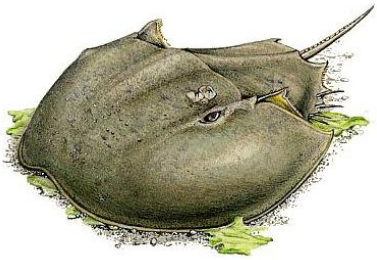
Limulus



NEWSLETTER

Department of Biological Sciences, Wagner College, Staten Island, NY

Volume 2011, Issue Spring-02 **February, 2011**

LETTER FROM THE EDITOR

It has happened before! Our February newsletter is late. As usual it is only my fault that I had to shift the final editing into spring break. Nevertheless, I believe that we have prepared an especially interesting issue. Apart of the already announced contributions about Dr. Moorthy's sabbatical and about a book by Dr. O'Connell ('76) we display student successes, experiences and opportunities.

I hope you enjoy reading our current LIMULUS!

Dr. Horst Onken
The Editor

BIOLOGY STAFF AND FACULTY NEWS

DR. MOORTHY SPENDS HER SABBATICAL IN INDIA

It is December 13, 2010. The last exam for the students is over. Once I have graded the exams and submitted the results to Administration I can focus on the final preparations for my spring Sabbatical Leave. Going back to Kerala University after 10 years is exciting. I wonder how the campus would have changed. I am thinking of my host family and how wonderfully they take care of me.

Well I think I am getting ahead of myself here. I just remembered that Don Stearns will be after me in January for the class assessments of BI213 and BI219. He is not likely to overlook them. I don't think that even becoming a grandpa twice over in one shot will change his work ethics. I must take the templates that he has e-mailed and the necessary info in my new laptop.

Packing up and leaving your home for an extended period is always a hassle. Winter makes it doubly difficult. Added to all this I have to shop for gifts to be taken for relatives and friends. A few last-minute requests have come in via e-mail (isn't technology wonderful?) and the pressure is building. But I am going "home", to my birthplace Kerala State, INDIA, to my alma mater Kerala University! Not usually prone to reliving the "glory days" I cannot help reminiscing about how proud my family was when I secured the top rank in Kerala University and won a Gold Medal for my M.Sc. degree. I had dreamed of greater things in India but fate took me to America. Just think, my Wagner College students were not around then- they were not even a gleam in their parent's eyes. Enough of this daydreaming, it makes me feel too old.

I do have mixed emotions about leaving the U.S. during the Christmas and New Year period, a time when we get together with friends and family and celebrate. I will miss Wagner College and not being there in the Spring Semester. Above all I will miss my students.

December 17, 2010. Tonight at 10:00PM we (my husband Sam is coming with me) fly the Etihad Airlines to Abu Dhabi (14 hours) and then to Thiruvananthapuram (TVM, in about 3.5 hours), the city in Kerala where I will be teaching. Also India is 10.5 hours ahead of EST and so we will lose a day and be under severe jet lag. Sam and I are going over our checklist (stop mail, stop paper delivery, and arrange for snow removal…), an endless list-so it seems. We decide we are OK. Armed with Passports, Visas and Credit Cards we set off bravely and climb into the limousine taking us to the JFK Airport. We arrive in TV and our host family greets us at the airport. Our hosts are relatives, and are a retired couple, both Professors at the University.

Christina Lamb, Wagner alum and a former student of mine, is coming to TVM and will be with me for a week. She decided to take a week off of her busy schedule pursuing the PhD program in Toxicology at the University of North Carolina and spend it in India with her old mentor. She is scheduled to arrive on December 31.

Christina Lamb'08 arrives at the airport.

Kerala is bordered by the Arabian Sea on the west coast and mountains on the east. The sea penetrates the land in odd-shaped formations and creates lakes into which many rivers that are born in the mountains flow. These bodies of waters are called backwaters. The water is generally brackish but strategically deployed levees do keep some parts filled with fresh water.

The scenery seen from a boat in these backwaters is absolutely stunning and the crew of the boat can whip up freshly cooked seafood and other mouthwatering dishes and serve them to you at your leisure. You see the local fishermen and their nets

poised for action. Groves of coconut palms are dotted with small enclaves of people.

You see churches, temples and mosques along the shore and sometimes you hear prayers. Our menu included freshly caught fish prepared Kerala Style, chicken curry, beans, lentils, organic red rice, cauliflower curry, beetroot salad, fresh yogurt, pappads. As the boat threads its way through the canals and lakes you see fish jumping, eagles and cormorants snatching fish and get glimpses of migratory birds, some flying down from far north such as Russia. Christina is thrilled as are we. Surely we are in "God's Own Country."

Some locals spend their day on their Kerala Houseboat.

Kerala University reopened after the Christmas Holidays on January 3 and I began my academic duties on that day. Christmas recess is shorter here than what we have at Wagner. Incidentally the University starts the academic year in Mid-June and finishes by Mid-March of the following year with breaks for various Holidays in between. The summer holidays are from Mid-March through Mid-June. So I am starting my duties towards the end of the academic year.

