply, send a C.V., statements of research and teaching interests, sample publications, and the addresses (mail and e-mail) of three references to the Neuroscience Search Committee, Dept. of Biology, University of Maryland, College Park, MD 20742, USA. For best consideration, submit materials no later than Dec. 15. UMD is an EO/AA employer. ♦

Material for Future ISN Newsletters

We welcome material for future newsletters in a number of categories. Advertisements for positions are limited to 150 words. Announcements of new books (copyright 2003 or later) *written or edited by ISN members* should include the full citation information (including

ISBN) plus a 40-50 word description of the book (note: if an ISN member contributes only a chapter to a book it is not appropriate for inclusion in the newsletter).

We also welcome announcements of courses and future meetings, reports on recent meetings, discussions of research areas or topics of interest to neuroethologists, laboratory profiles, editorials, and memorials. Word limits depend on the type of article. Have an idea for an article that you or someone else would write? Contact the Secretary!

All material must be submitted electronically, preferably as a file attached to an e-mail message. Send queries or submissions to Janis Weeks (weeks@uoneuro.uoregon.edu). After January 1, 2005, send correspondence to the newly-elected ISN Secretary; check the website for details. ♦

Add our Link to Your Website!

Adding a link to ISN (<http://neuroethology.org>) on your website helps raise our profile in the scientific community. ♦



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