

RESEARCH IN BIOLOGY AT WAGNER COLLEGE

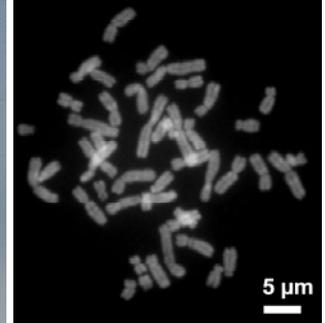
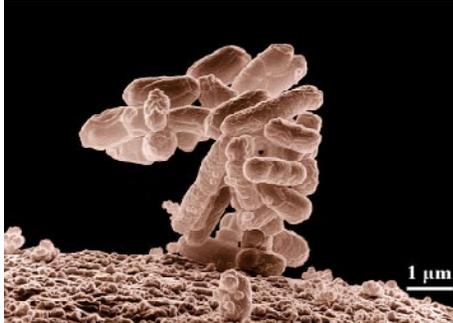


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LETTER FROM THE EDITOR

Some changes to the Limulus will come this semester (see next page). Apart of that, we report of granted sabbaticals, we list the summer courses that will be offered, we are happy to announce that two alumni were admitted to graduate schools, we have a preview for the Health Fair, we have the Announcement for the Eastern Colleges Science Conference, news from TriBeta (including a report from Darwin Day) and the Pre-Health Society, we give plenty of Opportunities, and the traditional Cartoon.

Best regards,
Dr. Horst Onken, The Editor





NEWSLETTER NEWS

The Limulus has appeared almost every month within a semester during the last five years. In the future, the newsletter will only be published once each semester. The current issue will be the last of the old format. Moreover, the editorial board is extended. Dr. Corbo and Dr. Onken will act as co-editors in the future.

Contributed by Dr. Onken

BIOLOGY STAFF AND FACULTY NEWS

SABBATICALS

Two faculty members of the Department of Biological Sciences were granted a sabbatical for the academic year 2013/2014. Dr. Stearns will be on sabbatical during the fall semester 2013, and Dr. Onken will not be at Wagner College during the spring semester 2014.



Dr. Stearns will be working to complete a draft of a major monograph on careful thinking, defined as drawing logical conclusions from all credible information dealing with the topic being considered. The monograph is designed to prepare the responsible citizen for appropriate decision making when faced with credible information that requires careful

thinking. This project addresses the very real concerns of living in a democracy and having to make decisions as a responsible citizen. For greater accessibility and understanding, the monograph is purposely structured simply and as jargon free as possible.

Dr. Onken will spend his sabbatical at Washington State University and at the University of Manitoba (Canada). In Washington State, Dr. Onken will forward his research with mosquitoes and extend his work with insects to a larger animal, *Manduca sexta*. As larva, these animals are known as tobacco hornworms and are one of the major model organisms for insects. As adults, the animals are large moths. In Winnipeg, Dr. Onken will collaborate on a project with crustacean gills.



Contributed by Dr. Stearns and Dr. Onken with photographs by Anna Mulé

CURRICULUM NEWS

SUMMER COURSES

In the following, find a list of the courses that are offered during the summer period:

- BI120: Human Biology (Fulop)
- BI209: Human Anatomy & Physiology 1 (Fulop)
- BI209L: Lab Experience for BI209 (Fulop)
- BI210: Human Anatomy & Physiology 2 (Raths)
- BI210L: Lab Experience for BI210 (Raths)



- BI/MI213: Cells, Genes and Evolution (DiClerico)
 - BI/MI213L: Lab Experience for BI213 (DiClerico)
 - BI335: Natural History of the Mid-Atlantic States (Palestis)
 - BI335L: Lab Experience for BI335 (Palestis)
 - BI/MI517/MI615: Electron Microscopy (Corbo)
 - BI/MI517L: Lab Experience for BI/MI517/MI615 (Corbo)
 - MI200: Microbiology (Bobbitt)
 - MI200L: Lab Experience for MI200 (Bobbitt)
- In addition, the research courses BI/MI400E, MI797, 798, 799 will be offered.

