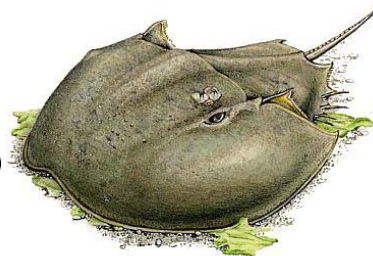


Limulus



NEWSLETTER

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

Volume 2009, Issue Fall-01

August, 2009

LETTER FROM THE EDITOR

Welcome back to the Fall semester 2009. I hope everybody had a relaxing and/or successful summer break. I especially welcome the first year students and I hope that your time at Wagner College will be successful and pleasant with lots of good experiences.

Very sad news reached our department during the summer. A former professor, Dr. Kanzler, passed away on Friday, June 26. Dr. Kanzler taught at Wagner College from 1966 until 2001. We are planning to have a special issue on Dr. Kanzler. Therefore, I would like to ask all current and former faculty, as well as all alumni who knew Dr. Kanzler to send me memories, anecdotes, photographs or other possible contributions to the special issue.

The current Limulus is a little late. I am sorry. The beginning of the new semester was too busy to get it done in August. It is a magazine-style newsletter that summarizes the spring semester, reprinting the major parts of the issues from February, March and April. Everybody can use this newsletter to refresh your memories, and freshmen can get an impression what is going on in the Department of Biological Sciences.

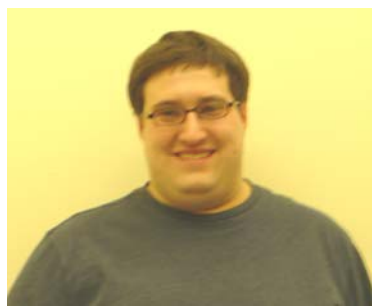
Dr. Horst Onken

The Editor

BIOLOGY STAFF AND FACULTY NEWS

ADJUNCT PROFESSOR SERIES

CHRISTOPHER CORBO



Professor Christopher Corbo joined the faculty of the Department of Biological Sciences in the summer 2006 semester. Corbo has been part of the Wagner community since his time as an undergraduate student. He graduated from

Wagner with a Bachelors Degree in Biology in 2006. As an undergraduate student, he was a proud member of the Tri-Beta Honor Society, and unaffiliated Sigma Xi. Sigma Xi is a scientific research society that was founded in 1886. As a member of this prestigious honor society, Corbo participated in the Sigma Xi Student Research Conference. He received



recognition for the Best Presentation in Cell Biology. He recounted his fondest memory of that conference stating, "It was very exciting to get this distinction because that was an international conference. Many prominent schools such as Harvard, Yale, and Cambridge participated in the conference, and it was wonderful that students from such a small school like Wagner could get recognized for doing great things."

Corbo continued his higher education at Wagner, and obtained a Masters Degree in Microbiology in 2008. He is simultaneously teaching at Wagner and working towards a PhD in Neuroscience at the City University of New York. Currently, Corbo is working on collaborative research with Dr. Fulop and his mentor Dr. Alejandra Alonso of The College of Staten Island. Corbo went into detail about his endeavor, explaining, "The collaboration aims to develop a transgenic zebra fish that will model the cellular events in Alzheimer Disease." He is particularly interested in Neuroimmunology research, specifically focusing on glial cells and how they evoke diseases, like Alzheimer's, in the brain.

As a professor, Corbo teaches a variety of classes including Electron Microscopy (both the lecture and lab sections), Basic Histology Labs, Exploring Biology Labs, and Neuroanatomy and Physiology Labs. He was very enthusiastic about coming back to Wagner as an adjunct professor. "As a student," he recalls, "I was not that interested in research. The professors at Wagner gave me a lot of insight and I realized that I could be interested in other areas beside research. The Wagner community invested a lot of time into me, and teaching is a great way to give back to Wagner while still being at a place I enjoy."

LAKSHMI YERNENI



Professor Lakshmi Yerneni began teaching at Wagner in the spring 2008 semester. Prior to her career at Wagner, Professor Yerneni taught in her native India for thirty years. She spent the majority of her career teaching zoology. She has also served as a guest speaker at many Indian universities, specifically addressing the topics of genetics and biotechnology. In

addition to teaching zoology, Professor Yerneni was an active



volunteer in her community. She gave her time to medical and veterinary camps in India, and served as an advisor to many students in a Youth Leadership Training Program at an AIDS Awareness Camp. Professor Yerneni completed her higher education at one of the most prestigious universities in Southern India. She attended Vikram University and received both her Masters of Science in Biology with First-Class Honors, and her Masters of Philosophy (M.Phil) in Biology with First-Class Honors.

As an adjunct professor at Wagner, Professor Yerneni has taught the Cells, Genes, and Evolution Labs and the Human Anatomy and Physiology Labs. She moved to Staten Island about two years ago, and was aware of Wagner's great reputation on Staten Island. Professor Yerneni decided to join the Biology department's staff, and she has enjoyed her brief time at Wagner. She stated, "All of the faculty members are very cooperative and understanding." As a newcomer to Wagner and the United States, Professor Yerneni noticed some differences amongst her students at Wagner and the students that she taught in India. She marveled, "Wagner students show a lot of enthusiasm for the subjects, and this is evident in the class discussions that we have in lab. I also noticed that American students are more independent thinkers."

