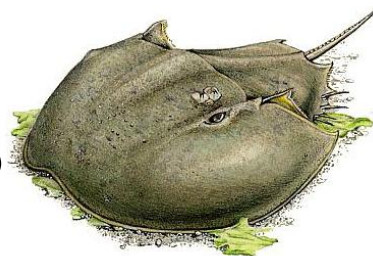


LIMULUS



NEWSLETTER

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

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LETTER FROM THE EDITOR

For students and faculty, the summer break has been too short, as usual. Administrators and other staff may have looked forward to a more lively campus life. I am sure many freshmen were excited to finally start their college career at Wagner.

For those who make the LIMULUS the beginning of the new academic year was very busy. Consequently, we took the freedom to delay the review of the spring semester to the end of September, instead of coming forward with this task already a month earlier. I hope all of you enjoy the look back to the spring, before we give you the news from this semester in about a month from now.

Dr. Horst Onken

The Editor

BIOLOGY STAFF AND FACULTY NEWS

DR. STEARNS DISCUSSES RESEARCH PROJECTS



Dr. Donald Stearns has spent 23 years of his professional career serving as full-time college professor. During the week, students can find Dr. Stearns working away in his office until the late hours of the night. He is a dedicated and caring professor that is currently working on two important research projects. Dr. Stearns is studying the way organisms respond to different light cues. He also received a grant from the National Science Foundation to study the connection

between critical thinking and civic thinking (CT)².

After receiving his B.A. in Biology from the Ivy League institution Dartmouth College, Dr. Stearns attended the University of New Hampshire and earned a Masters in Zoology. Before pursuing a PhD in Zoology at Duke University, he taught undergraduate students in Mexico at the University of Baja California.

As a graduate student at Duke University, Dr. Stearns focused on behavioral ecology, especially of marine organisms. He developed an interest in the cyclic behaviors of nocturnal

migration. Dr. Stearns basically studied daily patterns of marine organisms and wanted to know how light played a role in effecting those behaviors. He proposed that organisms behave differently under various light conditions. "Organisms can see different light conditions that human beings are unable to see, and this is quite fascinating to me," he said.

The effects of light and behavior can help answer a lot of important questions, such as what specific light cues can trigger behavioral responses in the natural field. Currently Dr. Stearns has five research students at Wagner that are working in the photophysiology lab. In this dark room, the students are able to control the color and brightness of light using special filters. The students are using mosquitoes and observing how the insects respond to different light cues. If the mosquitoes do not respond to the light cues, then Dr. Stearns will conclude that the insects did not see the light. He is observing the organisms' behavior as a way to measure what the mosquitoes can and cannot see.

In addition to conducting research in the laboratory, Dr. Stearns has been working on a new project, CT². He has been involved in the project with three other institutions. Dr. 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, Dr. Stearns stresses that volunteering is not the same as being a responsible citizen.

"You can have a heart of gold and decide that you want to donate to some charity. However, if you don't do your research and use critical thinking, you may end up donating money to an organization that uses those donations to pay high salaries to the heads of that organization. As an individual, you may think that you are helping improve conditions in your society by donating to that organization, but you actually have not used critical thinking correctly. 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 his or her 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.

I would like to thank Dr. Stearns for taking the time to explain his two research projects to me.

Contributed by Nidhi Khanna





HONORING OUR ADJUNCTS PROFESSOR BEECHER



Professor Beecher (in the above photograph on the right with her students in the Botanical Garden) began teaching at Wagner in 2007. She received her Bachelor of Science in Biology at Washington State University, which is located in Pullman, Washington. She stayed at Washington State University and obtained a Masters in Environmental Science and Regional Planning.

While studying in graduate school, she became interested in watersheds and sediment chemistry. She said, "Watersheds can greatly help reduce the problems that the global community faces with maintaining clean water supplies." Professor Beecher feels that it is vital to pay attention to watersheds and sediment chemistry because all the materials that people dump into the Earth eventually settles into lakes. "Most of the pollution is concentrated in the bottom of lakes and it is important that individuals take action and reduce pollution," she said.

Professor Beecher is a dedicated adjunct faculty member, and teaches during the fall and spring semesters, and even during summer sessions. She teaches several classes including Human Biology, Environmental Biology, Environmental Issues, and Forms and Functions (the lecture and lab sections for all four classes).

In addition to her interests in sediment chemistry, she is fascinated by photosynthesis and will be returning to Washington State University in the fall to join the PhD program in molecular plant science. The molecular plant science program at this university is internationally known and is one of the top programs in its field.

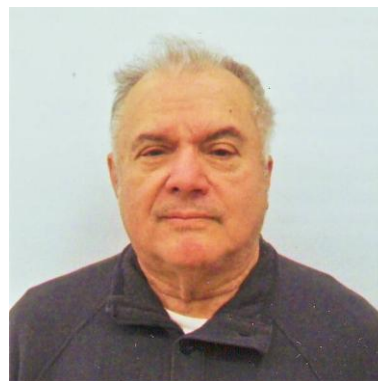
Professor Beecher really enjoyed teaching at Wagner, and will miss all of her students and the wonderful faculty she was able to work with. She likes to teach at Wagner because she is able to help students as much as she can due to the small classes. "I

love Wagner students and I enjoy coming to work every day. I never felt like teaching was a job, but something that I really enjoyed doing. It was such an incredible pleasure to teach at Wagner and the Biology department is completely supportive. Stephanie is such a great secretary and she is always so caring and helpful. I loved teaching at Wagner and I hope to continue teaching one day again in the future," she said.

On the behalf of the Limulus staff, I would like to congratulate Professor Beecher on her acceptance to the PhD program at Washington State and I wish her the best of luck! I would also like to thank Professor Beecher for taking the time out of her busy schedule to conduct this interview.

Contributed by Nidhi Khanna

Dr. ROSENBERG



Professor Rosenberg began teaching at Wagner about two years ago. He is a Bronx native and, where he received a Bachelors in History at Dartmouth College. After college, he went on to George Washington University to pursue a medical degree. Dr. Rosenberg returned to New York

to complete an internship at Mt. Sinai, and was a blood and cancer specialist. He eventually moved to Massachusetts and was a physician for 30 years of his professional career. In addition to practicing medicine, he received a PhD in Biophysics at the Massachusetts Institute of Technology. While in Cambridge, he served as a Biochemistry professor at MIT and was a professor at Harvard Medical School.

Dr. Rosenberg's research interests include molecular biology and while he taught medicine at Harvard, he also ran Harvard's molecular biology lab. When he studied medicine in GWU, Dr. Rosenberg became interested in blood. "Blood is very molecular, and when you study blood you can figure out the precise causes of diseases. I have watched the hematology discipline change and increase in power during my career," he stated.

