



International Society for Neuroethology

Newsletter

November 2005

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: +1 604-822-5906; Fax: +1 604-822-6923; 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

A highly successful Executive Committee Meeting was held in Cambridge, MA, USA on August 27, 2005. The meeting was attended by EC members Ed Kravitz, Al Feng, Ian Meinertzhagen and Peter Narins, Linda Hardwick represented our management firm, and invited guests included Sheryl Coombs (former Treasurer and now Council member), Barry Trimmer and Hans Hofmann (Chapters Committee co-Chairs), Barb Beltz and Cathy Rankin (Chair of the Congress Committee and Chair of the Local Organizing Committee).

At the meeting, a busy agenda reviewed: (i) the action items proposed at the previous EC meeting in Nyborg, many of which have been implemented; (ii) our finances,

which through the efforts of Sheryl Coombs, our superb out-going Treasurer; (iii) the status of negotiations between the ISN and the Capranica Foundation regarding the Capranica Awards; (iv) the report from Allan Marketing and Management, our new management firm; (v) the Bullock and Heiligenberg Awards programs; (vi) the roles of the Education Committee, the Newsletter and the Web Committee in meeting the educational role of the ISN; (vii) a report on the possible formation of Chapters of the ISN; (viii) an update on the status of the next ISN Congress in Vancouver, B.C., Canada; (ix) the roles of Committee Chairs in the selection of members of various ISN committees; and (x) goals and priority setting for the ISN.

Each item above will be covered in greater detail in upcoming President's Reports: in the present report, however, a few items will be highlighted.

Membership: A serious problem we face in maintaining the financial health of the ISN is that we continue to lose members of the Society in non-Congress years. By any standard, ISN membership dues are low. Most societies, even ones much smaller than ours, ask \$100 or more as annual dues from members. We recognize that even the present low membership dues may be a problem for potential members of the ISN though, and we therefore can, and will waive membership dues if people are unable to pay. For students, if their mentors have paid their dues, membership is free. In any event, to address the declining membership problem, we have asked John Hildebrand who is a former President of the ISN and one of its champions, to become the new Chair of the Membership Committee. John has graciously agreed to do so. He is looking for folks interested in serving on this Committee who will be willing to work with him in building up our member base. If serving on this committee appeals to you, his email address is <jgh@neurobio.arizona.edu>. The member base represents our future, so this is a most important task.

The 2007 Congress: The dates for the next ISN Congress are July 23-28, 2007 in Vancouver, B.C., Canada. There is little doubt that the ISN is in excellent hands in the planning for the Congress with the new Chair of the Congress Committee, Barb Beltz, and with her co-Chair and the Chair of the Local Organizing Committee, Cathy Rankin. Both of these excellent, highly organized individuals have given much thought to the next Congress and the large amount of work involved in running it. They are already at work putting together a Congress Committee to plan the Program. Once a Program is in place they will be able to apply for funding for the Congress. We have asked members of the Council of the ISN for assistance in identifying potential members of the Congress Committee in order to guarantee a broadly representative committee. If any of you would like to volunteer to serve on this committee, please contact Barb Beltz at <bbeltz@wellesley.edu>. The final com-

position of the Congress Committee will be determined by Drs. Beltz and Rankin in consultation with the EC.

The Heiligenberg and Bullock Awards: The Heiligenberg Awards have been in place for approximately one year now and we have had very few applications for the awards. These awards are for student travel to neuroethology-related meetings to present a poster or a paper. They are for up to \$600 for travel or accommodation. A Committee chaired by Mark Konishi is in place to review these applications. Students who apply must be members of the Society (Free!!!) and their mentors must be up-to-date paid members of the ISN. Possibly part of the problem of why we have had so few applications for these awards is that it is difficult to find information on the Awards on our web site. We are working to change this at present. In the meantime, if you are interested in applying for such an award please go to our website (<http://www.neuroethology.org/>) then go to membership, benefits, awards available only to members where you should hit the "more" button and then finally to the Heiligenberg student travel awards, where you should hit "more information". We still are in the process of finalizing the Bullock Visiting Lecture Awards, but look for that to happen soon.

In the next President's Report, I will detail other issues discussed at the recent EC Meeting.



We acknowledge ISN donors

Ian A. Meinertzhagen, (iam@dal.ca)

Dalhousie University, Halifax, Nova Scotia, Canada

Each year, donations are received from ISN members that contribute to the operating funds, or to selected funds administered by the Society. We would like to acknowledge receipt of these generous donations for the past two years, and the special role they play in helping provide the Society's services. Thank you all very much.

The list of **2003 donors** includes:

Anne Beckoff (University of Colorado, USA); Curtin Bell (Oregon Health Sciences University, USA); Sarah Bottjer (University of Southern California, USA); Bernd Budelman (University of Texas Medical Branch, USA); Robert Doty (University of Rochester Medical Center, USA); Allison Doupe (UC San Diego, USA); Jacob Dubbeldam (University of Leiden, Netherlands); Daniel Eberl (University of Iowa, USA); Peggy Edds-Walton (Loyola University Chicago, USA); Martin Egelhaaf (Universität Bielefeld, Germany); John Ewer (Cornell University, USA); Albert Feng (University of Illinois, USA); Martin Giurfa (Université Paul Sabatier - Toulouse III, France); Katalin Gothard (University of Arizona, USA); Franz Huber (MPI für Verhaltensphysiologie, Germany); Etsuro Ito (Hokkaido University, Japan); Yoshiki Kashimori

(University of Electro-Communications, Japan); Edward Kravitz (Harvard Medical School, USA); Kisou Kubota (Nihon Fukushi University, Japan); Alison Mercer (University of Otago, NZ); Connie Osborn (Michigan State University, USA); Jochen Pflüger (Freie Universität Berlin, Germany); Kurt Svoboda (Louisiana State University, USA); Kazumasa Uematsu (Hiroshima University, Japan); Susan Volman (NIH/NIDA, USA); Eric Warrant (University of Lund, Sweden); Janis Weeks (University of Oregon, USA); and Konrad Wiese (Universität Hamburg, Germany).