BIOLOGY STUDENT NEWS

CONGRATULATIONS



Leonid Denisenko and Luesoni Johnson were admitted to graduate schools. Whereas Luesoni was accepted into a PhD program in Neuroscience at the University of

Missouri, Leonid will continue his education at NYIT College of Osteopathic Medicine.

Seniors, do not forget to let us know if you are admitted to graduate schools. We would very much like to highlight your achievements in the end-of-semester-newsletter.

Contributed by Dr. Onken

NEWS FROM CLUBS AND SOCIETIES

TRI-BETA BIOLOGY HONORS SOCIETY

The Biological Honors Society helped with Darwin Day on February 12th, in celebration of Charles Darwin's 204th birthday. This has become an annual event for Tri-Beta where students and faculty come together and educate one another about science, all while enjoying great food. Tri-Beta's dedicated executive board and members of the Biology department worked together to once again make for an outstanding afternoon to celebrate biology.

Many students were involved in contributing to the occasion, including Professor Linda Raths' BI135 Evolution Class. As advisor for Tri Beta, Professor Raths says, "The class has three main topics: Darwin and history of evolutionary thought, modern scientific evidence for evolution, and social and religious controversy. Since Darwin's birthday falls in the first part of the semester it fits nicely with our topics". This event permitted for non-science majors to learn more about Darwin. Professor Raths eloquently explains Darwin's greatest accomplishments and his extraordinary life: "He was quite an interesting personality, a true genius who explored many areas with an innate curiosity and a brilliant mind. He also had the luxury of time, both on his famous journey on the Beagle, and in later years spent primarily at his home. He wrote books on a number of topics on nature and evolution but also on emotions and development of the mind. He was interested in heredity and came close to determining the pattern of inheritance but never quite succeeded. This was a theory left to the methodical mind of Gregor Mendel. Students were surprised to discover that Gregor Mendel was Darwin's contemporary and that Darwin apparently had the journal article that would have



solved the issue of "discrete factors", but did not read it, leaving the connection to be made by future generations."

The class prepared a room full of posters with information on Darwin's life, his achievements and contribution to biological thought. The event was a great success. Students and faculty look forward to next year's celebration!



Upcoming Tri Beta Events:

Guest Speaker: April 4th

- Tri beta will present an award of thanks to Dr. Rob DeSalle from the American Museum of Natural History who will be presenting an ACE talk on April 4th on evolution and genetics.

Health Fair: April 18th

- 11:00am-4pm
- The society will educate the campus about sun safety and collect funds to donate to the skin care foundation.

MS Walk: April 27th

- Clove Lakes Park at 9am

New Member Installation: April

- Invitations for new members will be sent out. Existing members are encouraged to attend.

Contributed by Janna Denisenko

PRE-HEALTH SOCIETY

Thus far, the Pre-Health Society has been very active.

On February 13th, PHS welcomed Chief Robert Glass, a navy recruiter. He spoke about the many opportunities the navy offers to aspiring physicians, dentists and allied health professionals. Specifically, he spoke about the Navy Health Professions Scholarship Program (HPSP), which covers the full cost of health school, a monthly stipend of \$2,500, and a sign-on bonus of \$20,000. In return, the students must be willing to serve a minimum of three years in active duty. As a pre-health student, I believe that it is imperative to explore your options, and joining the navy through HPSP is a viable option to consider.

On February 20th, Kaplan, the test preparation company, visited the campus to host a free preview MCAT class. The presentation was led by Sofia Gilels, an expert MCAT

instructor. Ms. Gilels majored in biochemistry and psychology at NYU with a minor in Hebrew and Judaic studies. Students who attended Ms. Gilels's presentation were able to learn valuable strategies and methods needed to raise your MCAT score. She provided information on the structure and scoring of the exam, strategies you can use on tough question types, recent changes to the exam, and an overview of Kaplan's MCAT course and materials. It is never too early to start looking at the MCAT! Consider your study plan as soon as you can, which includes whether or not you would like to sign up for a course with a test prep company, like Kaplan.