I meet with Dr. Mohandas Nair, the chair of the Biotechnology program in the morning to finalize the teaching responsibilities and schedule. The faculty is diverse and their research interests span a wide range. I get an updated copy of the graduate syllabus. I will be teaching a course in Genetics to the incoming M.S. students and a course in Introduction to Recombinant DNA Technology and Applications to the 2nd – year Ph.D. candidates. Classes are small and I have only a dozen or so students in each class. There are students from other Asian countries in the classes. Also the female-to-male student ratio is tilted significantly toward people with XX chromosomes; only one male in one class and two males in the other. Perhaps universally more women than men pursue life science studies. Since the student population is very large in India competition for college admission is brutal and only a highly motivated fraction of students make it to the graduate level.

Students are polite and respectful. I am addressed as "Madam" (some title!). They stand up when I enter the classroom and after class do not leave the classroom until I leave. They tend not to ask questions. It is cultural. I used to be exactly like that when I first came to the U.S after my MSc. degree from Kerala.

The U.S. culture of being more interactive with professors in class was something I had to learn and it took me many years before I felt comfortable calling older people, especially professors, by their first name. At this point in my life I am more at ease with students such as my Wagner bunch who crack jokes, laugh, complain and cannot wait to leave the classroom.

Christina Lamb had accompanied me to the campus on the first day and everyone was curious to meet with my American student and compare notes. She got an invitation to return and give a seminar on her PhD work.

The Biotechnology Department at Kerala University.

Dr. Martin Chalfie, the Nobel Laureate from Columbia University, happened to be visiting the campus the following day and I was honored to be invited to attend his lecture and to bring Christina along. Dr. Chalfie won the Nobel Prize for Chemistry in 2008 for his contributions to the application of the Green Fluorescent Protein (GFP) from Jellyfish to biotechnological and developmental genetic studies.

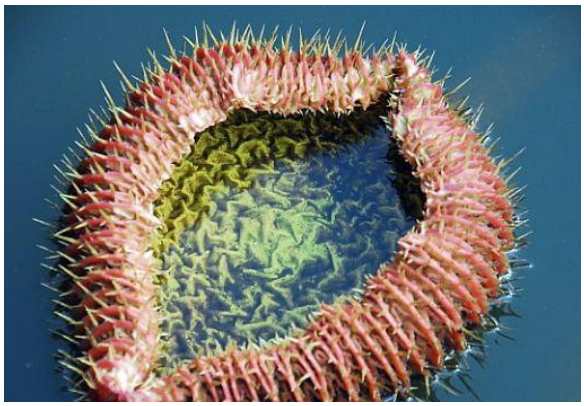
The auditorium was packed with senior scientists and VIPs from the University and the Government along with the local media. Dr. Chalfie delivered an excellent lecture, dotted with anecdotal stories, on his research. Later I met Prof. Oommen from the Biology Dept., an old friend of mine, who introduced me to Dr. Chalfie. Christina and I took the opportunity to take some pictures with Dr. Chalfie.

My teaching schedule includes four hours of lecture three days a week, a full time load for a professor by U.S. standard. The class for the PhD candidates is from 9:00AM to 11:00AM and the MS students are taught from 11:00AM to 1:00PM. Since the semester is already under way and the students have already had some lectures I started with Cloning and Genomic Libraries for the upper level students and Bacterial and Bacteriophage Genetics for the MS students. The classroom is small, air-conditioned and is equipped with a computer and projection facilities. This allows me to use my presentation slides that I brought along on a flash drive (called "pen drive" here).

The campus is about a mile (natives would say 1.5 kilometers for India has adopted the Metric System) away from my lodgings. My husband Sam and my hosts Raman and Prema are very helpful in making sure that I get out on time. I get preference for access to the bathroom and coffee and breakfast are made available on time (this is life!). I take an auto rickshaw (a three-wheeled golf-cart like vehicle that is extremely prevalent here) to and from the campus. My driver

"Johny" shows up on time and fills me in on the local stories of the day during our short drive. A typical day goes something like this: Get up by 5:00AM (although it is still dark outside birds are chirping, dogs are barking, milk is being delivered and the roosters are crowing) and after brushing my teeth I check my e-mails, have coffee, help with cutting vegetables for the meals of the day, shower and get ready, eat breakfast as a group and hit the road by 9:00AM. When I get back around 1:30PM lunch is ready and we all eat together. I also help out with other household activities such as cooking, cleaning, and laundry. We also take time to visit friends, eat out with them, and to be socially active.

Christina Lamb is sitting with a statue of a medicine guru.



Giant water lily leaf is unfolding.

Some of my Indian students take a break to smile for the camera.

Christina Lamb and I spend the day riding elephants.
Contributed by Dr. Moorthy

BIOLOGY STUDENT NEWS

SENIOR ACCEPTED BY TOP SCHOOLS

Senior Biology major and psychology minor Peter Pisano received acceptances from two prestigious dental schools. Peter was accepted to the University of Medicine and Dentistry of New Jersey (UMDNJ) and New York University's College of Dentistry last semester.

During winter break, Peter learned that he gained admission to the School of Dental Medicine at Stony Brook University.