Professor Yerneni is particularly interested in genetic research, and hopes to conduct more studies while she is teaching at Wagner. She was impressed by all of the technological differences between the United States and India, and commented, "I hope I will have the opportunity to focus more on research. In India, it was difficult to perform scientific research because the resources were limited. I used to work in a rural area in India, and the opportunities for research were scarce." She added, "The teaching methods in the United States are a little different from the methods used in India. In India, most tests are prepared by the use of pen and paper, and computers are rarely used. As a professor at Wagner, I am required to prepare PowerPoint presentations. The resources are much greater and are more advanced. Only a few years ago, overhead projectors were introduced in India."

Contributed by Nidhi Khanna

BIOLOGY STUDENT NEWS

PRE-HEALTH AT WAGNER: AN INTERVIEW WITH TANYA MODICA



Wagner College's Pre-Health Program attracts many new incoming freshmen every year. Dr. Wendy deProphetis-Driscoll and Dr. Heather Cook are co-chairs of the Pre-Health Committee. Many Wagner seniors are applying to prestigious medical, dental, and graduate schools across the country. A handful of Wagner students wish to pursue a career

in dentistry. Many underclassmen sought a student's

perspective on the application process. Recently, I sat down with Tanya Modica, a senior here at Wagner, to gain some insight into the pre-dental application process.

Q: What is your major? Do you have a minor?

A: I am Biology major and I have a minor in Chemistry.

Q: When and why did you decide to pursue dentistry?

A: I don't exactly remember when I decided I wanted to become a dentist. I do recall that my interest in biology sparked when I was in the sixth grade. At one point, I considered veterinary school and even medical school. When I was younger, I had braces and I remembered all the frequent visits I made at the orthodontist. I liked seeing the way my teeth transformed through the process, and I realized that I wanted to help people with oral health problems.

Q: Can you briefly describe the application process for dental school?

A: The application is completed online, and there is no paper version. Each application cycle starts in June, and you want to start filling out the application as soon as it becomes available. The website that other students should visit is www.adea.org. I found the website to be useful and a little frustrating at the same time. The great thing about completing the application online is that you could save your work and go back to it whenever you want. The website tells you if the schools you applied to received all of your materials. Schools can also notify you if you have been denied or accepted.

However, I did encounter some problems with application process. Wagner uses a unit system, and dental schools want you to convert units to credits. The labs at Wagner count for zero units, and sometimes it was a bit frustrating to figure out the value of the units in credits. The Registrar converts labs to around 4.4 units, and on the website, it will not allow you to input the conversion yourself. The website has set credits, and when I had to fill out the application, my labs could be counted for either 4.2. or 4.5 credits. I know some of my friends who are applying to medical school are able to input the credit conversions, and you simply cannot do that with dental school applications. I decided that it would be best to list my lab credits as 4.2, even though the value was a little more.

When students fill out the application, I would suggest that you have your resume on hand. My resume was very detailed and I ran into some problems when I was filling out my application. The website counts characters, so you have to make sure that you are precise and concise. You need to decide what details in your resume are absolutely important. The website allows you to upload your personal statement right on the site, but you have to remember that all of the characters will get counted, and it may be possible that your personal statement may get messed up accidentally.

Q: Did you take any review courses to prepare for the DAT? Did you find them to be useful?

A: I took a review course through Kaplan. I thought certain aspects of the course were useful. The course syllabus is available online, and you can do review questions and take practice tests from virtually any computer. The instructors helped organize the information into the topics that were most important for the DAT. I found the practice tests beneficial





because they help you get comfortable with actual test setting. We took several practice tests on the computer, and they lasted four hours. It made you get a real feel for the test, and I think that is really important. Kaplan provided us with flashcards, review books, and CD-ROMS. They gave useful tips on how to answer the multiple-choice questions, and I am glad I took the course.

Q: Do you work at a dental office? Where should pre-dental students look to get more experience in the field?

A: I was planning to work with my orthodontist, but he was semi-retired. It was a little difficult at first to find a dentist office where I could apply for a job. I eventually shadowed a periodontist, and now I work as a dental assistant. The job is really hands on, and I am responsible for taking X-rays and developing them. My job includes studying models of patients' teeth, and I am extremely lucky that the dentist I work with teaches me as we go along. He explains why certain things happen and the causes of specific dental problems.

I heard that the Staten Island University Hospital has a good volunteer program in the dentistry department. I was planning to volunteer there, but I knew that they did not let you have more of hands on experience right away. My suggestion is that if you are really interested in dentistry, start volunteering at the hospital as soon as possible. They make you do mostly paperwork in the beginning, and then as time goes on, they let volunteers assume more responsibilities.

Q: Is there any other advice you would give pre-dental students?