Over the next few weeks, the Pre-Health Society will be involved in planning two major events: the Health Fair and the Second Annual Health Career Reception. The Health Fair is an event with major collaboration from Wagner students, with the purpose of promoting health sciences and careers to local Staten Island high schools. The Second Annual Health Career Reception is an event, which allows Wagner pre-health students to network with established physicians, dentists and allied health professionals. PHS looks forward to working on these wonderful events!

If you have any questions or concerns, please do not hesitate to email me at pakinam.mekki@wagner.edu.

Contributed by Pakinam Mekki

EXPERIENCES

UPCOMING HEALTH FAIR

Last year's Health Fair on the oval was a huge hit at Wagner. With a gigantic inflatable heart, a rock climbing wall, and the involvement of organizations such as the Physician Assistant Association and the Pre-health Society, the fair was not only interactive but also educational. It was an incorporation of the sciences at Wagner, demonstrating its finesse in academics and its interest in servicing the community.

The same motive is in mind for this year's Health Fair on April 18. Yet, a slightly different approach is being taken. Surely, attendance of the Wagner community and the Staten Island community at large is targeted, but the invite of a specific group of people is desired: high school students. With the demand in health professionals growing and Wagner's science's getting stronger each year, with increased applications to and admittance into Medical related graduate schools, the focus is to get high school juniors/seniors around Staten Island to notice an institution defined by success that's already in their hometown, Wagner College.

Many high schools are predicted to be in attendance at Wagner's Health Fair. Some include, Tottenville High School's Science and Humanities Institute, Med-Tech and Dental Programs, Port Richmond High School's Institute program, and Staten Island Technical High School. Although there will be no inflatable heart this year, students will still be able to engage in hands on health science activities. Provided by the Physician Assistant program, there will be model lungs showing the physical effects of smoking, model brains showing the physical effects on drugs, and intubation and blood drawings on mannequins. The health fair can't be a "health" fair without physical activity so students will be able





to go to the "carnival" section of the fair and take the 3-point basketball challenge, measure how fast their baseball pitch is, and of course, partake in a Zumba class.

Watch out for advertisements around campus and even in your neighborhood for Wagner's Health Fair 2013!

Contributed by Philip Fomina

OPPORTUNITIES

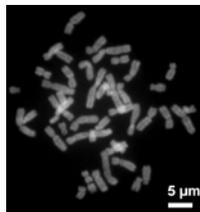
RESEARCH WITH ANIMAL BEHAVIOR AND ECOLOGY

Dr. Palestis offers research opportunities for students in the frame of his research project with common terns (*Sterna hirundo*) in southern New Jersey. Apart of his work with terns, Dr. Palestis is interested in animal behavior and has forwarded numerous student research projects with zebrafish in the past. Please, contact Dr. Palestis for further information at bpalesti@wagner.edu.



RESEARCH IN GENETICS

Dr. Moorthy offers research opportunities for students with an interest in genetics. In the past, Dr. Moorthy has forwarded student research in genetics with plants and animals. Dr. Moorthy is an expert in using numerous techniques for genetic research. Please, contact Dr. Moorthy for further information at asmooth@wagner.edu.



Contributed by Dr. Onken

RESEARCH ABOUT LIGHT PERCEPTION



Dr. Stearns offers research projects to determine the light sensitivity of animals. Currently, Dr. Stearns is interested in the characteristics of the eyes of *Daphnia*. However, other animals like the brine shrimp (*Artemia salina*) or larval mosquitoes (*Aedes aegypti*) have been investigated in the laboratory of Dr. Stearns. Please, contact Dr. Stearns for further

information at dstearns@wagner.edu.

RESEARCH WITH DROSOPHILA

Dr. Cook offers research opportunities for students in the frame of a project with the classical insect model organism, *Drosophila melanogaster*. At this time, research in Dr. Cook's lab focuses on endocrine disruptors and their effects on fruit fly development. Please, contact Dr. Cook for further information at heather.cook@wagner.edu.