On the behalf of the Limulus staff, I would like to congratulate Peter on his acceptances to three great dental schools!
Contributed by Nidhi Khanna

SENIOR'S SUMMER RESEARCH UNDER PUBLICATION REVIEW

Summer time brings smiles to many people's faces. Many students bask in the sun, read for pleasure, or travel across the globe. Senior double major (Biology/Chemistry) Victor Stora decided to make use of his free time by conducting research at the School of Veterinary Medicine at the University of Pennsylvania. He worked in the PennGen Lab for Inborn Errors of Metabolism and the Deubler Lab for Genetic Testing. Stora's research mentor was Dr.Urs Giger DVM PD FS MS ACVIM.

Stora screened through urines of canines for glucosuria (sugar in the urine) and ketonuria with signs unrelated to diabetes mellitus. After he screened with dipsticks, Stora assayed the urine using paper chromatography. He found significant cases of amino aciduria.

The researchers at the PennGen Lab study cystinuria and Stora used a nitroprusside assay while working on this research

project. The nitroprusside assay was run to assess cysteine levels (Cystinuria in Newfoundlands, English Mastiffs, Irish Terriers, and Scottish Deerhounds). He tried to see whether stones were present in the male dogs because the stones can block the male ureter. Anatomically female dogs are not prone to this condition unless a large enough stone is precipitated. The malmutated gene is usually found in Newfoundlands and breeders. As a result, these types of dogs are required to screened.

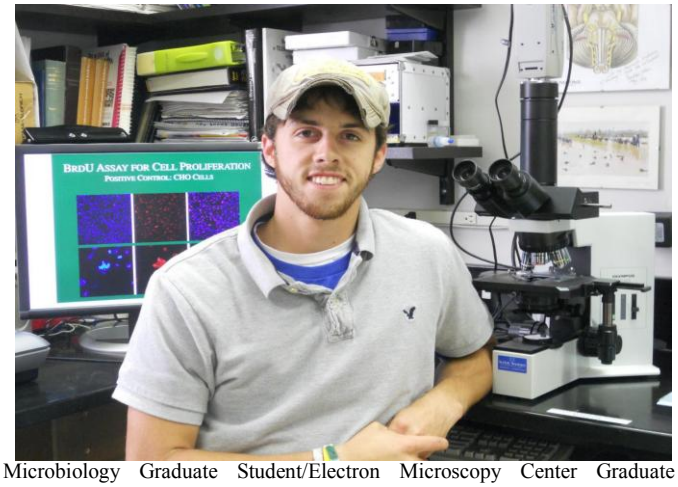
He asked the owners of the dogs whether their dogs were eating chicken jerky that was made in China. He noticed that the dogs that ate the Chinese chicken were more likely to show signs of presented. The results were compared to Cystinuria and a general extreme exacerbated amino aciduria was found from HPLC.

The results from this research are being presented at the American College of Veterinary Internal Medicine in Denver. It is under review by the Journal of the American Veterinary Medical Association (JAVMA).

In addition to Victor's extra-curricular and academic achievements, he is the vice president of Allied Health for the Pre-Health Society. He is the SGA representative for Tri-Beta and works in the Peer Tutoring Center as the Biology tutor.

Contributed by Victor Stora and Nidhi Khanna

STUDENT PROFILE: MICHAEL GUTKIN



Microbiology Graduate Student/Electron Microscopy Center Graduate Assistant, Michael Gutkin.

Despite the immense workload of a graduate student, Michael Gutkin, has managed to make conducting research enjoyable. With his admirable sense of humor, he conducts morphological research analyzing the zebrafish brain, which is the size of a rice grain. When not conducting research, he enjoys helping students around the lab, by sharing his experiences with research, and teaching students how to use equipment both efficiently and correctly.

Although he has learned various skills while working in the laboratory, this process did not take place over night. Michael began conducting research in Wagner's laboratories during his sophomore year. With these experiences, Michael became very familiar and comfortable with the lab facilities and equipment, and it was during this time that he decided that he would no longer pursue a chiropractic career, as he had originally planned to do. His passion and love for this research has earned him first and third place prizes at the MACUB (Metropolitan Association of College and University Biologists) conference in 2009 and 2010 for his research presentations.

In an interview, Michael mentioned, "I did not believe that two years [as an undergraduate] in the lab were enough for me to gain the required skills and knowledge to move directly into a Ph.D. program, which is why I decided to continue on with Wagner's microbiology master's program. I am currently a Graduate Assistant, where I am mainly in charge of the up keeping of the Electron Microscopy Center in the basement of the Megerle Science Building." Michael also described his transition into the microbiology masters program as an easy one, where he is able to take on more responsibility related to research and the laboratories.

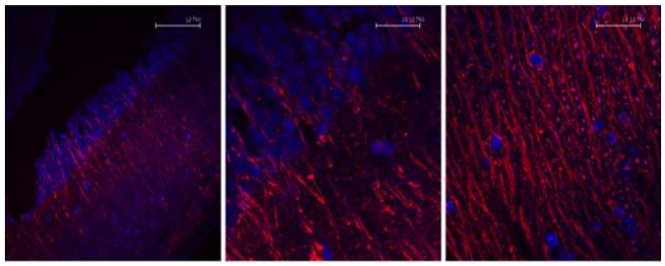
"Before I drive to Wagner every day, I pick up my medium Dunkin' Donuts iced dark roast coffee, with one sweet and low, and a little bit of milk – it gets me going for the day. I look forward to waking up every morning and being able to come into Wagner and help students in their labs and carry out my research. What I do on a day-to-day basis is an educational, fun, and exciting experience. I leave every day with an enormous sense of fulfillment and accomplishment," Michael said when asked about his day at Wagner.