The list of **2004 donors** includes:

Kiyoshi Aoki (Saitama-ken, Japan); Donald Edwards (Georgia State University, USA); William Evoy (Arcadia, FL, USA); Cole Gilbert (Cornell University, USA); Franz Huber (MPI für Verhaltensphysiologie, Germany); Kral Kral (Universität Graz, Austria); Shun Nakamura (Tokyo, USA); Dan-eric Nilsson (University of Lund, Sweden); Susan Volman (NIH/NIDA, USA).

The list of 2005 donors will appear in a Newsletter next year.



Neurobiologist and outstanding Russian poet: The diamond anniversary of Dmitri Sakharov

Varvara Dyakonova and members of the Lab. of Comparative Physiology (dyakonova@nm.ru)
Institute of Developmental Biology, Russian Academy of Sciences, Moscow, Russia

Dmitri Sakharov is widely known in Russia as a man



Dimitri Sakharov (2002)

who successfully leads a double life, as both a neurobiologist and as a poet. In science, he is a widely respected and greatly admired invertebrate neurobiologist working at the Institute of Developmental Biology of the Russian Academy of Sciences in Moscow. There, at Leninsky avenue, 33, his main fields of interest are transmitter-specific neurons, and the cellular and chemical bases of behaviour. For 27 years Dmitri has been the head of the Comparative Physiology Lab in the Institute, and for that period several generations of Russian neurobiologists spanning the Soviet and post-Soviet eras have been influenced by his bright ideas and approaches to the organisation of neurons and the neurobiology of behaviour. His opinion that "the neurotransmitters possess an integrative regulatory function that goes beyond mere



Hungary, Conference of the International Society for Invertebrate Neurobiology. Here, at Tihany, on the shores of lake Balaton, south of Budapest, Hungary, ossy and wessy neurobiologists could meet during the Cold war, a practice they continue in the post-Soviet era. Left to right: Dmitri Sakharov (Moscow), Larissa Grinkevich (Novosibirsk), Leonid Moroz (former student, now at Whitney Labs, Florida), Roger Croll (Dalhousie Univ., Halifax), Varvara Dyakonova (former PhD student, Moscow), and a Moscow student contemporary of Dmitri, the late Janos Salanki (Tihany, Hungary).

transmission of an impulse from one neuron to another" has helped many young neurophysiologists to fill the gap between traditional knowledge about the nervous system and their real experience from work on nerve cells. This idea was first put forward particularly in 1990 in two papers: D.A. Sakharov 1990: The multiplicity of neurotransmitters: Functional significance. *Zh. Evol. Biokhim. Fiziol.* 26(5):733-41, discussion 741-50; and: Integrative function of serotonin common to distantly related invertebrate animals. *Zh. Ob. Biol.* 51(4): 437-449.

Dmitri's early histochemical findings using the Falck-Hillarp method (1974) allowed him to assume that "nerve cells originated many times and neurons of a particular ancestry retained a specific type of chemistry from their appearance". His paper "Evolutionary aspects of transmitter heterogeneity" and the book "Genealogy of the Neuron", published by Nauka (Moscow), describe this concept in detail. Many modern papers in invertebrate neurobiology still refer to his 1974 book, which laid the foundation for ideas that later neurobiologists would develop further, many in Western countries and some

without correct attribution, concerning the evolutionary homologies of nerve cells in different groups of animals. This hypothesis seems to have assumed a new life now, with the appearance of methods that will allow it to be



The group now: a party in the laboratory, Moscow 2003. Left to right: Ilya Chistopolsky, Evgeniya Melkonova, Magda Alania, Dmitri Sakharov, Taissia Dyakonova and Varvara Dyakonova.

tested at the ultimate molecular-genetic level. In the Lab of Comparative Physiology in Moscow, and during field trips made to the White Sea and the Biological Station at Kropotovo, on the bank of the Oka River, many different animals have been used to study neurons and behaviour: fishes, planarians, leeches, insects, hemichordates, ascidians and molluscs. The wide range of species reflects Dmitri's interest in the evolutionary aspects of neurobiology as well as his loyalty to the personal scientific interests and biases of his numerous co-workers.



Morning seminar at the Biological Station Kropotovo, on the Oka river, Central European Russia. Left to right: Dmitri Sakharov, Vladislav Tsyganov, Magda Alania, Elena Voronezhskaya and Jonny (4 legs).

In the non-scientific literature, Dmitri's bibliography contains more than 225 items: verses, critical essays, prose and libretto. He is the author of many brilliant song lyrics. Particularly famous, his song "Aleksandra, Aleksandra" is a leitmotif of the movie "Moscow Does Not Believe in Tears", which won an Oscar for Best Foreign

Film of 1980. It is also a track in many CD's. One of these, entitled "Gold Brichmula" (from the region of Brichmula in Uzbekistan close to Dmitri's birthplace of Tashkent) contains charming songs from Dmitri Sakharov's poems, sung by Tatiana and Sergey Nikitin, former husband and wife physicist friends from Moscow. The musical comedy for which Dmitri wrote a libretto became a "Performance of the Year" (at the "School of a Modern Play" Theatre, Moscow) in 1992. Up until now it has become one of the most popular plays in Moscow. In recognition of these accomplishments, two years ago Dmitri became a winner of the President's Prize in Poetry.