RESEARCH WITH ZEBRA FISH



Dr. Fulop offers research opportunities for students with an interest in vertebrate neuroanatomy and physiology. Zebrafish *Danio rerio* has become an

important model organism for vertebrate anatomy and physiology. Dr. Fulop is an expert in using microscopic techniques for anatomical and physiological research. Please, contact Dr. Fulop for further information at zfulop@wagner.edu.

RESEARCH WITH MICROBES



Dr. Bobbitt and Dr. Corbo offer a variety of research opportunities with microorganisms for students. Both follow different aspects of microbiological research, using a wide array of experimental techniques. Please, contact Dr. Bobbitt and Dr. Corbo for further information at kbobbitt@wagner.edu or at ccorbo@wagner.edu.

Contributed by Dr. Onken

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*).

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. Please, contact Dr. Onken for further information at horst.onken@wagner.edu.

Contributed by Dr. Onken

WORK IN THE GARDEN

Students interested in collaborating in the greenhouse and/or garden during the spring of 2013 should contact Dr. Onken (horst.onken@wagner.edu).

Contributed by Dr. Onken

BE A LIMULUS ASISTANT 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).

Contributed by Dr. Onken



PUBLICATIONS

Moffett, D. F., Jagadeshwaran, U., Wang, Z., Davis, H. M., **Onken, H.** and Goss, G. G. (2012). Signaling by intracellular Ca^{2+} and H^+ in larval mosquito (*Aedes aegypti*) midgut epithelium in response to serosal serotonin and lumen pH. *Journal of Insect Physiology* **58**: 506-512.

Henry, R. P., Lucu, C., **Onken, H.** & Weihrauch, D. (2012). Multiple Functions of the Crustacean Gill: Osmotic/Ionic Regulation, Acid-Base Balance, Ammonia Excretion, and Bioaccumulation of Toxic Metals. *Frontiers in Physiology* **3**:431. doi: 10.3389/fphys.2012.00431.

PROFESSIONAL MEETINGS

ECSC CONFERENCE

The 67th Annual Eastern Colleges Science Conference (ECSC) will be hosted by Providence College (Providence, Rhode Island) Saturday, April 20, 2013. Since 1947, the ECSC has provided a forum for undergraduates from 20-30 colleges and universities to present their empirical research in the physical, chemical, biological, health, and social sciences, as well as education, computer technology, engineering and mathematics, using the general format of a professional meeting. Students may give platform (oral) presentations, poster presentations, and/or submit full-length papers. The conference is for undergraduates only and is modeled after a typical scientific meeting with multiple sessions. A major benefit of this conference is the opportunity not only to present one's research in a scientific setting but also to learn as much as possible from others. The day begins with continental breakfast and welcoming remarks, followed by morning presentations, lunch, a presentation by an invited keynote speaker, and afternoon presentations. The day ends with a banquet and student awards for outstanding presentations and papers within the different disciplinary categories.

As the ECSC campus coordinator for Wagner College this year, I urge you to bring this conference to the attention of any appropriate undergraduate who is conducting or has completed empirical research (involves testing a hypothesis or answering a specific question using results obtained through experimentation or observation). This year, registration and abstract submissions, as well as other conference items, will be handled on line. It will be the responsibility of the participant—student, faculty, guest—to meet the appropriate online deadlines. If you let me know of possible presenters and others who wish to attend the conference, I can keep them informed and help ensure that registration deadlines are met. Detailed information regarding the conference can be found by accessing the ECSC web site (www.ecsc1.org), then clicking on "Meetings 2013." **March 16th is the deadline for online abstract submissions for student presentations and manuscript submissions. Online registration for anyone who wishes to attend the event opens January 26th and closes March 9th.** As in the past, Wagner College will cover all relevant costs associated with the conference (e.g., registration and banquet fees, transportation by bus, overnight lodging).

Important Note: Anyone from Wagner who registers for the conference should, at the same time, e-mail Ms. Stephanie Rollizo (Stephanie.Rollizo@wagner.edu) so that she can keep track of all Wagner College registrants and contact them as needed. Ms. Rollizo (Megerle Science Building, Room 412, phone: 718-390-3103) will be the central person making the travel/lodging/payment arrangements for Wagner College registrants for this event.