In addition to Dr. Rosenberg's extensive work at Harvard, he became actively involved in many social causes. He started the first free medical clinic in Cambridge with a group of his colleagues. After teaching at Harvard and MIT for eleven years, he eventually retired. Dr. Rosenberg holds honor doctorates from the University of Amsterdam and University of Paris.

Dr. Rosenberg moved back to New York recently, and has been teaching several laboratory sections at Wagner. He teaches the Anatomy and Physiology labs, and will be teaching the Cells, Genes, and Evolution lab next year. Dr. Rosenberg enjoys teaching at Wagner and wants to help his students to be able to think critically. "I want to help students think through complicated problems and I feel that is important to help train students to be good critical thinkers. I





want to students to relate the information they learned in lab to real life situations,” he said.

In his classes, Dr. Rosenberg believes that it is necessary for the instructor to cater to the students’ interests. “Currently, I have some students in my class interested in sports medicine. I also have some nursing students as well. I try to engage the students by adding sports medicine related questions in the homework problems and I include clinical examples in my lectures because it interests the nursing students. The students often complain that my homework assignments are difficult, and I give them hard questions in order for them to prepare for the examinations. The difficult questions gets them thinking, and this is the same way I taught my students at MIT,” he added.

Dr. Rosenberg has an impressive list of accomplishments, and many of his former students are leading successful lives as professors all over the globe in academic institutions like Harvard.

I would like to thank Dr. Rosenberg for taking the time to speak with me, and it was such a privilege to learn more about you.

Contributed by Nidhi Khanna

SPECIAL TOPIC

BIOLOGY AND MICROBIOLOGY RESEARCH FUND

In the summer of 2009, with the help and support of the Department of Biological Sciences, the Administration and the Office of Institutional Advancement (OIA), Dr. Ammini Moorthy’s hope to establish an **Undergraduate Senior Thesis Research Fund for the Biology/Microbiology Department** became a reality.

Currently all biology/microbiology majors participate in undergraduate research under the supervision of a faculty member as part of their graduation requirement. With the assistance of Ms. Stephanie Rollizo (faculty secretary), Dr. Moorthy worked with Ms. Kristen Koehler (OIA) to reach out to our alumni for help in creating the fund to subsidize this important part of the curriculum. The fund provides much needed resources for our students to purchase materials for their research projects.

The alumni who have already graciously donated are:

Robert Agnello, Danielle Cavallo, Robert Corry, James D’Amico, Louis DeSantis, Letizia Hobbs, Louise Kaufman, Stacy Kubikian, Christina Lamb, Christine Marrone-Massaro, Robert Peterman, Michael Ponzo, and Carol Russell.

With the approval of Dr. Brian Palestis (chair of biological sciences) and Prof. Linda Raths (who maintains expense records), several students have already benefited from this fund. Their names and their research projects are:

Nicholas Lepore and Almir Spahiu (Advisor Kathy Bobbitt): Chemical components and antimicrobial properties of mastic

Medije Mashkulli (Advisor Horst Onken): Set up of a yellow fever mosquito (*Aedes aegypti*) colony



Philip Kaplan, Glenn Muoio, Peter Pisano, Farha Rashid and Lauren Raynor (Advisor Donald Stearns): Developmental changes in larval photosensitivity of the yellow fever mosquito (*Aedes aegypti*)

Kaitlin Eppinger (Advisor Brian Palestis): A banding study of the common tern (*Sterna hirundo*)

Cassandra Bray (Advisor Brian Palestis): Escape response as a behavioral assay of blindness in zebrafish (*Danio rerio*)

Alex Moleson (Advisor Roy Mosher): Site-directed mutagenesis of green fluorescent protein

Roseanna Valant (Advisor Ammini Moorthy): Genotoxicity of mitoxantrone in human cells

Felicia Giunta (Advisor Heather Cook): Effects of endocrine disrupters on *Drosophila* development

Benjamin Serbiak (Advisor Ammini Moorthy): The efficacy of sunscreen blockers in prevention of the effects ultraviolet light in *Vicia faba*

Alexander Zilberman (Advisor Adam Houlihan): "Use of PCR to validate culture-based detection of *Salmonella* from waterfowl eggs in the Jamaica Bay Wildlife Refuge

Julianna Maniscalco (Advisor Horst Onken): Inhibition of strong midgut alkalization in larval yellow fever mosquitoes (*Aedes aegypti*)

Thanks again to the alumni who contributed and made this possible. Your generosity is already paying dividends. We need more of you, our alumni, to step forward and contribute whatever you can. During the summer of 2010, the alumni will once again be approached to ask for their support. Alumni who happen to read this article are encouraged to proactively contribute. It is not often that one gets a chance to make a donation and see its impact directly and promptly.

Contributed by Stephanie Rollizo, Dr. Moorthy, and Dr. Palestis.

CURRICULUM NEWS

NEW 5 YEAR B.S./M.S. MICROBIOLOGY PROGRAM

Recently, I had the opportunity to speak with Dr. Roy Mosher, the director of the Microbiology Masters Program at Wagner. Dr. Mosher teaches a number of courses at Wagner including Biochemistry I and II, Medical and Public Health, Microbiology, Microbial Genetic, Applied, Food, and Industrial Microbiology, and Pathogenic Fungi.

Wagner announced that the Microbiology Program would offer students a chance to obtain a five-year B.S./M.S. beginning in the Fall 2010 semester. The new program is not offered in any other college or university in the Northeast. Associate



Provost Dr. Jeffrey Kraus spearheaded the idea for the new



program. Dr. Kraus is also head of all the graduate studies programs at the college, and initially he asked Dr. Mosher if it would be possible to develop a five-year B.S./M.S. Microbiology graduate program at Wagner.

Dr. Mosher was a little reluctant at first because the Microbiology Department was shorthanded and would not be able to expand the program due to the limited faculty. Luckily, Dr. Adam Houlihan joined the Wagner faculty recently, and Dr. Mosher believed with Houlihan's help, the new program would be more feasible.

After Dr. Kraus proposed the idea, Dr. Mosher needed to get the program approved by the Biology Department and then by the Academic Program Committee, which regulates academic programs on campus. Dr. Mosher brought the idea to the New York State Department of Education and they finally gave the final approval for the program. The entire process took about a year to complete from start to finish.

Earlier last fall, Dr. Mosher received exciting news from the Department of Education that Wagner would be allowed to offer this new program to students the following year.

According to Dr. Mosher, Professor Christopher Corbo, an adjunct Biology professor at Wagner ('06 B.S., '08 M.S.), deserves a tremendous amount of credit in helping Dr. Mosher obtain the proper certifications for the program. Additionally, Dr. Kathleen Bobbit and Dr. Houlihan played an integral part in developing the program, and Dr. Mosher could not have completed this process without their assistance.