At the time of writing, Dmitri is absent from the lab, away giving a one-week course for young poets at a river bank situated as far as possible from the city of Moscow. His desolate laboratory is taking this opportunity to congratulate their chief on his 75th birthday, on November 1, and to wish him many good years ahead (preferably to be spent with us). Their wishes are joined by those of many other colleagues, friends who are ISN members.



Dmitri Sakharov and his former PhD student Magda Alania at the bank of the river Oka in Central European Russia, looking for new neurobiological models.



Rind and Simmons receive Ig Nobel award for work on locust vision

F. Claire Rind, (Claire.rind@ncl.ac.uk)

University of Newcastle upon Tyne, Newcastle upon Tyne, UK

The Ig Nobel awards are among the most treasured in science. Light-hearted as they may be, individual winners often travel great distances to the Harvard Univer-

sity ceremonies. The awards have now been made for ten years and in the words of their originator, Marc Abrahams, are designed to honour accomplishments that "first make people laugh, then make them think". By chance, three of the ten Igs awarded this year – those for Agricultural History, Peace, and Fluid Dynamics -- went to people who either work in, or are native to, New Zealand, and two prizes – those in Physics and Biology - - went to researchers from Australia. Teams from the US and Japan were awarded the prizes in Economics, Medicine and Nutrition.

The Ig Nobel Prizes are physically handed to the winners by actual (non-Ig) Nobel Laureates, this year by Dudley Herschbach (Chemistry '86), William Lipscomb (Chemistry '76), Robert Wilson (Physics '78) and Sheldon Glashow (Physics '79), before a paper-aeroplane-throwing audience of 1200 people; Frank Wilczek (Physics '04) was present in the form of a dummy carried on stage by his daughters, Amity and Mira. During the awards, the paper aeroplanes tended to stack up onstage and, even though some were thrown back, there was also a designated "sweeper" to push a broom across the stage. The same person has performed this job for the last ten years, but this year was unable to attend and sweep during the ceremony, because he, Professor Roy Glauber, was the actual winner of this year's Nobel prize in Physics.

The Ig for **Peace** went to ISN members, Claire Rind and Peter Simmons of Newcastle University, in the UK, for electrically monitoring the activity of a brain cell in a locust while that locust was watching selected highlights from the movie "Star Wars." An abstract of the winning paper, "Orthopteran DCMD Neuron: A Reevaluation of Responses to Moving Objects," is online at: <http://intl-jn.physiology.org/cgi/content/abstract/68/5/1654>

The work for which the award was made was possible because it is relatively easy to distinguish DCMD electrical responses from those of the other nerve cells in the locust's brain. It has been known since about 1950 that the DCMD responds well to a moving object but Rind and Simmons wanted to know exactly what kinds of stimuli would best excite the cell, for which they decided to show locusts sections of the film "Star Wars" having a wide range of moving images in visual space. This provided a quick and easy way of presenting the locust with many possible different stimuli, to give an idea of the type of stimulus that best excites DCMD responses, some of which simulate those generated during locust flight. The strategy worked well insofar as the cell responded very vigorously to images approaching towards the locust - approaching space ships in the 'Star Wars' film. Its responses to images of space ships moving away from the locust, or across the locust's field of view were much weaker. Among the most important findings: locusts are afraid of Darth Vader.

Of course, on their own, these experiments were not conclusive. Based on this experience, however, Rind and Simmons then designed computer-generated moving images to pin-point exactly what the DCMD cell responds to. They have gone on to use a combination of techniques, including electrical recording and electron microscopy, to discover how other cells that connect with DCMD filter out objects approaching the locust on a collision course from all the other kinds of visual stimuli. The DCMD can be reconstructed in a computer model, The types of circuits that filter out information to feed to



Watched by Claire Rind, a locust views "Star Wars". Possible experiments for the future could include providing popcorn and improved Plasticine restraint

and can help prevent a robot from crashing as its moves around. Now these circuits have been developed into collision-warning devices that could, for example, be fitted to help cars avoid head-on collisions.

Indicating the genial tone of the awards, Marc Abrahams, master of ceremonies (and editor of the Annals of Improbable Research) closed the ceremony with: "If you didn't win an Ig Nobel prize tonight -- and especially if you did -- better luck next year."



Eric Jarvis wins 2005 NIH Pioneer Award

We are pleased to announce that Erich D. Jarvis (an Associate Professor in the Department of Neurobiology, Duke University, Durham, NC, USA) is one of 13 recipients of the NIH Pioneer Award in 2005. This award supports exceptionally creative scientists who take inno-

vative approaches to major challenges in biomedical research. The award gives recipients the intellectual freedom to pursue groundbreaking new research directions that could have significant impact if successful but that, due to their novelty or other factors, also have inherently high risks of failure. Dr. Jarvis' research focuses on the molecular basis of vocal learning.