Contributed by Dr. Stearns

ALUMNI

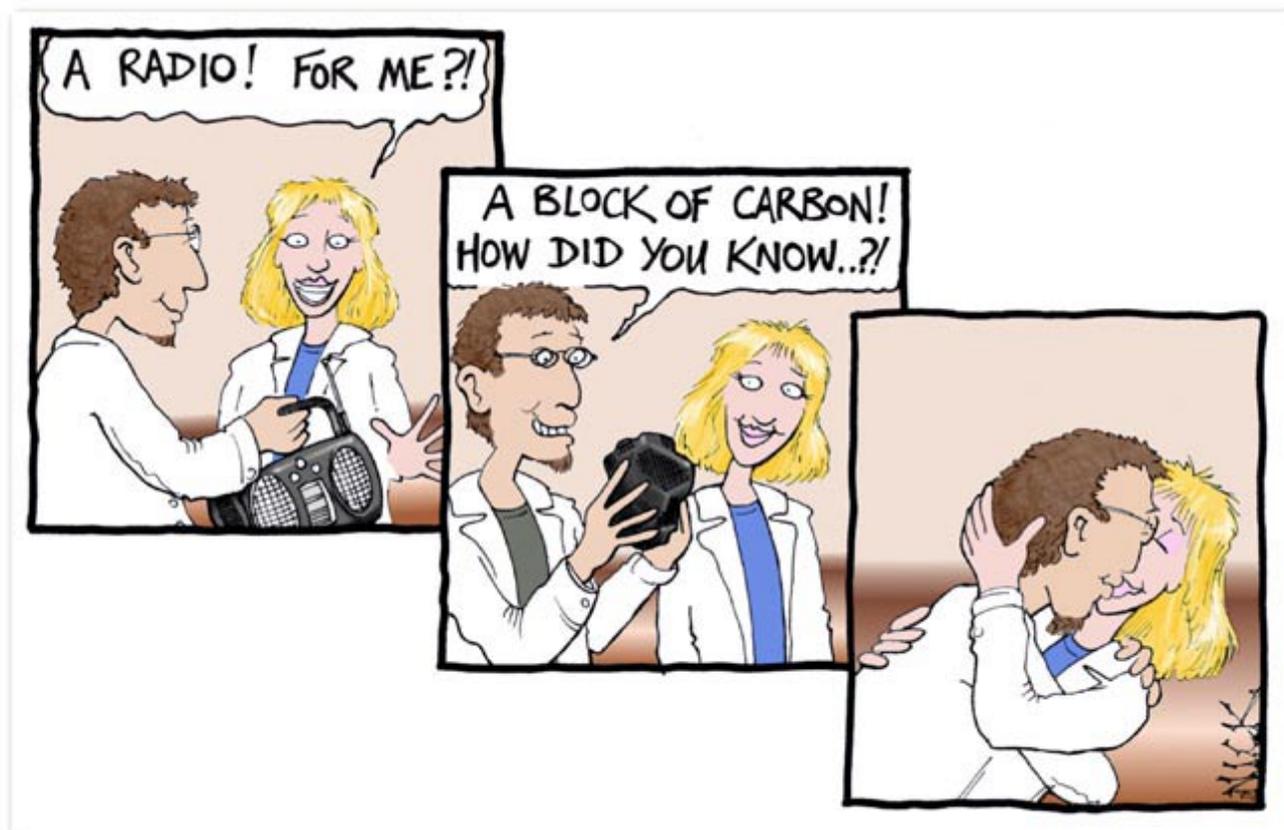
Dear Alumni,

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!





CARTOON



The radiocarbon dating technique.

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.

The Editorial Board:

Editor: Dr. Horst Onken, *Professor*

Editor: Dr. Christopher Corbo, *Assistant Professor*

Assistant Editor: Stephanie Rollizo, *Dept. Secretary*

Student Assistant Editor: Janna Denisenko (Biology)

Student Assistant Editor: Pakinam Mekki (Biology)

Student Assistant Editor: Philip Fomina (Biopsychology)

Student Assistant Editor: WANTED!

