

LIMULUS



NEWSLETTER

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

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BIOLOGY CLUB MEMBERS



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LETTER FROM THE EDITOR

The October LIMULUS is coming this year after the first winter storm. The reason is not that the newsletter is late I admit it sometimes happens), but that winter hit New York exceptionally early. Under Curriculum News, the current newsletter presents two First Year Learning Communities with participation of the Department of Biological Sciences. The

Biology Club had a major event, and also the other student societies associated with the department are very active. As usual, reports from such activities and events are found in the LIMULUS. A horse surgery externship at the Hagyard Equine Medical Institute is the highlight of the EXPERIENCES described in the October newsletter. A review of the fall conference of the Metropolitan Association of College and University Biologists (MACUB) should be another part of the LIMULUS that I expect to find a lot of readers.

We all got an unusually early taste of winter this last weekend. However, I very much hope that the winter will retreat again that we all can enjoy some more pleasant fall weather. I hope everybody had a HAPPY HALLOWEEN, and I wish all students good luck with registration. Finally, let me remind you that there are only a few weeks until THANKSGIVING. HANG IN THERE AND GOOD LUCK IN THE FINALS!

Best regards,

Dr. Horst Onken, The Editor





BIOLOGY STAFF AND FACULTY NEWS

PEER EVALUATIONS

A Peer Evaluation Group (PEG), consisting of the full-time faculty members of the Department of Biological Sciences and two peers from outside the department (Dr. Mohammad Alauddin and Dr. Mark Wagner), met on Tuesday, October 25 to evaluate Dr. Onken in his 6th year at Wagner College. Dr. Onken requested tenure and promotion to full professor. The evaluation will be continued by the Faculty Personnel Committee and the Provost, before a decision is made.

Dr. Cook has been tenured in spring and is coming up for promotion. Her PEG will meet on November 15.

Contributed by Dr. Onken

CURRICULUM NEWS

LC 17 ON THE ROAD AGAIN AND AGAIN

Between October 19th and October 21st, 2011, Dr. Stearns and Dr. Mosher presented a poster about first-year learning communities (LCs) titled “Experiential Learning: Integrating the Field Trip, Research and Civic Engagement Models in a First Year Learning Community.”

For the past three fall semesters, Dr. Stearns has collaborated with Dr. Houlihan (now at Randolph College) and now Dr. Mosher to create the LC 17, titled “Bacteria, Human Health and Survival.” This LC is composed of two introductory courses, namely Microbiology (MI200, with laboratory experience) and Biostatistics and Experimental Design (BI221), and a third course called the Reflective Tutorial (RFT). The RFT integrates components from microbiology and biostatistics to “stimulate critical thinking, discussion, research and formal writing around the common theme of the LC.”

Moreover, this LC involves off-campus field-trips to connect what is learned in the classroom about microorganisms, for example, to the “real world.” To illustrate, this fall’s LC students have toured numerous places, including a hospital, a local wastewater treatment facility, scientific conferences, laboratories and a medical school. Dr. Stearns writes, “where possible, each trip is coordinated with subject matter being considered in the LC lecture courses.”

Furthermore, LC 17 includes a research component called the Bioremediation Project. This project is designed so that students can use the scientific method as well as standard microbiological procedures to “culture bacteria in the presence/absence of [an industrial] chemical” and to see if these bacteria can decompose a particular compound. Not only do first-year students have the unparalleled experience of conducting their own experiment, but they are also expected to carry out standard literature research. At the end of this project, each student writes a paper, which follows the scientific formatting style, reporting his result. Students organize Powerpoint presentations, explaining their literature research as well as their experiments and their subsequent results.

In addition to the field-trip and research components, LC students visit an elementary school, where they explain microbiology to grade-school students. An LC instructor



accompanies these students to assess their performance. The purpose of this experience is to “reinforce [the students’] understanding of the subject matter, and at the same time, provide learning experiences for elementary school students in the local community.” In this component, students work together to assemble a Powerpoint presentation as well as “hands-on” experiences for the children.