Along side of Dr. Zoltan Fulop, the director of the Laboratory for Developmental Brain Research and Neuroplasticity, and Chris Corbo, a research associate and the Electron Microscopy Center Director, Michael's main research includes analyzing the cellular morphology and neuroplasticity of the brain, specifically how it changes in an *in vitro* culture system.

Last semester, the trio focused on trial and error using different immunohistochemical procedures with the zebrafish. Michael used the immune system (antibodies) to prepare histological preparations, or tissue pieces, to examine under the microscope. Immunohistochemical procedures are used primarily for the confocal laser scanning microscope. "The microscope uses different wave lengths of light to emit a laser to scan different tissues on a slide at different z-depths. This eliminates unfocused light in the thick tissue sample, while allowing us to create 3-dimensional renditions of the cellular structures," said Michael.

Using the scanning electron microscope, Michael has been able to analyze the surface structure of the brain tissue, while the confocal microscope aided him in detecting cell proliferation, or dividing cells, within the cultured brain tissue. Michael has fluorescently labeled normal adult zebrafish brain to analyze and identify the cellular composition under the confocal microscope. He spent all of last semester finding the proper antibodies to fluorescently label with the zebrafish brain. "This is important," Michael said, "because there has not been much confocal microscopy performed on sections of adult zebrafish brain."

All of this labeling will aid their future projects, which will include analyzing the adult zebrafish brain after culturing it *in vitro*, and then use the same antibodies to fluorescently label the brain after it has been cultured.



Normal adult zebrafish brain fluorescently labeled with DAPI (blue) to stain cell nuclei and DM1A (red) to stain tubulin in the cellular processes as seen on the confocal microscope. Images courtesy of Gutkin.

In this process, Michael has taken the normal brain out of the fish and labeled it. The nuclei, tubulin (which makes up the microtubules in the cellular processes), microglia (which are support cells in the brain), neurons, and mast cells (an immune cell in the brain) have all been fluorescently labeled. After these subject matters have been completed on the normal brain, Michael will then go back into the laboratory and fluorescently label the damaged brain cells from cultured brain tissue accordingly, where he expects to see various different findings.

Currently, Michael is taking the same antibodies he used on the normal brain but instead he will culture the brains like he did in the past (over a specified time course - 12 hours, 24 hours, etc), fix the tissue, and label it accordingly as he has in the past (for the normal brain).

"In the normal brain, we saw a very nice structure of normal healthy looking cells. Now after the culture, we expect to label them with the same antibodies, but we expect to see different cellular structures and mast cells, aiding in the immune response, which are thought to help repair the damaged tissue. We will compare the cultured or damaged brain to the normal brain."

"By observing different antibodies for microglia, neurons, and mast cells, we want to see if there are surviving neurons, surviving microglia, or if some of them are damaged cells." When there are injuries induced to the brain, the microglia cells are activated and act as the first form of immune defense.

"My master's thesis will be comprised of the normal adult zebrafish brain, and the traumatic brain injury model that has been cultured *in vitro,*" where he will compare the two. "We expect what we are going to observe because we have done this assay before using other preparations for analysis on the scanning electron microscope, transmission electron microscope, and light microscope." This last section of the research is where he will utilize the confocal laser scanning microscope.

"In my spare time, I collaborate with Chris Corbo in his lab over at the College of Staten Island (CSI) under Dr. Alejandra Alonso working with, and analyzing the tau protein. This protein is seen in typical neurofibrillary tangles that are seen in Alzheimer's disease." He also plans on finishing up his research with confocal microscopy on the brain, cultured and adult. "I am on course to hopefully publish the research and our findings." Afterwards, Michael will graduate with a master's degree in microbiology from Wagner College, and from then on aspires to enter a Ph.D. program in neuroscience.

"I would like to remain in the tri-state area and eventually teach at a university or college," said Michael. "And I will leave you with this: 'The brain is a world consisting of a number of unexplored continents and great stretches of unknown territory' – Santiago Ramon y Cajal (a pioneering neuroscientist from the early 1900s)." Michael says, "It's time to explore!"

Contributed by Gregory Balaes

BIOLOGY CLUB

The Biology club held their Metric System Bake Night on Thursday, February 24th in the Guild Lobby in Beisler Lounge. Student that attended the event were treated to some delicious free desserts! Members of the club taught those students in attendance how to make crêpes and crème brûlée using the metric system. The event was a great success.

The next club meeting will be held after spring break on Monday, March 14th at 9:30pm. Refreshments will be provided. All students that are interested in joining the club should attend. Please email club president, Leonid Denisenko for more details (leonid.denisenko@wagner.edu).

Contributed by Leonid Denisenko and Nidhi Khanna

TRI-BETA NEWS

Tri-Beta began the semester by co-sponsoring the Annual Darwin Day celebration. Students brought donations of all kinds of foods and drinks for the celebration. The organization plans to complete their community service by cleaning up the garden with Dr. Onken.