The new program offers students a chance to receive their Masters degree quickly and this program is more research oriented. "The current two-year Masters program allows students to choose whether they would like to do a research based or non-research based thesis. The Masters students simply do not have enough time to sufficient research, and the new program allows students to get a head start with their research," stated Dr. Mosher.

Students participating in the program will begin to conduct research in the laboratory during their junior year. They will be required to complete their senior RFT during the fall semester of their senior year. This allows students to begin their Masters research in the spring semester of their senior year. The advantage of this program is that students can start a research project as an undergraduate student and have the opportunity to defend their thesis as a senior. Eventually, the students can expand on their senior thesis project, and have the opportunity to have an engaging and intensive research experience. "Students completing their Masters in Microbiology usually need time to do research, and by the time they learn the necessary skills to do the research, it is time for the students to graduate," said Dr. Mosher. The new program allows students to spend more time learning the techniques in the lab, and hopefully the students will be able to present their projects at major regional or national conferences.

Currently, seven undergraduate students have officially declared an interest in the program. The program allows students to "exit" out of the program, and students can pursue other graduate schools if they wish. Students hoping to go to medical school or dental school can enroll in the five-year

program, but if they get accepted to either medical or dental school, they can opt to "exit" out of the program. Basically, the students can choose to obtain their B.S. in Microbiology, and may opt out of pursuing the Masters in Microbiology in order to attend another graduate school after they complete their senior year at Wagner.



Dr. Mosher offered some important advice for students that are interested in the program. "Anyone that wishes to participate in the program should make the decision by their sophomore year, however, it would be better if you decide during your freshman year. New students and freshman should try to get into Dr. Stearns' and Dr. Houlihan's Learning Community: Bacteria, Human Health and Survival. This LC allows students to complete their basic microbiology requirements and it is important to get the introductory course out of the way. Then, students will be able to fit their other microbiology classes in the following semester, and it would be optimal if students put this LC as their top choice," he stated.

I would like to thank Dr. Mosher for taking the time out of his busy schedule to complete this interview!

Contributed by Nidhi Khanna

BIOLOGY STUDENT NEWS

AWARDS

BIOLOGY STUDENTS HONORED AT UNDERGRADUATE AWARDS DINNER

The Undergraduate Awards Dinner was held on Friday April 30th. Many students from the department received honors and recognition for their exceptional academic work. The awards that students received are in italics. The students that maintained a 4.0 GPA for the Spring 2009 and Fall 2010 semesters received a special plaque. The following students were honorees at the dinner:

Violeta Capric (Biology/Anthropology Majors)- *Academic Excellence Award (4.0 g.p.a)*** and the *Robert D. Blomquist Memorial Award in Biology*

Terryn Marete (Biology Major)- *Biological Science Award*

Peter Pisano (Biology Major)- *Academic Excellence Award (4.0 g.p.a)***

Victor Stora (Biology/Chemistry Majors)- *Academic Excellence Award (4.0 g.p.a)*





Melanie Valencia (Biology Minor)- *Academic Excellence Award (4.0 g.p.a); Diversity Action Council Award; Community Service Award.* (Biology Minor)

Lisa Duncan (Biopsychology Major)- *Academic Excellence Award (4.0 g.p.a)*

Marlena Mason (Biology Major)- *Academic Excellence Award (4.0 g.p.a)*

Nidhi Khanna (Biology/Philosophy Majors)- *Outstanding Service in Communication Award*

Congratulations to all the honorees!

Contributed by Nidhi Khanna (with the help of Stephanie Rollizo)

SENIORS RECEIVE DEPARTMENTAL HONORS

Some seniors received special recognition for their outstanding work in the biology department. Three seniors received awards for presenting at a conference, and for their high GPA. Congratulations to Yolana Fuks, Medije Mashkulli, and Michael Stanton!

Contributed by Nidhi Khanna

GRADUATE STUDENTS AWARDS CEREMONY

During the first week of May, a few graduate students received special recognition for their work in the Microbiology department. Congratulations to all of the winners!

Microbiology Award- Zulmarie Franco

Highest Academic Achievement-Kristin Belitz

Outstanding Academic Achievement-Janet Sum

Contributed by Nidhi Khanna (with the help of Stephanie Rollizo)

BIOLOGY STUDENTS INITIATED INTO ODK

The National Leadership Honor Society held its Spring initiation for new members on Friday April 9th at 6pm. Omicron Delta Kappa was founded in 1914 at Washington and Lee University. This organization recognizes excellence in academics and leadership of students at each of its participating colleges.

Several students from the Biology Department were inducted into ODK, as well as a faculty member from the department. Congratulations to all the new members!

Anna Lysenko (Biopsychology Major), Violeta Capric (Biology), Leandra Manfredi (Biopsychology), Aimee Marin (Biopsychology), and Dr. Horst Onken (faculty initiate).

Limulus would also like to recognize the Biology students that were inducted in the fall. I apologize for the late recognition!

Philip Kaplan (Biology Major, chemistry minor), Victor Stora (Biology/Chemistry Majors), and Nidhi Khanna (Biology/Philosophy Majors).

Several graduating seniors from the department have been members of ODK. I would like to wish them the best of luck in their future endeavors!

Yolana Fuks (Biology Major, Chemistry Minor), Shannon O'Neill (Biology Major), Anna Lysenko (Biopsychology Major), Colleen Janson (Biology Minor), and Danielle Sheehan (Biology Minor).

Contributed by Nidhi Khanna

BIOLOGY CLUB NEWS

The Biology club held several meetings during this semester. Members discussed a few important topics at the last meeting,



which was held on Monday, February 22nd. Please look below for upcoming events.

- On-campus community service
 - Once the weather begins to get better, the on-campus community service will take place. Members will be sitting at a table outside the Union. The Biology club will be asking for donations (for a cause that is TBD). Donors will receive “prizes” in exchange for their contributions.
- Off-campus community service
 - Members are looking into the possibility of participating in the National Pillow Fight Day in the city. The date is Saturday, April 3rd. This is the Saturday before Easter Sunday. Please let email Cassandra Bray if anyone is interested in participating in this event. The pillow fight day works by asking the participants to donate their pillows at the end of the day. Any donated pillows are given to animal shelters in the NY area to make beds for the animals.
- PR events to make the campus aware of the Biology Club
 - Campus-wide trip to the Bodies: The Exhibition in Manhattan
 - Campus-wide trip to the National Museum of History
 - Table at Wagnerstock (April 17th)
 - Movie night
- Tie-dye of Biology Club t-shirts
- Members will be tie-dying our club t-shirts on Sunday, April 11th at 11am on the oval (pending good weather).