The 2005 awardees work in diverse areas, including neuroscience, genetics, epidemiology, chemistry, stem cell biology, behavioral science, infectious diseases, and technology development. Each new awardee receives \$500,000 in direct costs per year for five years. Other awardees include:

Vicki L. Chandler, Ph.D., Regent's Professor of Plant Sciences and Molecular and Cellular Biology at the University of Arizona in Tucson, who studies the control of gene expression.

Hollis T. Cline, Ph.D., a Professor and Director of Research at Cold Spring Harbor Laboratory in Cold Spring Harbor, N.Y., who studies neural connectivity in the brain.

Leda Cosmides, Ph.D., a Professor of Psychology at the University of California, Santa Barbara, who applies evolutionary psychology to discover the design of the human mind and brain.

Titia de Lange, Ph.D., the Leon Hess Professor and Head of the Laboratory of Cell Biology and Genetics at The Rockefeller University in New York City, who studies chromosome caps called telomeres.

Karl Deisseroth, M.D., Ph.D., an Assistant Professor of Bioengineering and Psychiatry at Stanford University in Stanford, Calif., who develops and employs new technology to probe neural circuits in the brain.

Pehr A.B. Harbury, Ph.D., an Associate Professor in the Department of Biochemistry at Stanford University School of Medicine in Stanford, Calif., who studies the chemical evolution of small molecules.

Thomas A. Rando, M.D., Ph.D., an Associate Professor in the Department of Neurology and Neurological Sciences at Stanford University School of Medicine, who studies the role of stem cells in tissue repair and regeneration.

Derek J. Smith, Ph.D., a Research Associate in the Department of Zoology at the University of Cambridge in Cambridge, England, and a research scientist in virology at Erasmus Medical Center in Rotterdam, The Netherlands, who uses mathematics to study the influenza virus and other rapidly evolving infectious agents.

Giulio Tononi, M.D., Ph.D., a Professor in the Department of Psychiatry at the University of Wisconsin-Madison Medical School, who studies the neural basis of consciousness and the function of sleep.

Clare M. Waterman-Storer, Ph.D., an Associate Professor in the Department of Cell Biology at The Scripps

Research Institute in La Jolla, Calif., who studies how cells change shape and move.

Nathan D. Wolfe, D.Sc., an Assistant Professor in the Department of Epidemiology at the Johns Hopkins University Bloomberg School of Public Health in Baltimore, Md., who studies the emergence of infectious diseases.

Junying Yuan, Ph.D., a Professor of Cell Biology at Harvard Medical School in Boston, Mass., who will explore the possible existence of a novel cellular mechanism that detects and removes misfolded, neurotoxic proteins.



GORDON CONFERENCE ON Genes & Behavior

Four Points Sheraton: Harbortown, Ventura, CA, USA. February 12-17, 2006

Catherine Rankin

(crankin@psych.ubc.ca) Brain Research Centre & Department of Psychology, University of British Columbia, Vancouver, Canada

Chair: Robert Hitzemann

Vice Chair: Marla Sokolowski

Poster Session Coordinator: John Crabbe

ABSTRACT

The Second Conference on Genes & Behavior will focus on topics on the interface of animal behavior with an emphasis on the integration of molecular genetics, biotechnology, and the behavioral sciences. The overall aim is to provide a forum for discussion between scientists developing genetic tools to study behavior in carefully selected "model behavioral systems" with those who study behavior in carefully selected "model genetic systems". The objective of this conference may be summarized: 1) To provide a forum for the latest research linking genes to behavior; 2) To bring together researchers working primarily on model behavioral systems, chosen to answer general questions in behavior, with those working on behavior in model genetic systems, chosen for their genetic tractability; 3) To promote the transfer of molecular genetic and genomic techniques from model genetic systems to model behavioral systems; 4) To expand the range of behavioral questions being asked in model genetic organisms; and 5) To identify both gaps in knowledge that hinder the integration of biotechnology and behavioral biology and links that could enhance this integration. The overall goal is to create an environment in which experts and trainees can build connections and collaborations to forge a comprehensive approach to the study of genes and behavior.

For more information, please check the following web-site: <http://www.grc.uri.edu/programs/2006/genes.htm>



Miriam Lehrer 1933-2005

Mandyam.V. Srinivasan, (M.Srinivasan@anu.edu.au)

Centre for Excellence in Vision Science, Australian National University, Canberra, Australia

Late this summer, the Neuroethology community lost a significant member and friend with the demise of Miriam Lehrer, on 26 August 2005. Miriam was probably one of the most skilled and accomplished researchers of honeybee behavior in her time. Over a period of some 30 years (1975-2005), her research has led to important insights into pattern vision, motion perception and color vision in bees, and into the way in which these faculties interact with each other. For her Ph.D. thesis at the University of Zürich, Miriam investigated how bees use landmarks in the surrounding environment to locate the position of a food source. She then turned her attention to movement perception and showed, through a series of elegant experiments, that movement detection is "color blind" in bees, and is mediated primarily by the green-sensitive photoreceptors [1]. In this respect, bees display interesting similarities to humans. In another study, conducted together with colleagues in Canberra, Miriam showed that bees use cues based on image motion to perceive the world in three dimensions [2].

Miriam is probably best known for her description of the so-called "turn back and look" (TBL) behavior in bees -- a term that she coined [3]. When a worker honeybee departs from a newly discovered food source, she turns back to inspect the feeding site carefully, ensuring that she remembers the site well, and is able to pinpoint the food source accurately in relation to the surrounding landmarks when she returns for another feed. During the TBL maneuver the departing bee faces the food source and flies sideways, alternately to the left and to the right, describing a sequence of arcs of gradually increasing radius, centered on the food source. When the bee has become familiar with the food site, she no longer performs the TBL behavior. However, if the visual environment surrounding the food source is altered in any way (for example, by displacing or removing a prominent landmark), then the bee resumes her TBL flights and persists with them until she has memorized the new environment. Thus, it appears that the intriguing, stereotyped TBL maneuver is a key component of the process by which a new feeding site is learned.