Contributed by Nidhi Khanna

PRE-HEALTH SOCIETY

The Civic Engagement certificate program is holding a canned food drive for City Harvest. City Harvest is an organization that helps feed hundreds of hungry New Yorkers every day. The Civic Engagement Program is holding a campus-wide canned goods drive to donate to City Harvest. The Pre-Health Society will be holding their own canned food drive to support the Civic Engagement Program's cause. This food drive will count towards the Pre-Health Society's community service requirement.

All donations will be presented to Jilly Stephens, the executive director of City Harvest, during the Civic Engagement awards ceremony. Boxes will be set up on every floor in Megerle Science Hall starting Monday, March 14th. For those going home for spring break, it is strongly recommended that they purchase canned items for this drive. Donating one canned item can truly make a difference. For more details on the Pre-Health Society's canned food drive, please contact club president, Felicia Guinta (Felicia.guinta@wagner.edu) for more details.

Contributed by Felicia Guinta and Nidhi Khanna

PRE-DENTISTRY SOCIETY

The organization is having a Dental Health Promotion Day in March. Pierre Yuzon won the election for the society's SGA Representative, and Angelo Cacciatore won the election for the society's Treasurer position. Also, we are planning a conjoint effort with the Biology Club, and the Nursing Program to start the first annual Disease Prevention Day at Wagner College, most likely in April.

The society members received their monthly planners with "Pre-Dentistry Society" and "Wagner College" engraved on the front, along with a picture of a tooth. It is in an effort to keep the members more organized, which may lead to being more successful. In the coming months, look forward to Dental Health Promotion Day, Disease Prevention Day, and a symposium from a local orthodontist at Wagner College.

The Pre-Dentistry Society had their second CPR Certification Day at Wager College through the American Red Cross. We certified 21 students from Wagner College, who are mainly interested in pursuing health careers in the future. This service provided a great way for students to build their resumes, and learn basic life saving techniques.

Students attend the CPR certification course that was held on Feb. 21.
Contributed by Gregory Balaes

OPPORTUNITIES

RESEARCH WITH MOSQUITOES AND CRABS

Dr. Onken offers research opportunities for students in the frame of a project in which he collaborates with scientists from Washington State University, the University of Idaho, and the University of Alberta (Edmonton, CA). The project is funded by the National Institute of Health and studies the physiology of the midgut of larval yellow fever mosquitoes (*Aedes aegypti*). Mosquitoes are vectors of a number of parasites, transmit devastating diseases like malaria, yellow fever and dengue, and are a major threat to the health of billions of people on our planet. The principal investigators of this project address larval mosquitoes, because it appears more straightforward to fight these vectors as long as they are confined in an aquatic habitat. In collaboration with colleagues from the U.S. (Mt. Desert Island Biological Laboratories, Maine), Brazil (University of São Paulo in Ribeirão Preto, University of Paraná in Curitiba) and Canada (University of Manitoba in Winnipeg) Dr. Onken pursues research with Crustacea related to the osmoregulatory capacities and mechanisms of crabs. Together with Dr. Alauddin (Chemistry) and Professor Beecher (Biology), an ecophysiological study is in an early stage of planning.

Dr. Onken can offer research opportunities for two to three students. If interested contact Dr. Onken in his office (Megerle Science Hall Room 411), lab (Megerle Science Hall Room 406) or via e-mail (horst.onken@wagner.edu) or phone 420-4211.

For the spring semester Dr. Onken offers a work study position related to his work with mosquitoes.
Contributed by Dr. Onken

WORK IN THE GARDEN

Students interested in collaborating in the greenhouse and/or garden during the fall and winter of 2010 are encouraged to contact Dr. Onken (horst.onken@wagner.edu). There is also an official student job for collaboration in greenhouse and garden.
Contributed by Dr. Onken

BE A LIMULUS ASISTANT EDITOR

We just welcomed the third assistant editor for the LIMULUS: Gregory Balaes. The more students actively contribute, the better the newsletter becomes. Proficient student writers are invited to become assistant editors for the newsletter of the Department of Biological Sciences. If you are interested, please, contact Dr. Onken (horst.onken@wagner.edu).
Contributed by Dr. Onken

COMMUNITY SERVICE OPPORTUNITY

Greetings Everyone,
I am Nidhi Khanna and I am currently a senior. I am working with this non-profit organization called Planting Peace. Planting Peace has many sub-organizations including one called The Clean World Movement. The Clean World Movement is trying to encourage more individuals around the world to recycle and to take better care of the planet. I am working with The Clean World Movement as the environmental director in my community. I am organizing some clean-ups in Staten Island during the semester. If anybody is interested in helping out, please feel free to contact me at nidhi.khanna@wagner.edu. Thanks for your interest and I look forward hearing from you! If you would like more information about the organization I am working with, please visit: http://www.plantingpeace.org/.
Contributed by Nidhi Khanna

CANNED FOOD DRIVE

The Civic Engagement certificate program is holding a canned food drive for City Harvest, an organization dedicated to feeding New York's hungry. To benefit the Civic Engagement program, the Pre-Health Society will be coordinating its own drive for community service.

All donations will be presented to Jilly Stephens, the executive director of City Harvest, during the Civic Engagement awards ceremony on April 7th.