Contributed by Cassandra Bray and Nidhi Khanna

The next Biology club meeting will held on Monday April 12th. The elections will take place and members will be voting on the new Executive Board for next year.

Contributed Nidhi Khanna

The Biology Club completed their on-campus community service in the last week of April. Members distributed free condoms in the Union and collected donations to support Community Health Action.

Elections were also held and the newly elected president is Leonid Denisenko and the vice president is Caroline Mroz.

Current President, Cassie Bray had a few final words that she would like to share: “Lastly, I wanted to thank everyone who was an active member this past year. It felt great to know the hard work and time I put into making the club better paid off. I'll miss everyone next year, but be excited for Leonid to take control. Awesome things will get done during his reign!

Have a great summer, everyone!”

-Cassie Bray

Contributed by Nidhi Khanna and Cassie Bray

TRI-BETA NEWS

Members of Tri-Beta met early this month. Professor Rath serves as the faculty advisor for Tri-Beta and she suggested that members participate in an upcoming conference at The College of New Jersey. The conference will be held on Saturday March 27th. Students may already have a poster prepared at that time for the Eastern Colleges Science Conference and should consider going to this conference as



well. The deadline for submitting abstracts electronically for all oral and poster presentations is March 16th. March 21st is the deadline for registering online. "Walk in" posters will be allowed the day of the conference, and students have the opportunity to register the day of the conference.

Contributed by Yolana Fuks, Professor Raths, and Nidhi Khanna

The Biological Honor Society will hold its initiation ceremony for new members on Friday April 16th in Gatehouse Lounge. Members will be completing their off-campus community service at the Rahway River in New Jersey on Saturday April 17th. Tri-Beta goes to the Rahway River annually during the springtime to clean up the trash that is scattered around near the river.

Contributed by Nidhi Khanna

NEW MEMBERS

Congratulations to the new members of Tri-Beta!

Daniel Fitzpatrick, Philip Kaplan, Terryn Marete, Aimee Marin, Maleeha Memon, Caroline Mroz, Ashley Nati, Farha Rashid, and Victor Stora.

ELECTIONS

Tri-Beta recently held elections for its new officers. Congratulations to all! President: Medije Mashkulli, Vice President: Violeta Capric, Secretary: Philip Kaplan, Treasurer: Peter Pisano, and Historian: Farha Rashid.

GRADUATING SENIORS

The Limulus Staff would like to wish the seniors from Tri-Beta the best of luck in their future endeavors!

Graduating Seniors: Lauren Carasso, Samantha Cook, Jessica Cozzolino (Secretary), Yolana Fuks (President), Colleen Janson, Michele Marotto, Shannon O'Neill (Historian), Danielle Sheehan, Almir Spahiu, Ashley Stackpole, Michael Stanton (Vice President), Salvatore Valenti, and Kayla Wong.

PHOTOGRAPHS FROM THE INITIATION



Contributed by Nidhi Khanna

PRE-HEALTH SOCIETY

The Pre-Health Society held their first meeting of the semester this month. The organization is planning to get involved in a number of off-campus and on-campus community service events. Members plan to volunteer at the Soup Kitchen on Staten Island and will participate in the March of Dimes walk that will be held in April.

In addition, students that are interested in getting clinical experience are encouraged to volunteer at Staten Island University Hospital. The hospital procedures and instructions that volunteers must follow will be available to members on the Moodle site. If students would like to volunteer at SIUH, they should contact Violeta Capric (violeta.capric@wagner.edu).

Members are invited to join the Pre-Health Society's fundraising/community service committee. Please contact VP of Medicine (President of MAPS), Melanie Valencia (melanie.valencia@wagner.edu) for more information. The committee will be planning a Salsa Night event to raise money for the campus-wide Haiti relief efforts. The committee meets at 4pm on Tuesdays.

Students interested in applying to Medical School should look out for a presentation from Bryan Fleischman, the Associate Director of Admissions of the American University of Antigua-College of Medicine. The presentation will be held on Tuesday April 20th at 4:00pm, room TBA. Students that would like to learn more about AUA should visit the university's website (<http://www.auamed.org/>).

Contributed by Nidhi Khanna

Melanie Valencia is the vice-president of the Pre-Health Society. She also serves as the president of the Minority Association of Pre-Medical Students (MAPS). MAPS is a subgroup of the Pre-Health Society. For the past few months, Melanie has been working with a group of students in the Pre-





Health Society to organize a 'Salsa Night.' This event will be held on Thursday, April 8th at 8pm in Gatehouse Lounge. An instructor will be coming to teach all attendees a few salsa steps. The cost of the event is \$5 and all proceeds will be going to the organization Knowledge is the Cure, which funds projects in Kenya. The event was a huge success last semester, and all Wagner students are encouraged to attend!

Students that are interested in applying for medical school should look out for a presentation from Bryan Fleischman, the Associate Director of Admissions of the American University of Antigua-College of Medicine in April. The presentation will be held on Tuesday April 20th at 4:00pm, room TBA. If you would like to learn more about AUA, please visit the website (<http://www.auamed.org/>).

In addition, students that would like to get more clinical experience are encouraged to volunteer at Staten Island University Hospital. The hospital procedures and instructions that volunteers must follow will be available to members on the Moodle site. If students would like to volunteer at SIUH, they should contact Violeta Capric (violeta.capric@wagner.edu).

Contributed by Nidhi Khanna

ELECTIONS

The Pre-Health Society held its annual elections on Thursday, April 29th. This was the first time the organization allowed members that could not attend the elections to submit their vote electronically by emailing their votes to the Secretary (Nidhi Khanna). All the candidates were very well qualified and ran a great race! Thanks to all who participated. Congratulations to our new officers!

President: Felicia Giunta

VP of Medicine: Julianna Maniscalco

VP of Allied Health: Victor Stora

VP of Dental: Lisa Schneider

Secretary: Medije Mashkulli

Treasurer: John Geli

SGA Representative: Lisa Duncan

Current President Aimee Marin and Secretary Nidhi Khanna decided to "retire" from the E-board of the Pre-Health Society, and did not wish to run in the elections. Aimee wrote a final farewell letter to members that I would like to share:

It has been an honor to serve in the office of president for the PHS. We can be proud of our achievements and look forward to even greater achievements in the future. Now is the time for me to turn over the leadership as the club moves forward with fresh ideas.

If anyone has any questions or concerns, feel free to e-mail me. I will be working with the Colleges Against Cancer club next semester, and I look forward to seeing familiar faces at those meetings. Thank you once again,
Aimee Marin

Lastly, I wanted to thank everyone in the society for a great year and for all of your hard work and participation in PHS. It was an honor and such a pleasure to serve as PHS secretary for the past year. I am sure Medije will go above and beyond



her duties as secretary next year, and I feel confident of her abilities.