In short, the purpose of this LC is to improve first-year students’ “critical thinking and civic thinking skills” throughout the semester. From field trips to civic engagement, students learn to make connections between what is taught in the classroom and the real world.

I would like to thank Dr. Stearns for sharing this valuable information with me.

LC 13 SNUG HARBOR WATER FRONT CLEAN UP

About twenty-five Wagner College students from Learning Community (L.C.) 13, taught by Dr. Heather Cook, and Dr. Gelabert, cleaned up the Snug Harbor Water Front. After four straight hours of cleaning, students totaled over sixty bags of garbage, including trash such as bottles and car parts.



Contributed by Gregory Balaes, and Dr. Heather Cook. Photos by Jonathan Hinrichs.



NEWS FROM CLUBS AND SOCIETIES

BIOLOGY CLUB

Members of the Biology Club once again had a big turn out at their last event, titled “MED-iterranean Medley Health Awareness Feast.” The event lasted from 4pm-7pm on Wednesday, October 16th. The event was so successful that more food had to be ordered within the second hour. Funds were raised to benefit the American Cancer Society Making Strides Against Breast Cancer. Members, students, faculty, and staff alike helped raise funds and awareness for a great cause. This is the second time the biology club has worked with the ACS to make a donation in the name of Wagner College Biology Club.

Six tables were set up in Beisler Lounge describing information of different aspects of biology. The six tables had their own theme, including: Microbes, Pharmacology, Oral Hygiene, Breast Cancer, Pre-Veterinary/Environmental Biology, and most importantly a Biology Information table that promoted the biological sciences and included models from the biology department. Each table had raffles including microbe plushy toys, giveaways, and cookies made personally by the club members that served as prizes for answering biological trivia questions correctly.

Every table had pamphlets about its respective topic and posters created by the members of the club. The microbe table explained information regarding sex cells, where students were also able to pick up free condoms. A pharmacology table offered information regarding drug and alcohol abuse, and the biochemical effects on the brain. Other information such as an oral hygiene table gave out gum, toothpaste and toothbrushes brought by a club member and a breast cancer table was also on display with biological cancer effects.

Mediterranean food was the center of the event, offering foods such as baklava, chicken, beef, and lamb kebabs, Turkish bread, babaganoush, delicious sauces, grilled vegetables, and tiramisu, just to name a few. The focal point of the event was to bring delicious food to campus residents and educate the public about biology and how it is related to everyday life.

The members were fully engaged and helped every step of the way from decorations to clean up. Everyone worked together to created a successful event. Close to 300 people passed by including our new provost.



Please look for future events such as the Biology Club’s breast cancer walk, and their “feeding meeting,” which will feature a science with sushi night.

Contributed by Gregory Balaes





TRI-BETA BIOLOGY HONORS SOCIETY

This past month, Tri-Beta took part in the Light the Night, with a great turn out, despite the rain. The walk benefited the leukemia and lymphoma society, where students walked to raise money for research, and hopefully a cure.

On November 9th, members of Tri-Beta are hosting a Faculty Luncheon for the Department of Biological Sciences. Students of Tri-Beta are also holding a Thanksgiving canned food drive to benefit a local church during the holiday season.

Shown below are students at the Light the Night Walk.



Contributed by Philip Fomina. Photo by Joanna Emilio.

PRE-HEALTH SOCIETY

This semester, PHS has been extremely active. Our members have attended symposiums, engaged in two community service events and visited Mount Sinai School of Medicine's Open House event.

As far as community service, the Pre-Health Society was involved with the Light the Night walk on October 1st, as well as a Muslims for Life blood drive on October 19th, in order to commemorate lives lost on 9/11.

During this year, the Pre-Health Society is extremely interested in attracting a wide variety of graduate schools to come speak at Wagner College. For instance, the New York College of Podiatric Medicine held a symposium on September 30th, the African Conservation Experience held a symposium on October 7th, MEDLIFE held a symposium on October 12th, and NYIT's New York College of Osteopathic Medicine held a symposium on October 14th.