Boxes will be set up on every floor in Megerle Science Hall on Monday, March 14th to collect the canned items. The Civic Engagement program also accepts monetary donations, which will be used to purchase additional cans of food. These donations help:

- provide nutrition education to individuals, families and communities to help them prevent and manage diet-related diseases;
- support low-income communities seeking access to affordable nutritious food;

Donating one canned item can truly make a difference in someone's life. Please donate!

If you have any questions or concerns, please feel free to email Paki Mekki at pakinam.mekki@wagner.edu or Emily Burkhardt at emily.burkhardt@wagner.edu

Contributed by Pakinam Mekki (see also the announcement by the Pre-Health Society above)

EXPERIENCES

ANNUAL CELEBRATION OF DARWIN DAY

The department of biological sciences got together for their third annual celebration of DARWIN DAY on Friday, February 11th. Charles Darwin was born 202 years ago on the 12th and is considered the "father" of evolution.

Senior biology major Will Etts looks at some of the fossils that were displayed in the Darwin Exhibit.

Photographs of birds that Darwin would have seen on his famous 1830s voyage to the Galapagos Islands aboard the Beagle were shown, along with copies of his ground breaking book, "*On the origin of species by means of natural selection*." In addition, a departmental collection was on display so students, faculty and staff could enjoy a hands-on experience with various hominids.

If you are interested in the route the Beagle took, follow this link:

http://www.aboutdarwin.com/voyage/voyage03.html

Organized by Prof. Raths and Mrs. Rollizo, the students from TriBeta co-sponsored the festivities, along with faculty, staff and students who shared home cooked meals and delicious baked goods. A special thank you goes to the president of the Biology Club (Leonid Denisenko) who supplied hot dogs and other food for the event.

For more information about Charles Darwin, check out

http://darwin-online.org.uk.

You can also read an interesting article comparing and contrasting Darwin with Abraham Lincoln, who have the same birthday, at the following web site:

http://www.darwinday.org/englishL/newsviews/darlin.html

Welcome back, Dr. Raths!

Happy Birthday, Dr. Mosher!

Contributed by Stephanie Rollizo
Photographs by Stephanie Rollizo and Nidhi Khanna

DR. STEARNS PRESENTS HIS RESEARCH AT FEBRUARY'S FACULTY FORUM

Dr. Stearns speaks with a nursing professor at the end of his presentation at the Faculty Forum.

Dr. Stearns has been working on a research project titled Critical Thinking for Civic Thinking (CT^2). He gave a lecture during the Faculty Forum that was held on February 10th in Kairos House Chapel. The presentation that he gave was entitled "The Teaching and Learning of Critical Thinking: Comparing Pedagogical Approaches for First-Semester College Students." He has been involved in the project with five other institutions including Indiana University Purdue University-Indianapolis, Central Connecticut State University, Portland State University, Miami University, and University of Akron.

Stearns presented the critical thinking aspect of this project to a handful of Wagner professors from various departments. Stearns and the other professors from the five previously mentioned institutions developed a method to assess students' critical thinking skills. The professors gave students in their introductory courses critical thinking assignments to help the students develop civic thinking skills.

The Structure of Observed Learning Outcomes (SOLO) research tool will be used to measure the students' development in critical thinking. The professors conducting this research want to determine whether students can apply the critical thinking skills that they learn in the classroom to real life situations. Interestingly, Stearns pointed out that students

tended to do poorly on the critical thinking test when they were told that the test was not going to be graded. Students that had their critical thinking assignments graded usually performed much better when compared to the test scores of students that were not graded.

Stearns wants to encourage students to have a heightened sense of concern in their community, and believes that students must use critical thinking in order to develop into responsible citizens. Most colleges want students to volunteer or participate in civic engagement. However, Stearns stresses that volunteering is not the same as being a responsible citizen. "People need to separate facts from falsehoods to achieve a clearer understanding of any situation," he said. In order to become a critical thinker that is engaged in his or her community, an individual must recognize a problem in one's community. The critical thinker needs to not only show a sense of concern for improving their community, but the individual should devise a plan to improve the situation in their community.

Contributed by Nidhi Khanna

THE DANGERS IN ENERGY DRINK CONSUMPTION

Jane E. Brody discusses the dangers of energy drinks in a recent article in *The New York Times.* There have been many deaths linked with the consumption of these drinks. The dangerous combination of ingredients in newly introduced energy drinks led three researchers from the University of Texas Health Science Center at Houston and the University of Queensland in Australia to study the effect that the contents of these beverages have on individuals.

Many scientists are alarmed by the rate at which people are consuming these highly caffeinated beverages. A few popular drinks are Red Bull, Rockstar, Monster and Full Throttle. There have been four documented cases of caffeine-associated deaths that have been reported, as well as five separate cases of seizures associated with consumption of energy drinks.

What is even more alarming is that the long-term effects are unknown. There are a lot of possible problems that could be affected by consuming these drinks such as liver and cardiovascular disease, insulin resistance and diabetes. The Food and Drug Administration is being encouraged to step in and regulate the market, which currently has few restrictions on the ingredients and the quantity in the drinks.

Mr. Tuttle who works closely with sports teams, is very concerned that even 11 and 12 year old kids can purchase these dangerous drinks easily. Additionally, he is concerned with how these energy drinks will affect athletic performance. "A lot of kids are reaching for energy beverages instead of sport drinks, which unlike the energy drinks are mostly water with a nominal amount of sugar and electrolytes," he said. "The energy drinks contain a slew of ingredients, most of which are not researched, especially in combination with one another," he stated.