Contributed by Nidhi Khanna

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.

Contributed by Dr. Onken

WORK IN THE GARDEN

Students interested in collaborating in the greenhouse and/or garden during the spring of 2010 should contact Dr. Onken (horst.onken@wagner.edu).

Contributed by Dr. Onken

BE A LIMULUS ASSISTANT EDITOR

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).

EXPERIENCES

DARWIN DAY BECOMES ANNUAL TRADITION

Last year, the Biology Department celebrated the 200th birthday of Charles Darwin. This year, Professor Raths and Secretary Stephanie Rollizo decided to hold a special lunch again this year in honor of Darwin's birthday. Last year, everyone had such a wonderful time at the event, and



Professor Rath and Stephanie wanted to organize a celebration again this year.

Professor Rath had a special Darwin Exhibit set up in one of the laboratories. She did a marvelous job with the exhibit, and included interesting facts about Charles Darwin.

Some interesting facts about Charles Darwin include:

Darwin was not comfortable being on ships. He suffered from seasickness and did not spend that much time on the *Beagle*. He did most of his research on land rather than on ship due to his problem with seasickness.

His father was a physician wanted Darwin to attend medical school. Darwin's father did not think highly of his son, and pushed him to attend Edinburgh University to pursue a career in medicine. Darwin did not want to become a doctor, and his father said that he was "a disgrace to himself and his family."

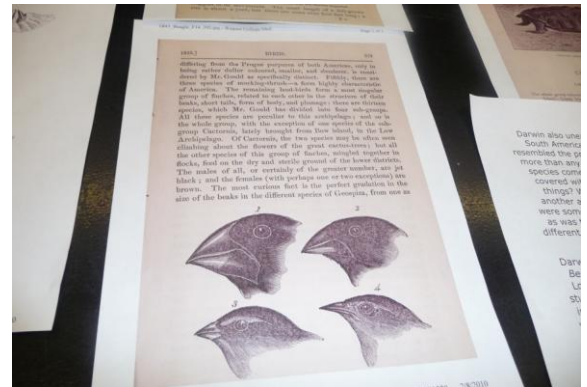
Charles Darwin's wife was very religious. When he was younger, he studied the University of Cambridge. He was interested in joining the clergy, but he later pursued other interests. Eventually, Darwin made the transition from being religious to becoming an agnostic.

On behalf of the Limulus staff, I would like to thank Professor Rath and Stephanie for organizing the event. This event could not have been possible without all of their hard work and contributions. I would also like to acknowledge anyone else who made delicious treats for everyone else to enjoy.

Interesting facts were compiled from: <http://www.livescience.com/history/090211-darwin-facts.html>

Contributed by Nidhi Khanna

From Professor Rath's Darwin Exhibit





WAGNER IN THE SNOW





WAGNER AFTER THE STORM

In February, the college was hit by snow. On a number of days classes had to be canceled. In the February newsletter I shared some photographs of Wagner College in the snow. In March, the college was hit by a major rain storm, and I share some photographs of the damages on campus (see below). This storm caused major damages in different states of the East Coast. On Staten Island many trees were blown over and thousands of houses were without power for up to some days. Also our beautiful campus suffered, and public safety and maintenance were extremely busy. A couple of trees crashed and some windows broke.



Broken window in the Library.



Water damage at the Science Building.



A fallen tree blocking Campus Road.



Public Safety in action. A wind gust blew over a whole row of pines behind the Science Building.





One of the trees that was blown over on campus was a big, old oak besides Lyle's House (see above). When it fell it barely missed Lyle's House. Lyle Guttu's good spirits must have protected his former home. On the initiative of our department secretary, Stephanie Rollizo, the department got a slice of the stem of the tree. It is now in a storage room of the department and will dry over the summer.



After the summer it is planned to sand the surface of the stem slice and to conserve it with varnish. The annual rings of the tree can then be accurately counted. A rough estimate is that the tree is between 150 and 200 years old. The stem slice can then be used as an item to display American and Wagner College history.

Contributed by Dr. Onken

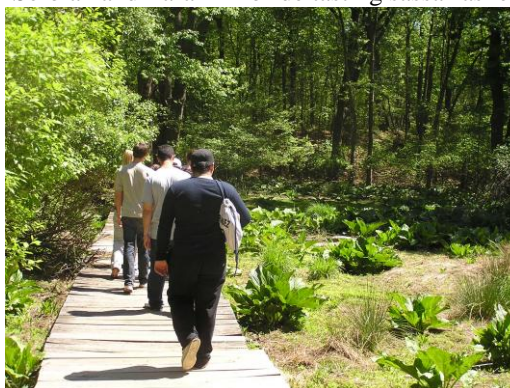
FUN FIELD TRIP

These photos below are from a class field trip for BI 492 Ecological and Evolutionary Theory to two nearby locations in New Jersey, Hutcheson Memorial Forest and Cheesequake State Park. Hutcheson Memorial Forest is owned by Rutgers University and is the sight of various field research projects, including a long-term study of ecological succession. Students were able to see a patch of old-growth forest, forests of known age that developed from abandoned farm fields, a field kept in an early successional stage, and evidence of the effects of deer herbivory and invasive species. Cheesequake contains a wide

variety of different habitat types in a small area, due to its location at the borders of northern and southern vegetation and of coastal and upland vegetation. Habitats include deciduous forest, pine barren, cedar and hardwood swamps, and saltmarsh.



Ben Serbiak and Lara Kirkbride tasting sassafras leaves.

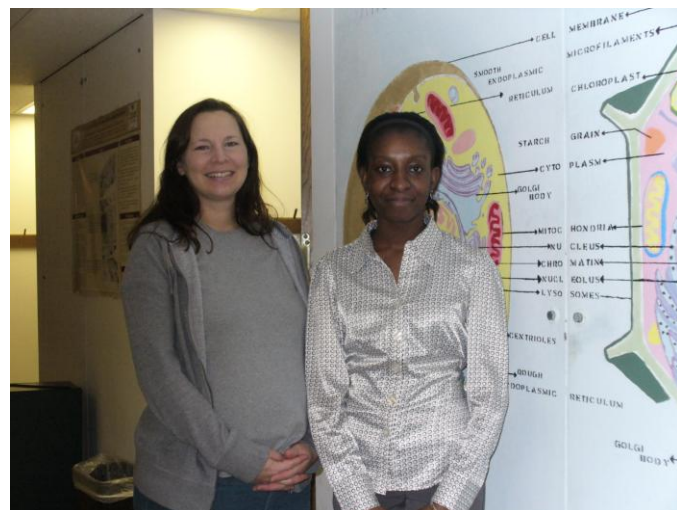


The class walks on a boardwalk through the swampy section of Cheesequake State Park.