Miriam's most recent paper, which appeared just five days after she passed away, returns to her original theme of pattern vision. Here she describes a series of experiments to provide strong evidence that bees do not memorize the shapes of objects in a "photographic"



Miriam Lehrer, at work on the balcony of her laboratory at the University of Zürich in 1984 (Photo: Mandyam Srinivasan)

sense but, rather, in terms of the profiles of their outlines [4].

The hallmark of Miriam's work has always been a high degree of experimental and analytical rigor, and anyone who has had their manuscripts reviewed or commented upon by her will know that she expected this from her peers as well! Miriam's tenacity, discipline and resilience extended to her personal life. Born in Poland, Miriam completed her schooling in Israel. She then took up a position in the Academic Corps of the Israeli Army, while concurrently matriculating in the field of Bacteriology at the Hebrew University. Marriage took her to Switzerland, where she spent her first twenty years raising a family in Zürich. In 1972, as a single mother of two children, she decided to resume her academic life. She enrolled in the University of Zürich and obtained an undergraduate, a Masters' and a Ph.D. degree in the faculty of Zoology, before taking up an academic position there in 1980. A golden period of research followed, and continued up to the very last day of her life, despite the devastating and untimely loss of her son in 1998.

As a person, Miriam was exceptionally kind, generous and hospitable. Many of us will recall the lovely days at her home in the countryside near Zurich, and the many dinners that she had hosted there.

With her passing, Neuroethology has lost not only an accomplished scientist but also a wonderful person.

- [1] M. Lehrer (1987) To be or not to be a colour-seeing bee. *Israel J. Entomol.* **21**, 51-76.
- [2] M. Lehrer, M.V. Srinivasan, S.W. Zhang and G.A. Horridge (1988) Motion cues provide the bee's visual world with a third dimension. *Nature (Lond.)* **332**, 356-357.
- [3] M. Lehrer (1991) Bees which turn back and look. *Naturwissenschaften* **78**, 274-276
- [4] M. Lehrer and R. Campan (2005) Generalization of convex shapes by bees: what are shapes made of? *J. Exp. Biol.* **208**, 3233-3247.



Mandyam Srinivasan and Miriam Lehrer, in the lab at the University of Zürich, 1985 (Photo: Rudiger Wehner)

Positions Available

Assistant Professor at Cornell University. 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 2006-07 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, which could be combined with genomic approaches or reduced preparations. The appointment will begin July 1, 2006. Review of applications will begin Nov. 15, 2005, 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, Dept. 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

The Department of Psychology at the **University at Buffalo**, The State University of New York, invites applications for an advanced **Assistant Professor or Associate Professor in Behavioral Neuroscience** whose research focuses on learning and memory (pending final budgetary approval). Applicants are expected to have an active, visible research program, to publish theoretical and empirical research in top-tier journals, and to contribute to both graduate and undergraduate supervision and instruction. A history of obtaining external grant support is necessary. Applicants should have a Ph.D. in psychology with some postdoctoral experience. The Department of Psychology has seen remarkable growth over the past four years, adding eleven new faculty to its ranks. With the potential to hire four additional new faculty this year, the Department will be well positioned to build on and continue a strong tradition of research and training in psychological science. A detailed description of the Department can be found at <http://wings.buffalo.edu/psychology>. If interested, send a letter of application, *vitae*, statements of research and teaching interests, and three letters of recommendation to the Behavioral Neuroscience Search Committee, Department of Psychology, University at Buffalo, SUNY, Buffalo, NY, 14260-4110. Initial review of applications will begin on October 15, 2005 and will continue until the position is filled. The University at Buffalo is an Equal Opportunity Employer/Recruiter. Women and minorities are encouraged to apply.

The Department of Psychology at the **University at Buffalo**, The State University of New York, invites applications for an **Assistant Professor in Cognitive Psychology or Cognitive Neuroscience**. Applicants are expected to have an active, visible research program, to publish theoretical and empirical research in top-tier journals, to contribute to both graduate and undergraduate supervision and instruction, and to have a strong potential for funding. Applicants are also expected to have a Ph.D. (by August 2006) in Psychology or closely related discipline. Area of research is open, but candidates who complement existing research strengths in language processing, perception, or categorization are desirable. The Department of Psychology has seen remarkable growth over the past four years, adding eleven new faculty to its ranks. With the potential to hire four additional new faculty this year, the Department will be well positioned to build on and continue a strong tradition of research and training in psychological science. A detailed description of the Department can be found at <http://wings.buffalo.edu/psychology>. If interested, send a letter of application, *vitae*, statements of research and

teaching interests, and three letters of recommendation to the Cognitive Search Committee, Department of Psychology, University at Buffalo, SUNY, Buffalo, NY, 14260-4110. Initial review of applications will begin on October 15, 2005 and will continue until the position is filled. The University at Buffalo is an Equal Opportunity Employer/Recruiter. Women and minorities are encouraged to apply.

Wellesley College, Wellesley, MA, USA.