To highlight one symposium in particular, Ellen Sziede, a representative from the African Conservation Experience, spoke about the wildlife care and veterinary hands-on experience available to interested students in southern Africa. In this project, which lasts two to twelve weeks, students take responsibility for the daily care of injured, orphaned and poisoned wildlife, working with a wide range of African species, from large mammals to reptiles and birds. Participants also assist with veterinary nursing, preparing diet plans, administering physiotherapy and preparing the wildlife for release and rehabilitation. This program requires no previous experience with animals and is ideal for those interested in veterinary nursing and veterinary medicine. Two Wagner students, Mark Fealey and Jessica Oppenheimer, are participating in the African Conservation Experience next



summer.

Lastly, there is a new executive board for the 2011-2012 academic semester. President- Paki Mekki; VP of Medicine - Maleeha Memon; VP of Allied Health - Samar Alwani; Community Service Chair - Antonia Bertelle; Treasurer - Noor Hussain; Secretary: Kymberlie Vargas

For more information on future events, please contact pakinam.mekki@wagner.edu

Contributed by Philip Fomina

PRE-DENTISTRY SOCIETY

On October 22, at 11 AM, the Pre-Dentistry Society held their bi-annual CPR Certification event through the American Red Cross at Wagner College. Students were trained on administering CPR, the abdominal thrust, and how to use the AED (Automatic External Defibrillator). If you were not able to be certified in the Fall semester, then don't worry. There will be a future CPR certification event in the Spring 2012 semester.



Students administering rescue breaths to their victims and administering CPR.



Any student interested in dentistry is certainly welcome to join the Pre-Dentistry Society. For more information, please, email pre-dental@wagner.edu!

Contributed by Philip Fomina. Photos by Gregory Balaes.



EXPERIENCES

HORSE SURGERY EXTERNSHIP



Hi, my name is Mark Fealey. I am a third-year biology major and aspiring to become a veterinarian one day.

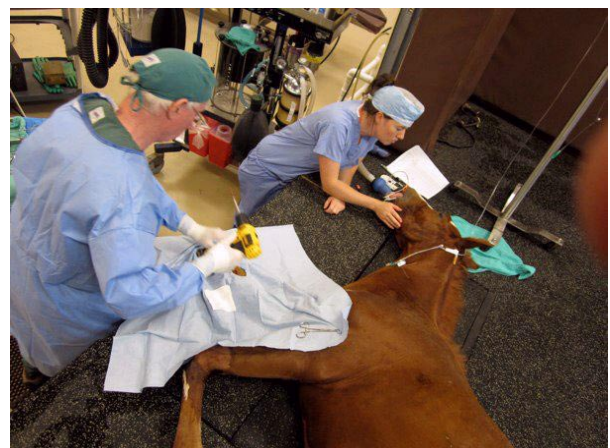
This past summer, I had a great opportunity to gain experience with not only large animals, but with the top equine surgeons in the world. Towards the end of August, I flew down to Lexington, KY and stayed at the world famous Hagyard Equine Medical Institute (the world's oldest and largest equine practice) to go on a horse surgery externship, an externship usually only offered to veterinary students. There, I lived with veterinarians that were from around the world, ranging from Argentina to Ireland.

On my weeklong stay, I shadowed Hagyard's senior equine surgeon, Dr. Michael Spirito ('80 Torino, Italy). I would start my day by waking up at 6:30 am and travel to various farms to assist and observe routine home visits horse inspections. This mainly consisted of checking each horse's larynx and x-raying each horse's legs. By the time we were done, it would be around 1 pm and we would have x-rayed an average of 35 horses (keep in mind, a set of 36 x-rays per horse will run you about \$500).

Once we finished the home visits for the day, the real fun began: surgery. To see an animal weighing around 1,000 lbs go under anesthesia, lifted, prepped and eventually cut open was remarkable. The one thing that amazed me more was how quick and efficient the crew operated. For example, one of the more common surgeries young horses underwent was to put screws in the cannon of the horse to properly align its growth plate. The average duration of the surgery was literally 5 minutes, from first incision up to putting sutures in.