Contributed by Dr. Palestis

PEOPLE

LUESONI JOHNSON VISITING RESEARCH STUDENT COLLABORATES WITH DR. FULOP AND RECEIVES HONORS



In November, the annual Biomedical Research Conference for





Minority Students was in Phoenix, Arizona. Biology students attend this prestigious conference to present their research in developmental biology. Luesoni Johnson, a sophomore from Kingsborough Community College received honors for her poster presentation that dealt with the effects of alcohol on zebrafish embryos. Johnson has been working on this research project with her advisor from Kingsborough, Dr. Kristen Polizzotto and Dr. Fulop since the summer 2009. Recently, I had the privilege to speak with both Dr. Polizzotto and Luesoni about the research collaboration they have formed with Wagner College.

Dr. Polizzotto described the different grants that are available to students at Kingsborough Community College. The first grant that the college offers is called the Bridges to the Baccalaureate Program. This grant is funded by the National Institute of Health (NIH) and is given to underrepresented students. This program helps students attending community colleges transition into a four-year college. The students work with a four-year college (Medgar Evers College) and must apply to this program. These individuals will then take a research methods class and get assigned to work with a mentor. Students have the opportunity to make connections with mentors and complete research over the summer. Eventually, these students will make posters and will be required to present at three different noteworthy conferences.

Kingsborough offers a second grant to underrepresented students. This grant is basically similar to the grant that is funded by NIH, but students have the chance to collaborate with mentors from different colleges. The grant is funded by the New York State Education Department and is entitled Collegiate Science and Technology Entry Program. Luesoni was the recipient of this grant and she became interested in studying zebrafish. Dr. Polizzotto had zebrafish in her lab at Kingsborough and searched for mentors at different colleges. Kingsborough has a limited faculty and Dr. Fulop was eager to serve as Luesoni's mentor.

Dr. Polizzotto was pleased with the way this research collaboration with Dr. Fulop turned out. She stated, "This collaboration may be one of the most successful programs. Luesoni had the opportunity to work with many Wagner students and faculty. She was lucky enough to be supported by such great faculty and was able to have a high quality research experience."

She added, "In Kingsborough, there are fewer opportunities for students because the college has a low-budget. The possibilities at Kingsborough are nothing like what Luesoni did here, and she was able to have a real lab experience."

Dr. Fulop was interested to help Luesoni and gave up his time without expecting anything in return. Professors Rath and Corbo and students Anna Lysenko and Zulmarie France assisted Luesoni with her research.

Luesoni's research included using 40 zebrafish embryos. She used three different concentrations of alcohol on the zebrafish and the experiment lasted 14 days. She analyzed the physical features of the zebrafish. She compared the features to zebrafish with fetal alcohol syndrome. In her findings, she discovered hormesis. Hormesis deals with biological effects

that result from low levels of toxins. The biological effects appeared to be positive.

Dr. Polizzotto described the way hormesis works. "When you have a low dosage of a toxin, you won't get a linear graph. The toxin is expected to show steadily worse results in an organism."

She added, "Many people don't believe in hormesis, but many pharmaceutical companies use hormesis to indicate how much dosage doctors should give patients when dealing with medications. Zebrafish serve as a good model and can provide drug companies with more information when dealing with different dosages."

Luesoni felt that she had a very positive experience while conducting research at Wagner. Anna Lysenko, a senior Biopsychology major, served as Luesoni's student mentor. Anna helped Luesoni with her research while Anna worked on her own research as well. Zulmarie Franco, a recent graduate of the Microbiology program, was also generous enough to give up her time to help Luesoni with her research. Zulmarie allowed Luesoni to shadow and assist her while she completed her research for her thesis.

In addition to conducting research at Wagner, Luesoni was able to make an important decision about her future. Prior to studying zebrafish in the laboratory, Luesoni was not sure what field she would like to pursue after she graduated from college. After doing research at Wagner, she discovered that she was especially interested in developmental biology and neuroscience. Recently, Luesoni applied to Wagner as a transfer student and is looking forward to join organizations like the Biology Club.

I would like to thank Dr. Polizzotto and Luesoni for taking the time out of their schedules to meet with me. I would also like to congratulate Luesoni for all of the accolades she received for her research project!

Contributed by Nidhi Khanna

PUBLICATIONS

Jagadeshwaran, U., **Onken, H.**, Hardy, M., Moffett, S. B. & Moffett, D. F. (2010). Cellular mechanisms of acid secretion in the posterior midgut of the larval mosquito *Aedes aegypti*. *Journal of Experimental Biology* **213**: 295-300.

Moffett, D.F. and **Onken, H.** (2010). The Cellular Basis of Extreme Alkali Secretion in Insects: A Tale of Two Tissues. In: *Epithelial Transport Physiology* (ed. George A. Gerencser), pp. 91-112. Totowa, New Jersey: Humana Press. ISBN: 978-1-60327-228-5.

PROFESSIONAL MEETINGS

EASTERN COLLEGES SCIENCE CONFERENCE

On Saturday April 24th, Pace University hosted the 64th annual Eastern Colleges Science Conference. 209 undergraduate students participated in the meeting with 16 student presentations from Wagner for this prestigious event. A handful of students represented the Biology Department in the conference. Participants included: Yasemin Alev, Violeta Capric, Leonid Denisenko, William Etts, Stefani Fanara, Yolana





Fuks, Felicia Giunta, Michael Gutkin, Philip Kaplan, Anna Lysenko, Julianna Maniscalco, Medije Mashkulli, Glenn Muoio, Peter Pisano, Anthony Rafetto, Lauren Raynor, Benjamin Serbiak, Michael Stanton, Megan Stolze, Melanie Valencia, Alexander Zilberman. During the afternoon, attendees had the option to take a tour of Pace University's beautiful Pleasantville, NY Campus. In addition, attendees were able to watch the falcon show presented by the university's very own falcon trainer. During dinner attendees had the pleasure of listening to guest speakers. Dr. Deborah Poe, an assistant Professor of English at Pace University. She read from her collection *Elements* based on the Periodic Table. Her writing has recently appeared in journals such as *Colorado Review*, *Sidebrow*, and *Ploughshares* to name a few. She is also fiction editor of the international online journal of the arts, *Drunken Boat*. The second speaker was Dr. William H. Schlesinger who is President of the Cary Institute of Ecosystem Studies. He gave an interesting lecture about the role of human population growth, resource demands and technology in driving and potentially solving our trajectory of environmental degradation. The students of the Department of Biological Sciences contributed with platform presentations and posters. See below for the titles and authors. Two platform presentations won Excellence Awards. The Limulus Staff would like to congratulate all of the participants and winners for a job well done!