The **Program in Neuroscience at Wellesley College** invites applications for a tenure-track faculty position at the rank of first-level **assistant professor** beginning in September 2006. We are seeking candidates who are committed to excellence in both teaching and research in a liberal arts environment. Candidates will be expected to teach courses at all levels of our curriculum and should have plans for an active research agenda that involves undergraduates. While the position is open to any field of neuroscience, we are especially interested in candidates whose work includes a neuropharmacology component. A Ph.D. and postdoctoral experience are required. Applications should include a *curriculum vitae*, statements of teaching and research interests, and three letters of recommendation. Review of applications will begin November 1, 2005. Wellesley College is an EO/AA educational institution and employer. The College is committed to increasing the diversity of the college community and the curriculum. Candidates who believe they will contribute to that goal are encouraged to apply. Submit applications to: Search Committee, Neuroscience Program, Wellesley College, 106 Central St., Wellesley, MA, USA.

Indiana University, Bloomington, IN, USA

The Department of Biology of Indiana University invites applications for an **open rank** tenure-track faculty position in **animal behavior**. We seek candidates with a conceptually-driven research program to complement existing strengths in the Evolution, Ecology, and Behavior Program. The specific focus within animal behavior is open, but we especially encourage applicants whose research uses evolutionary or ecological approaches to understand the function and diversity of behavior and/or neuroethological, endocrinological, or genetic approaches to understanding the mechanisms of behavior. Indiana University is widely recognized for its outstanding interdisciplinary programs in behavior, including the Center for the Integrative Study for Animal Behavior (<http://www.indiana.edu/~animal/>) and a new NIH Training Program in Common Themes in Reproductive Diversity (<http://www.indiana.edu/~reprodiv/>). Strong applicants are expected to have postdoctoral research and/or teaching experience and established research productivity. The successful candidate will be provided with a competitive start-up package and will be expected to establish a vigorous, externally funded research program and to participate in teaching undergraduate and gradu-

ate courses. For information about the Biology Department and for links to the campus and the Bloomington community, see website: <http://www.bio.indiana.edu>. Candidates should send *curriculum vitae*, a statement of research, and representative publications and should arrange to have three letters of recommendation sent to: Chair, Animal Behavior Search, Department of Biology, Indiana University, 1001 East Third Street, Bloomington, IN 47405-3700, USA. Review of applications will begin October 15, 2005, and will continue until suitable candidates are identified. Indiana University is an Affirmative Action/Equal Opportunity Employer. Women and minority candidates are encouraged to apply.

The Department of Biology at **West Virginia University (WVU)** invites applications for a tenure-track position at the **Assistant Professor** level in **Neurobiology** beginning August 2006.

Applicants must hold a Ph.D. or equivalent degree and have postdoctoral experience. The successful candidate will be expected to develop a highly competitive, externally funded research program that carries a reduced teaching allocation. We are particularly interested in individuals using integrative, multi-level approaches and who complement existing departmental strengths in sensory systems, development, endocrinology and molecular genetics. Outstanding applicants in other areas of neuroscience are also strongly encouraged to apply. Opportunities exist for interactions with faculty in the Department of Psychology, the Interdisciplinary Center for Neuroscience, the Sensory Neuroscience Research Center and the Blanchette Rockefeller Neurosciences Institute at the WVU Medical Center.

The Department is housed in a new Life Sciences Building, containing modern laboratory, research, teaching, and animal care facilities. West Virginia University is located in Morgantown, recently voted "Best Small City in the East" by The Rating Guide to Life in America's Small Cities.

Qualified applicants should submit a *curriculum vitae*, a description of research plans, representative publications, a brief teaching statement and three letters of recommendation to: Neurobiology Search Committee Chair, Department of Biology, West Virginia University, P.O. Box 6057, Morgantown, WV 26506. Review of applications will commence on December 1, 2005. For more information please contact us via e-mail: Sarah.Farris@mail.wvu.edu, by telephone: 304-293-5201 ext. 31500, or via the web: (<http://www.as.wvu.edu/biology/>). West Virginia University is an Equal Opportunity, Affirmative Action Employer and does not discriminate on the basis of race, color, religion, sex, age, marital status, disability, veteran status, national origin, or sexual orientation.

New Appointments In The **School Of Biological Sciences, University of Bristol**, Bristol, UK.

We are seeking to make **three permanent appointments** of individuals with outstanding track records, or promise, of international excellence in teaching and research. We particularly seek applications from those whose research complements our current strengths, but particularly in the areas of:

- * Invasion Biology
- * Evolution, structure and function of decision-rules
- * Agricultural ecosystems
- * Animal Signals and Sensory Systems

Our research is supported by grants from Research Councils, Charities and industry, currently totalling some £10 million which supports some 40-50 research staff. We have a graduate school of about 60 students.

In the 2001 RAE, we were ranked as 5A. Our research is arranged in three, overlapping areas:

- * Behaviour, Sensory & Neurobiology
- * Ecophysiology & Population Biology
- * Cell & Molecular Biology

Further information can be found at:

<<http://www.bris.ac.uk/boris/jobs/ads?ID=43015>>

Informal enquires may be made to the Head of School, Paul Hayes. (Tel: +44 (0)117 928 7483; email: Paul.Hayes@bristol.ac.uk).

Department of Biology, Lecturer A/B in Animal Biology, University of Leicester, UK

Applications are invited for a lectureship (Grade A/B £24,352 to £36,959 p.a.) in animal biology. The successful candidate will be expected to develop independent, externally-funded research programmes and to contribute to the teaching of undergraduate and postgraduate courses in zoology. We are looking for an individual with a relevant background and research interests that complement the existing research in animal biology.