Nothing surprised me more than seeing my first colic surgery. A colic surgery consists of rearranging the large and small intestines to reduce gas pressure and to make the horse comfortable. A horse can die if left untreated due to pain alone. As soon as the surgeon, Dr. Robert J. Hunt (84 University of Georgia), made his first incision, fluids were pouring out of the horse. There was so much internal fluid that they needed a vet technician to mop up the floor so the surgeon wouldn't slip. In my disbelief, that did not stifle him as he reached for yards upon yards of large intestine and continued with the surgery.

The surgeries I saw were very common for the time of year but still very exciting: screws, osteochondritis dissecans surgery (performed otoscopically), colic surgery and castration. In a week's time, I learned a lot about the physiology of horses and techniques during surgery, but more importantly that this is the field and atmosphere I would like to work in one day. I can't begin to thank Dr. Spirito enough for allowing me to shadow one of the greatest, if not the greatest horse surgeons in the world. I am happy to report that I've been invited back to stay longer and experience another externship in equine medicine next summer.



Contributed by Mark Fealey





BIRD & MOTH RESCUE ON CAMPUS



This October, the department of biological sciences helped in the rescue of both a moth and bird. Originally discovered by staff member Joseph Cosentino and student Ethan Kraft, the rescue efforts also involved Dr. Palestis, Prof. Rath, Mrs. Rollizo, and Dr. Onken.

The first, an injured white-throated sparrow was found “stunned,” but after a nice meal of birdseed and water, Dr. Palestis decided it was fine to be released. Dr. Palestis gently gripped the bird and placed it near a garden outside of Megerle Science. After a few seconds, the bird peeked his head left and right, and flew without any problems straight to a tree branch. Stephanie Rollizo explains, “He looked very happy to be back outside once again.”

The second, a moth, was found near the facilities loading dock, simply laying on the ground. Joseph Cosentino said he passed the cocoon for several weeks, and was curious to see it finally hatch. When he saw the moth on laying floor, it disheartened him, where he felt it was his duty to bring it to the Department of Biological Sciences for rescue. The staff had no problem caring for the moth, in what he described as food any moth would love:

“Most moths are quite fond of sugar water. No one quite knows why they prefer this particular mixture, but they sure do chow down on it. What you do, is you mix together water (doesn't matter if it is warm or cold...just don't make it freezing or piping hot) with A LOT of sugar. Then, you put a cotton ball into the mixture and let it soak it up. The reason you want to put it into a cotton ball is because if you just put it in a bowl, the moth may drown in its food. Kind of squeeze out some excess water, not a lot, just so the moth can't drown in it, then you're set to go.”

Contributed by Gregory Balaes and Stephanie Rollizo.

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.

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

The editor would like to encourage faculty members of the Department of Biological Sciences to describe their opportunities for research projects in the LIMULUS.

If students are interested to volunteer, to do research for credit (BI 493 and 494), or to prepare for their research experience in the frame of the senior learning community, please, contact the faculty members of the department.

WORK IN THE GARDEN

Students interested in collaborating in the greenhouse and/or garden during the fall of 2011 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

Palestis, B.G., J. Cabrero, R. Trivers, and J.P.M. Camacho. 2010. Prevalence of B chromosomes in Orthoptera is associated with shape and number of A chromosomes. *Genetica* 138: 1181-1189.

PRESENTATIONS

Palestis, B.G. and **K.E. Eppinger**. 2011. A banding study of common terns on Pettit Island, NJ: Preliminary results. Greater New York/New Jersey Harbor Herons and Waterbirds Working Group. Staten Island, NY. January 12-13.



Palestis, B., I. Nisbet, J. Hatch, J. Arnold, and P. Szczys. 2011. The importance of tail length for sexual selection in roseate terns. Waterbird Society. Grand Island, NE. March 13-16.