According to the article the amount of caffeine in these energy drinks can be very harmful to people that have pre-existing cardiovascular complications and the effects these drinks have when combined with alcohol can be catastrophic. Athletes who drink these energy drinks are at a higher risk of being dehydrated because the high doses of sugar found in these energy drinks lowers the absorption of fluids.

An energy drink served in a 16-ounce contains approximately thirteen teaspoons of sugar, which is equivalent to the amount of caffeine found in around 5 colas. The ingredient guarana is particularly dangerous because it contains high levels of caffeine.

Tuttle mentioned that since caffeine is known to improve muscle action and performance in endurance activities it is banned in many sports competitions. Therefore, if an athlete consumes an energy drink close to an event he or she could be disqualified. According to one of the researchers, these new energy drinks and all the different ingredients and their effects are too much for the body to handle at one time.

One shocking incident that occurred, was when Donte' Stallworth, who was a wide receiver for the Cleveland Browns killed a pedestrian with his car in March 2009. He had drunken multiple shots of tequila and a Red Bull. What is even more alarming is to learn that Mr. Stallworth claims he did not feel intoxicated when the accident happened. The article emphasizes the point that caffeine is being treated as a flavoring agent and not as a drug.

Contributed by Farha Rashid

NATURAL HISTORY OF THE MID-ATLANTIC STATES

Do not miss the experience! Summer Field Course: BI 335 Natural History of the Mid- Atlantic States. This course, taught by Dr. Palestis, runs for two weeks (May 16-27) after the end of the Spring semester and before the start of the main summer session. It can be used as an elective for the Biology major and minor and for the Environmental Studies minor. The course is a great opportunity to experience nature, as it is almost entirely field-trip based. Trips include several nearby locations such as the New Jersey Pine Barrens, Jamaica Bay, and the Great Swamp. There will also be two overnight trips, to witness the horseshoe crab spawning/shorebird migration spectacle on Delaware Bay and to hunt for marine fossils in the Pocono Mountains. Students will learn about the organisms, ecology, and geology of a wide variety of habitat types, and will also learn basic methodology for field research.

Students in BI335 from Summer 2007 in front of a cranberry bog at Double Trouble State Park in Ocean County, NJ. Students from left to right are Shannon O'Neill, Amanda Rollizo, Jusuf Husic, and Frankie Costanza. Photo by Dr. Palestis.

Shorebirds feeding on horseshoe crab eggs at Reeds Beach on Delaware Bay in Cape May County, NJ. Most of the birds in this photo are ruddy turnstones. The endangered red knot and more than one species of sandpiper are also visible. Photo by Dr. Palestis.
Contributed by Dr. Palestis

PROFESSIONAL MEETINGS

LATE BREAKING NEWS: ECSC DEADLINE EXTENDED

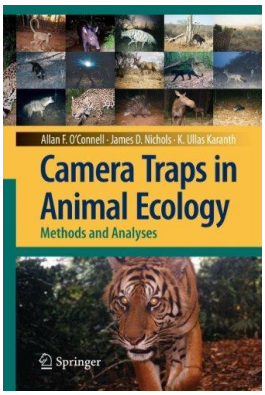
Dear Science Community,
The registration deadline for this year's Eastern Colleges Science Conference has been extended one week to Friday, March 11. Please, use this link to register and submit abstracts:
http://www.sacredheart.edu/pages/33910_eastern_colleges_science_conference_2011.cfm
Let me know if you have any questions.
Thanks, Dr. Houlihan.

ALUMNI

YULIYA SELDINA RECEIVES ACCEPTANCES TO DOCTORAL PROGRAMS

Wagner alumna Yuliya Seldina'09 recently received acceptances to two doctoral programs. She was accepted to the SUNY University at Albany (PhD in Biomedical Sciences in the School of Public Health) and the Uniformed Services University (PhD in Emerging Infectious Diseases in the Department of Microbiology and Immunology).
Seldina was a microbiology major and had minors in chemistry and biology while she attended Wagner. She was involved with a number of different organizations and held many leadership positions. Seldina was the vice president of Tri-Beta, vice president of the pre-med in the pre-heath society, and members of ODK, and Gamma Sigma Epsilon.
Seldina will be graduating this May from the University of Pittsburgh Graduate School of Public Health with a Masters in Public Health. She is a student in the Infectious Disease and Microbiology department, Communicable and Behavioral Intervention of Infectious Disease. Additionally, she is getting her certificate in Public Health Preparedness and Disaster Response. Her Masters thesis is entitled:
The effect of Epigallocatechin gallate (EGCG) on *Mycobacterium tuberculosis* and *Mycobacterium smegmatis*.
On the behalf of the Limulus staff, I would like to congratulate Yuliya on her acceptances to two great PhD programs!
Contributed by Nidhi Khanna