Applications. Downloadable application forms and further particulars are available from the following <http://www.le.ac.uk/personnel/jobs/a&r.html>. If you require a hard copy please contact Personnel Services, tel: +44 (0)116 252 2438, fax: +44 (0)116 252 5140; email: recruitment4@le.ac.uk, <http://www.le.ac.uk/personnel/index.html>.

Please note that CVs will only be accepted in support of a fully completed application form.

Closing date: 24 November 2005

Completed applications should be sent to:

Ref: A2355
Personnel Services
University of Leicester
University Road
Leicester LE1 7RH
United Kingdom

Tel: 0116 252 2438

Fax: 0116 252 5140

Email: recruitment4@le.ac.uk

Positions in Neurobiology and Molecular Evolution University of Maryland Baltimore County, USA

The Department of Biological Sciences seeks to recruit two tenure-track assistant professors. One appointment will be in neurobiology. The second will be in molecular evolution. Successful applicants will have a doctoral degree in biology or a related field, postdoctoral experience, and will be expected to establish a vigorous, extramurally funded research program.

Other obligations include mentoring Ph.D. students and teaching at the graduate and undergraduate levels.

UMBC is a medium-sized research university in the Baltimore-Washington area with a tradition of combining excellence in research with outstanding educational programs. The Department's 25 faculty have strengths in the areas of neuroscience, evolutionary biology and bioinformatics, as well as in molecular, cellular and developmental biology.

Applicants should send a cover letter, summary of current research, *curriculum vitae*, concise summary of future research plans, statement of teaching interests, and three letters of reference to: Search Committee, Department of Biological Sciences, University of Maryland Baltimore County, 1000 Hilltop Circle, Baltimore, MD 21250. Email applications will not be accepted. Review of applications will begin immediately and highest priority will be given to completed applications received by December 1, 2005.

Three Tenure-Track Positions: Ecologist, Neurobiologist and Cell/Molecular Biologist, University of Windsor, Canada

The University of Windsor invites applications for three tenure-track faculty positions in the Department of Biological Sciences at the rank of Assistant Professor commencing July 1, 2006. These positions are subject to final budgetary approval.

As part of an ambitious program of growth and faculty renewal, the Department of Biological Sciences is seeking the following:

1. Ecologist, with a research emphasis in community ecology and/or evolutionary ecology.
2. Neurobiologist, whose research interests are in the area of neurophysiology and brain function.
3. Cell/Molecular Biologist, whose research is focused in the area of cell biology, including advanced imaging techniques.

Recruitment in these areas is supported by progressive facilities and modern research infrastructure in Ecology and Evolution, Molecular & Cell Biology, and Behaviour Cognition & Neuroscience, and is complemented by

animal care facilities, genomics core facilities and Bioinformatics resources.

The Department is conducting active research programs and collaborations with major institutions (e.g. Great Lakes Institute for Environmental Research (GLIER), Windsor Regional Cancer Centre and the AAFC-GCPRC Institute, Harrow) and has access to southwestern Ontario's abundant natural areas (e.g. Point Pelee National Park and the Great Lakes basin). Specialized areas of research include aquatic and terrestrial ecology, sensory systems physiology, toxicology, evolutionary biology, developmental biology, cancer and cell biology involving a number of model systems and species, funded through major peer-reviewed funding agencies (NSERC, CFI, NCIC and NIH). For a full description of our faculty and research interests, please review the Departmental web site at: <http://www.uwindsor.ca/biology>

Candidates must present a strong record of scientific achievement in research, as well as potential for innovation and a commitment to excellence in teaching. Candidates will hold a Ph.D. degree with relevant postdoctoral experience and provide evidence of research excellence in their field. Successful candidates will be expected to establish a strong and competitive research program which will benefit from the ability to work in a rich team environment within which new collaborations and research synergies are encouraged.

Applications should include: a letter of application, including a statement of citizenship/immigration status; a detailed *curriculum vitae*; a one-page research statement detailing research interests; a one-page statement of teaching philosophy and interests; samples of scholarly work; and three current letters of reference forwarded directly to the Department by the referees. Candidates may also submit a teaching dossier or evidence of teaching effectiveness that might include sample course outlines, teaching evaluations and a statement of teaching philosophy and interests. To ensure full consideration, complete applications should be submitted by December 31, 2005 to:

Dr. William Crosby, Head
Biological Sciences, Biology Building - 119
University of Windsor, Windsor, Ontario N9B 3P4
Phone: 519.253.3000, Ext. 2697; Fax: 519.971.3609
E-mail: bcrosby@uwindsor.ca

Indiana University -- Two Postdoctoral Positions

Indiana University has recently been awarded an NIH T32 training grant from NIHCHHD entitled, "Common Themes in Reproductive Diversity." Please see the web site for description: <http://www.indiana.edu/~reproddiv/>

We invite applications for two postdoctoral fellowships to support broadly integrative training in the areas of sexual reproduction and development. Training will focus on behavior, largely but not exclusively of animals, and will address key questions in the development, evolution and

expression of sex differences, and on maternal and paternal effects on morphological, sexual, and social development. Indiana University's excellent support for research and its globally recognized strengths in animal behavior, endocrinology human sexual health, and evolution of development will ensure high quality training.

Fellowships include a competitive salary based on current NIH pay scale commensurate with experience and funds to support research and travel. Successful applicants will help foster collaborations among faculty and serve as professional models for predoctoral trainees. Candidates are invited to make initial contacts with training faculty (see web site).