PROFESSIONAL MEETINGS

MACUB 2011

The 44th Annual MACUB Conference took place at Seton Hall University in South Orange, New Jersey on Saturday, October 29, 2011. MACUB is the Metropolitan Association of College and University Biologists (see <http://macub.org>). Seven faculty and staff of the department of biological sciences attended with nine students, of which five presented their research, as follows:

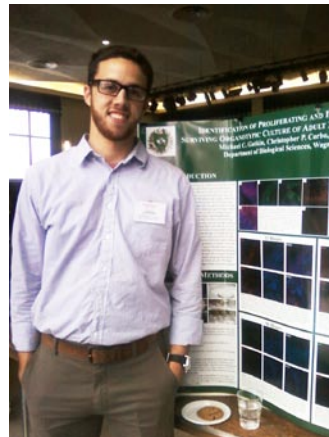
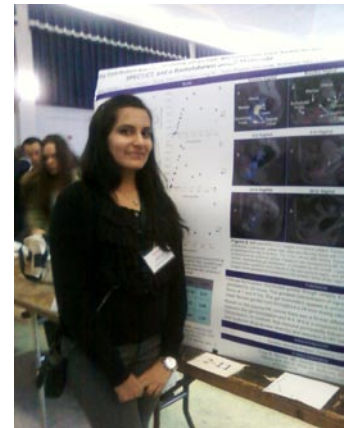
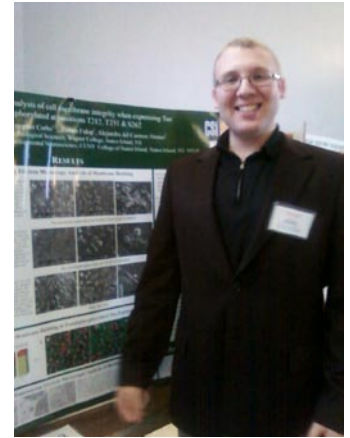
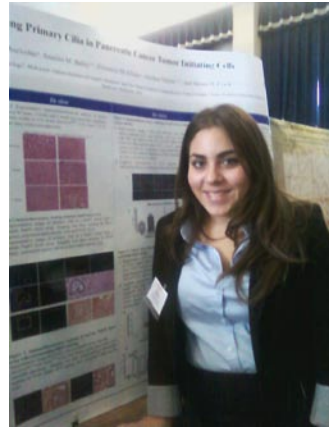
Analyzing the Effect of Phthalates on the Development of *Drosophila melanogaster*. Lisa Duncan, Joanna Emilio, Heather Cook, Wagner College

Electron Microscopic Analysis of Cell Membrane Integrity when Expressing Tau Pseudophosphorylated at Positions T212, T213 & S262. Leonid Denisenko, Christopher Corbo, Wagner College; Alejandra Alonso, CSI

Identification of Proliferating and Immunologically Active Cells in Surviving Organotypic Culture of Adult Zebrafish (*Danio rerio*) Optic Tectum. Michael C. Gutkin, Christopher P. Corbo, Linda A. Rath, Zoltan L. Fulop, Wagner College

Imaging Primary Cilia in Pancreatic Cancer Tumor Initiating Cells. Gina M. Auricchio, Wagner College; Jennifer Bailty, Florencia McAllister, Anirban Maitra, Steven Leach, Johns Hopkins University School of Medicine

Measuring Distribution and Permeability of an HIV Microbicide Gel Vehicle using MRT, SPECT/CT and a Radiolabeled Small Molecule. Maleeha A. Memon, Wagner College; Edward Fuchs, Rahul Bakshi, Craig Hendrix, Johns Hopkins University