CONGRATULATIONS TO ANTHONY RAFETTO AS RECIPIENT OF THE AWARD FOR BEST PLATFORM PRESENTATION (CATEGORY: MATHEMATICS AND ENGINEERING SCIENCES)

Anthony Rafetto. "U.S. population growth." Research under the supervision of Dr. Otto Raths.

CONGRATULATIONS ALSO TO MEGAN STOLZE AS RECIPIENT OF THE AWARD FOR THE BEST PLATFORM PRESENTATION (CATEGORY: PSYCHOLOGY)

Megan Stolze. "The association between BMI, sweet preference and drug use." Research under the supervision of Dr. Laurence J. Nolan.

There were 14 additional poster and platform presentations by students from Wagner College:

Benjamin Serbiak. "The efficacy of sunscreen blockers in prevention of the clastogenic effects of long wave and short wave ultraviolet light in *Vicia faba*." (platform). Research under the supervision of Dr. Ammini Moorthy.

Stefani Fanara and Megan Stolze. "Television viewing and food intake: Is physical fitness a factor?" (platform). Research under the supervision of Dr. Laurence J. Nolan.

Michael Stanton. "Behavioral responses of common tern chicks to feather sampling." (platform). Research under the supervision of Dr. Brian Palestis.

Leonid Denisenko. "U.S. population studies." (platform) Research under the supervision of Dr. Otto Raths.

Melanie Valencia, Violeta Capric, William Etts and Yolana Fuks. "Electrophysiology of the isolated and perfused midgut of adult yellow fever mosquitoes (*Aedes aegypti*): First results." (poster). Research under the supervision of Dr. Horst

Onken, with co-authors S.B. Moffett and D.F. Moffett of Washington State University.

Michael C. Gutkin. "Detection of proliferating cells in surviving organotypic culture of adult zebrafish (*Danio rerio*) optic tectum." (poster). Research under the supervision of Prof. Christopher Corbo, Dr. Zoltan Fulop and Prof. Linda Raths.

Anna Lysenko and Yasemin Alev. "Scanning electron microscopic imaging of the developing neuromasts of the lateral line system in 7 day old zebrafish embryos." (poster). Research under the supervision of Prof. Christopher Corbo, Dr. Zoltan Fulop and Prof. Linda Raths, with co-author Luesoni Johnson of Kingsboro Community College.

Anna Lysenko. "Effects of alcohol show hormetic characteristics on development of zebrafish embryos." (poster). Research under the supervision of Prof. Christopher Corbo, Dr. Zoltan Fulop and Prof. Linda Raths, with lead author Luesoni Johnson of Kingsboro Community College.

Alexander Zilberman. "Use of an *InvA*-specific PCR primer set to validate culture-based detection of *Salmonella* from waterfowl eggs in the Jamaica Bay Wildlife Refuge, Queens, New York." (poster). Research under the supervision of Dr. Adam J. Houlihan, with co-author Jessica Browning of the U.S. National Park Service.

Medije Mashkulli. "Set up of a yellow fever mosquito (*Aedes aegypti*) colony." (poster). Research under the supervision of Dr. Horst Onken, with co-authors S.B. Moffett and D.F. Moffett of Washington State University.

Julianna Maniscalco. "Inhibition of strong midgut alkalization in larval yellow fever mosquitoes (*Aedes aegypti*) with HEPES buffer." (poster). Research under the supervision of Dr. Horst Onken, with co-authors S.B. Moffett and D.F. Moffett of Washington State University.

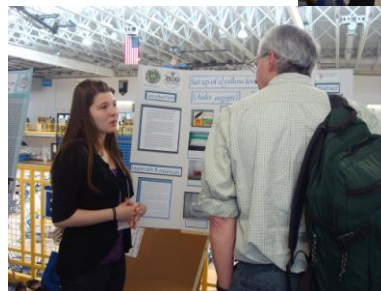
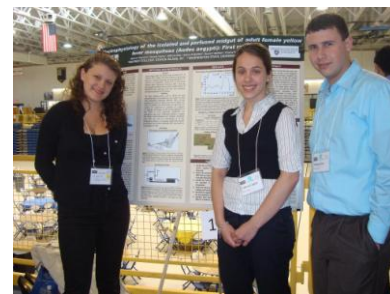
Yolana Fuks. "Increased expression of mitochondrial glutathione peroxidase 4 and superoxide dismutase 2 reduces cone cell death in retinitis pigmentosa." (poster). Research under the supervision of Lili Lu and Peter A. Campochiaro of Johns Hopkins University School of Medicine.

Felicia Guinta, Bethny Brown and Alexandra Videll. "Analyzing the effect of endocrine disrupting chemicals on *Drosophila* development." (poster). Research under the supervision of Dr. Heather A. Cook.

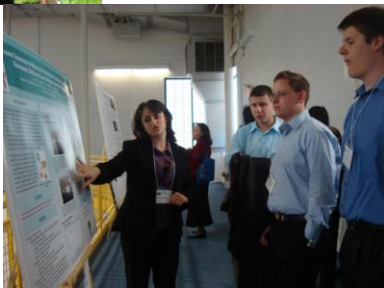
Peter Pisano, Lauren Raynor, Philip Kaplan and Glenn Muoio. "Developmental changes in larval photosensitivity of the yellow fever mosquito *Aedes aegypti*." (poster). Research under the supervision of Dr. Donald E. Stearns.

Some photographs from the event:



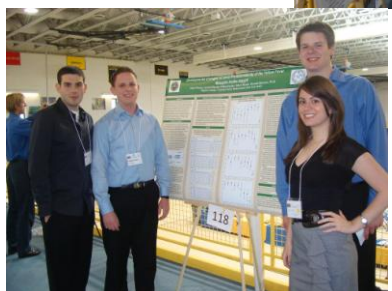


Contributed by Farha Rashid

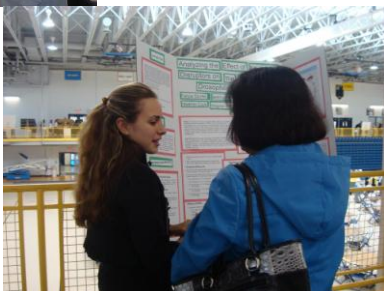


HORMESIS RESEARCH FEATURED IN DOSE-RESPONSE CONFERENCE

Five representatives from Wagner College participated in the annual meeting of the International Dose-Response Society at the University of Massachusetts (Amherst, MA, 27-28 April, 2010): Dr. Zoltan Fulop, Dr. Brian Palestis, Anna Lysenko (senior Psychology major), Anastasia Kurta (Biopsychology, Class of 2007), and Luesoni Johnson. Luesoni is currently a student at Kingsborough Community College who is working in Dr. Fulop's lab and is transferring in to Wagner.