To apply, please send *vitae*, statement of research interests, names of likely collaborators, and three letters of recommendation, all in electronic form, to Margi Lockhart, malockha@indiana.edu, Department of Biology, Indiana University, Bloomington, IN 47405, USA. The email subject line should read: Postdoc-Ketterson. Consideration of applications will begin immediately. For full consideration, applications should arrive by 1 September but later applications are invited and positions will remain open until filled. Trainees must be citizens, non-citizen nationals or permanent residents of the US. Indiana University is an Equal Opportunity / Affirmative Action Employer.

Postdoctoral Fellowship to study Amblypygids (Class Arachnida, Order Amblypygi)

I am looking for a neuroethologist with a strong background in invertebrate electrophysiology to join a research project exploring the neural basis of complex behavior in amblypygids. Research will involve some combination of extracellular recordings, behavioral trials in conjunction with neural ablations, neuroanatomy, and behavioral trials investigating the potential for amblypygid learning, memory and spatial orientation. The project will likely involve a field component. Funding is currently available for 2 years. Applicants should have received their PhD and be available as early as January 2006.

Amblypygids are bizarre and unique arachnids with a sensory system unlike any other in the animal kingdom. Not only do they possess giant interneurons with peripheral cell bodies in their antenniform legs, but they also boast the largest relative size of mushroom body of any arthropod. My experience with these fascinating animals has been one of continual discovery and interested applicants should be adventurous, patient, and creative.

For specific information or to apply please contact Eileen Hebets, at the Department of Biological Sciences, University of Nebraska, Lincoln, NE, USA (<http://www.biosci.unl.edu/faculty/FacPages/hebets.asp>); 402-472-2571; ehbets2@unlnotes.unl.edu. Applicants will need to send a current C.V. and 3 letters of recommendation. Applications will be accepted until the position is filled.

Ph.D. positions, Auckland, New Zealand

We have two fully funded PhD positions to study auditory processing of communication signals in songbirds on a project funded by the Marsden Fund ministered by the Royal Society of New Zealand, awarded to Drs. M. Fabiana Kubke, J. Martin Wild and Mark E. Hauber. This project will commence on March 1 2006.

These studies will require the ability to perform electrophysiological, behavioural and anatomical studies. The PhD program in New Zealand is a 3-year program, with no course or teaching requirements. There may be an incentive of up to NZ\$6,000 for students defending their thesis within 4 years of the commencement date.

Interested individuals should have a Masters-level or equivalent degree in an area related to Neuroscience or Neuroethology, and should have full command of the English language. For further inquiries, please contact:

Fabiana Kubke

Department of Anatomy, University of Auckland, New Zealand. f.kubke@auckland.ac.nz Tel: +64.9.373.7599 ext. 86002

Postdoctoral research associate in computational neurobiology.

A postdoctoral position (R&A 1A: £19,460-£29,128 p.a.) is open in the Department of Biology, at the University of Leicester, England to study the control of aimed limb movements in insects.

We are looking for a computer modeller and programmer to join our expanding research team. The position is funded for 3 years, starting as soon as possible. The salary may be enhanced above the national level if appropriate.

The project is an analysis of neuronal control systems underlying aimed limb movements of locusts. You will work as part of a team to analyse behavioural and neuronal plasticity and the role of limb joint stiffness in aimed scratching movements. This is part of an active ongoing research programme. Further information is available at <http://www.le.ac.uk/biology/tm/Matheson.htm>

Enquiries to Dr Tom Matheson, tm75@le.ac.uk, telephone +44(0)116 2231263. Applications should include a full CV, an outline of current research interests and the names and contact details for three professional referees. Application forms are available from <http://www.le.ac.uk/personnel/jobs/formar.doc>.

The position will remain open until filled.



Material for Future ISN Newsletters

The Editor would welcome, indeed wholly depends upon, material for future newsletters to fill the various sections of each issue. Reference to past issues will reveal the scope and style of contributions, the breadth of their variation and the depth of their originality. Material is solicited for meetings, courses, and job opportunities which might include some aspect of neuroethology and therefore be of interest to readers of the Newsletter. Advertisements for positions (faculty or trainees) should generally aim to be not longer than 200 words, or 300 words for multiple jobs advertised in a single submission. Announcements of new books (copyright 2005) *written or edited by ISN members* should include the full citation information (including ISBN) *plus* a 40-50 word description of the book. (Note that books containing chapters contributed by an ISN member are not appropriate for inclusion.) We also welcome announcements of awards to ISN members, and of courses and future meetings, reports on recent meetings, discussions of research areas or topics of interest to neuroethologists, laboratory profiles, and editorials. We also regretfully publish occasional obituaries and memorials. Word limits depend on the type of article.

Material should be submitted no earlier than one month before the next issue (in this case, March, 2006). Have an idea for an article that you or someone else would write? Contact the Secretary prior to submission to determine the length and suitability of material to be submitted. For those who may feel their particular interest (research field, geographical region, chromosomal complement, age group, whether to dress to the left or right, etc) has been under-represented in past Newsletters, please see this as both an invitation and challenge to offset the perceived lack of representation. Remember: the Newsletter represents us all, but an empty Newsletter represents nobody, or worse still, may actually represent nothing. All material must be submitted electronically, preferably as an attached file to an e-mail prepared in MS Word and sent to Ian Meinertzhagen at iam@dal.ca

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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