Contributed by Stephanie Rollizo



ALUMNI

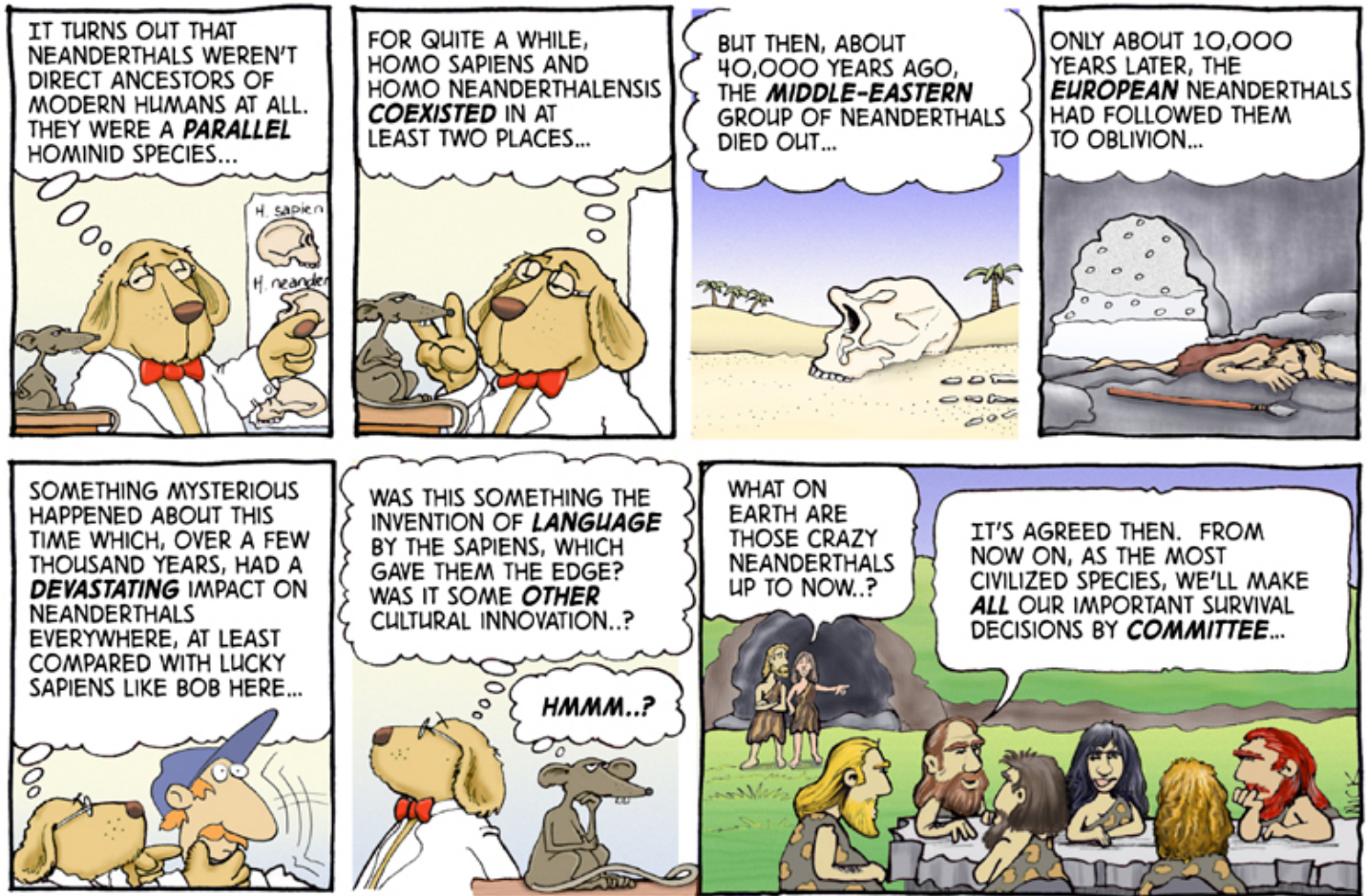
Dear Alumni,

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



Cartoons 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, *Associate Professor*

Assistant Editor: Stephanie Rollizo, *Department Secretary*

Student Assistant Editor: Gregory Balaes (Biology)

Student Assistant Editor: Philip Fomina (Biopsychology)

Student Assistant Editor: Pakinam Mekki (Biology)

Student Assistant Editor: WANTED!