The major focus of the conference was hormesis, a phenomenon where a substance with inhibitory effects at high doses has the opposite effects at low doses. For example, alcohol is classified as a depressant but often has stimulatory effects at low doses. Hormesis is much more common than most biologists realize, and is characterized by an inverted U-shaped or J-shaped dose-response curve, rather than fitting the standard linear or threshold model.



Hormesis has also been the subject of research in the Department of Biological Sciences for several years (see the Sept 2008 issue of *Limulus* for a summary of the "Hormesis Project"). Much of this work has been funded by an anonymous donor. In Fall 2009, Dr. Ed Calabrese, the leading authority on hormesis, spoke at Wagner College (see the Nov/Dec 2009 issue of *Limulus*) and invited us to attend the conference.



Luesoni and Anna gave a poster presentation on work they have done with Dr. Fulop using zebrafish as a model for fetal alcohol syndrome, and Dr. Palestis presented a poster summarizing the work his students have done on the effects of alcohol on the behavior of adult zebrafish. Dr. Palestis also served as chair of the session on toxicology and risk assessment. In addition, a paper written by Anastasia Kurta and Dr. Palestis was recently accepted for publication by the society's journal, *Dose-Response*. The reference for this paper and for the two poster presentations are given below:





Kurta, A. and B.G. Palestis. (2010, *in press*). Effects of ethanol on shoaling behavior in zebrafish (*Danio rerio*). *Dose-Response*.

Johnson, L.D., A. Lysenko, C. Corbo, L. Raths, B. Palestis, and Z. Fulop. 2010. Alcohol shows hormetic characteristics on development of zebrafish embryos. Annual Meeting of the International Dose-Response Society. Amherst, MA. 27-28 April.

Palestis, B.G. 2010. Effects of ethanol on the behavior of zebrafish (*Danio rerio*). Annual Meeting of the International Dose-Response Society. Amherst, MA. 27-28 April.

Contributed by Dr. Palestis

MICROBIOLOGY GRADUATE PRESENTS AT PRESTIGIOUS CONFERENCE

Recently, Zulmarie Franco presented her research at a conference at Harvard Medical School in February. She is the first Wagner student that was ever selected to present at this conference. I would like to thank Zulmarie for taking the time to help me with this interview.

Q: What was your research?

A: My research was entitled *Morphophysiological Characterization of Peripheral Blood of Adult Zebrafish (Danio rerio)*. This research was performed to aid in the study of degenerative and regenerative processes that take place in the injured zebrafish brain, main focus of study in Dr. Fulop's lab. Information such as the ultrastructural features and the basic characterization of the blood cells was necessary to understand these processes and to be able to record the activities of white blood cells in brain injuries. So I collected the blood from the heart of a mature zebrafish and with it I prepared blood smears, which I stained to be able to differentiate among the different white blood cells in the light microscope. Also I characterized the cells using the transmission electron microscope and from the scanning electron microscope I was able to obtain information on the physiological activities of the cell. I performed other tests but these were the most significant ones.

Q: What was the conference like?

A: It was a great experience. Its main focus was on Biomedical careers and research projects. The speakers were very motivating; besides talking about their current research they would start by telling their stories of how they were able to get to where they are right now. They were mostly minorities so they talk about all the obstacles they had to overcome to be where they are right now. Particularly there was one speaker that I found his story very impressive and motivating, his name is Dr. Alfredo Quinones Hinojosa, he is a Neurosurgeon at John Hopkins and performs research on the role of stem cells in the origin of brain tumors and the potential role stem cells can play in fighting brain cancer and regaining neurological function. His story was very impressive because he talked about how he started working in the fields when he came to the states and after years of hard work he decided to go to school and after overcoming all the obstacles he became a well known doctor conducting a very promising research



Q: Was the conference overall a good experience? How does it feel to be the first student from Wagner to attend the conference?

A: There were around 300 poster presentations of students from bachelor's degree level up to MD/PhD, so it was very competitive. You would have two hours to stand by your poster and talk to the judges and anyone else who would go by your poster, about the research. But the posters were set up early in the morning for exhibit while the students were participating in the conferences. Amazing research projects were being presented. For me the experience of just being selected to present my research there made me feel really proud and thankful for all the opportunities I had at Wagner and for the great people that helped me all the way (Dr. Fulop, Chris and my family back in Puerto Rico). I can say that all the hard work was definitely worth it.

Contributed by Nidhi Khanna

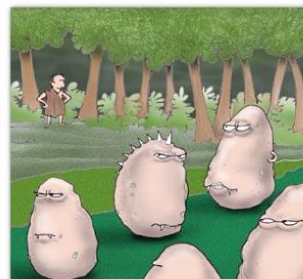
ALUMNI

Dear Alumni,

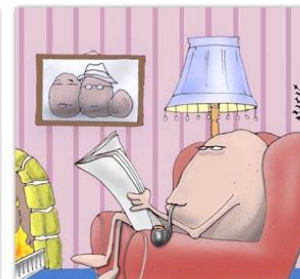
If you are interested in contributing to our newsletter, you are very welcome to do so. Contact Dr. Onken by e-mail (horst.onken@wagner.edu) with your submission, comment, ideas or questions! We are excited to hear about where you are, how and what you do!

CARTOONS

Potatoes are recorded as first being domesticated at about 8000-7000 B.C., in Peru. Before this time, potatoes had a reputation of being savage and unpredictable tubers...



An early Peruvian contemplates taming a band of wild potatoes.



The modern domestic potato.



"I'm beginning to wonder if our Terms of Reference may be a little too broad...?"

Cartoon from www.lab-initio.com



SENIORS IN THE RFT MAJORING IN BIOLOGY, MICROBIOLOGY, OR BIOPSYCHOLOGY



In the front from left to right: Janine Bright, Kristyn Beyar, Cassandra Bray, Jessica Cozzolino, Medije Mashkulli, Nicholas Lepore, Yolana Fuks. In the back from left to right: Dina Benedetto, Lara Kirkbride, Rachel Delp, Michael Gutkin, Benjamin Serbiak, Michael Stanton, Almir Spahiu, Sarmed Owaid.

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.

The Editorial Board:

Editor: Dr. Horst Onken, Associate Professor

Assistant Editor: Stephanie Rollizo, Dept. Secretary

Student Assistant Editor: Nidhi Khanna (Biology)

Student Assistant Editor: Farha Rashid (Biology)

Student Assistant Editor: WANTED!