CAMERA TRAPS IN ANIMAL ECOLOGY



Wagner College alum Allen F. O'Connell (graduate of 1976) recently published a book together with co-editors James D. Nichols and K. Ullas Keranth. The book entitled "Camera Traps in Animal Ecology" collects contributions of a number of authors to this very interesting and path breaking field of ecological research that may very well considerably contribute to animal conservation in the future. In the following, we reprint a summary from the product flyer by the publisher, Springer, which can also be found online at

http://www.springer.com/life+sciences/animal+sciences/book/978-4-431-99494-7

Remote photography and infrared sensors are widely used in the sampling of wildlife populations worldwide, especially for cryptic or elusive species. Guiding the practitioner through the entire process of using camera traps, this book is the first to compile state-of-the-art sampling techniques for the purpose of conducting high-quality science or effective management. Chapters on the evaluation of equipment, field sampling designs, and data analysis methods provide a coherent framework for making inferences about the abundance, species richness, and occupancy of sampled animals. The volume introduces new models that will revolutionize use of camera data to estimate population density, such as the newly developed spatial capture–recapture models. It also includes richly detailed case studies of camera trap work on some of the world's most charismatic, elusive, and endangered wildlife species. Indispensible to wildlife conservationists, ecologists, biologists, and conservation agencies around the world, the text provides a thorough review of the subject as well as a forecast for the use of remote photography in natural resource conservation over the next few decades.

ALLEN F. O'CONNELL BACK AT WAGNER

Dr. Allan F. O'Connell will visit Wagner College on March 28. At 1:30pm Dr. O'Connell will give a lecture entitled "Endangered Species, Climate Change, and Alternative Energy: Implications for Natural Resource Conservation in the 21st Century".

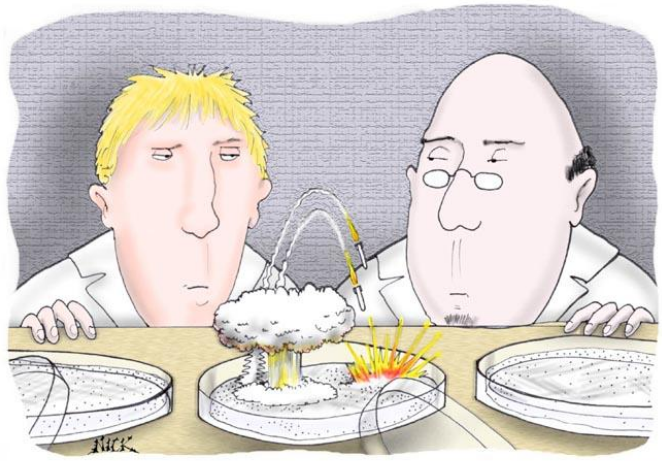
In the following, we reprint the short biography from his USGS web page. Welcome back Dr. O'Connell. We are very much looking forward to your visit.

Allan O'Connell is currently a research wildlife biologist with the US Geological Survey's Patuxent Wildlife Research Center in Laurel, Maryland. He is originally from New York City where he grew up in the shadows of the American Museum of Natural History (his father worked in the Ornithology Department). He has 30+ years of experience with the Department of Interior as a field biologist, natural resource management and science program manager, administrator, and most recently as a research scientist at Patuxent, the world-renowned ecological research center known for it's work on ecotoxicology, endangered species conservation, and population ecology. He has held a variety of positions during his government tenure including Acting Chief of the National Bird Banding Laboratory (USGS, Patuxent), first director of the National Park Service's (NPS) Cooperative Research Unit at the Univeristy of Maine's flagship campus in Orono (NPS and USGS), Division Chief for Natural Resource Management and Science at Acadia National Park (ME) and Fire Island National Seashore (NY). He has also worked as a biologist for the NPS at Gateway National Recreation Area (NY) and Fire Island, and began his federal career with the U. S. Department of Agriculture, Animal And Plant Health Inspection Service as a plant quarantine inspector at Kennedy Airport in NY. He holds a B.S. in Biology (Wagner College, NY), M.S. in Zoology (New York University) and a Ph.D. in Wildlife Ecology (University of Massachusetts). He has over 30 technical publications and is the principal co-editor (and co-author of several chapters) of the new book (2011) published by Springer Verlag - Camera Traps in Animal Ecology: Methods and Analyses, a treatise on the use and application of camera trapping, the technique that is revolutionizing how wildlife populations are being sampled around the world (see also above).

Dear Alumni,

If you are interested in contributing to our newsletter, you are very welcome to do so. Contact Dr. Onken by e-mail (horst.onken@wagner.edu) with your submission, comment, ideas or questions! We are excited to hear about where you are, how and what you do!

CARTOON



Once again, war breaks out in the middle yeast.

Cartoon from www.lab-initio.com

GUIDELINES FOR CONTRIBUTORS

Authors in all sections should keep in mind that not all readers are specialized in their area of interest. Keep your contribution on a level that everybody can understand.
Contributions may vary in length between about 50 and 500 words and must be submitted by e-mail to horst.onken@wagner.edu.
Photographs or other images that accompany an article are very welcome, but must be submitted as separate files (high quality jpg is the preferred file format) attached to the e-mail. Be aware that photographs/images may be minimized in size.
Indicate the section of the newsletter where you want your contribution to appear.
The deadline for submission of a contribution is the 20th of the month. Contributions received later may or may not be considered.
The editor reserves his right to edit your contribution or post an immediate response.
Editing may involve to publish contributions in other sections as indicated by the author.
All contributions will clearly indicate the author's identity.
All contributions are reviewed and publication may be refused by the editor.