A: I would tell students to get their resume finished on time. I went to the Career Development office on campus, and they really helped me with my resume. Dr. Cook and Dr. deProphetis-Driscoll looked over all of my applications and I found that to be helpful as well. If students are going to ask professors for recommendation letters, I advise them to have their resume and a cover letter prepared. A cover letter tells the professors what they are writing the recommendations for, and also bring an official transcript. Lastly, I would tell students to start studying early for the DAT. I felt that I studied too much over the summer, and basically tired myself out. I think you need to make sure you find a balance between studying and fun. Make sure you have fun and don't wear yourself out!

Tanya is one of the few students applying to dental school this year. She was really surprised by the large number of pre-dental students that currently attend Wagner. She added, "When I came to Wagner, I think there were about five students in the freshmen class who were considering applying to dental school. There are so many more pre-dental students now, and I feel this interview will help underclassmen get a better understanding of the application process. I wish I could have received advice from upperclassmen when I was going through the application process. It would have made the process a little bit easier and I would not have felt so overwhelmed.

On behalf of Limulus, I would like to thank Tanya for allowing us to interview her. Good luck with your final semester and we wish you the very best for the future!

Contributed by Nidhi Khanna



GOING TO GRADUATE SCHOOL: AN INTERVIEW
WITH RYAN ROGERS



Every year, many Wagner students apply to prestigious graduate school programs across the nation. I recently interviewed Ryan Rogers, an accomplished senior who recently received some exciting news.

Q: Can you tell me a little bit about the program that you got accepted into?

A: I got accepted to the PhD program at the University of Connecticut Health Center. The Biomedical Science Department has an umbrella program and it allows students to focus on a variety of different fields.

Q: When did you decide that you wanted to pursue a PhD?

A: I originally wanted to go to Optometry School because I have early poor vision. Later, I considered going to medical school, and I even worked as a medical assistant in a pediatrician's office. I realized that this was not the career path for me. I started to do research which focused on the effects of UV radiation on chromosomes. I discovered that I wanted to become a professor and pursue a PhD. As a professor, you can do research and teach at the same time.

Q: What kind of research do you hope to focus on?

A: I am really interested in immunology or doing research that deals with genetics and diseases.

Q: What kind of advice would you give students applying to graduate school?

A: I would tell students to start studying for the GRE early! It is one of the hardest exams I have ever taken. I would advise students to remember a few things when they are going on an interview for graduate school. It is important to be yourself and to be prepared to talk about your research. You need to make sure that you are assertive and ask the interviewers a lot about themselves. The interviewers enjoy sharing their experiences with you, and you should also make sure you are familiar with their research as well.

Q: What clubs/organizations, or extracurricular are you part of?

A: I am captain of the Cross-Country and Track and Field team. I am also president of Tri-Beta, and secretary of the Student Advisory Committee. In addition, I am a member of ODK and a peer tutor for biology.

On behalf of the Limulus staff, I would like to thank Ryan for taking the time out of her schedule to conduct this interview. We wish her the best of luck in all of her future endeavors!

Contributed by Nidhi Khanna with a photograph by Sejmir Izeirovski

CURRICULUM NEWS

SENIOR RFT

The rules for the senior RFT have been changed. The experiential part of the senior RFT (BI 400E) must contain an experimental component. BI 400E must be research in the Department of Biological Sciences or an internship in a



research institution. In both cases students need a supervisor from the faculty of the Department of Biological Sciences. Another change is that all seniors are expected to write a thesis of a particular format in the frame of BI 400. More detailed information and template files for the thesis can be found on the website of the Department of Biological Sciences at http://www.wagner.edu/departments/biological_sciences/senior_rft.

These new rules for the senior RFT apply to all those students who declare(d) their major during or after March 2009. For Biology majors who declared their major before March 2009 the new rules are optional.

Contributed by Dr. Onken

BIOLOGY CLUB NEWS

The Biology Club visited the BODIES EXHIBIT on Saturday, April 4th. Members of the Biology Club actively volunteered at the to the Eastern Colleges Science Conference. There are also plans for another clean-up at the Arthur Kill shore line. Elections will take place on Thursday, April 30.

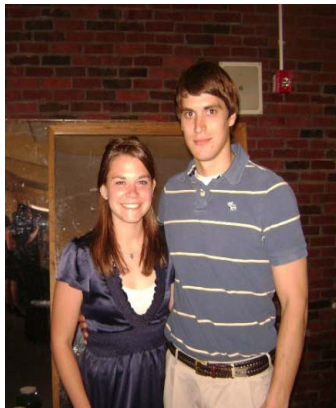
Contributed by Sejmir Izeirovski

TRI-BETA NEWS

TRI-BETA INITIATION

Tri-Beta held an initiation ceremony for its new members on Friday, April 17th in Gatehouse Lounge. Professor Corbo was the honorary speaker at the initiation.

Tri-Beta's Executive Board is composed of all seniors, and Professor Corbo has helped each of them during their time at Wagner. Ryan Rogers stated, "Professor Corbo has done so much for all of us. We would like to have him speak at the ceremony, just to show our gratitude." Corbo gave some advice to the new members of Tri-Beta. Corbo said, "Remember, you can do anything that you want to as long as you have the passion and drive to do it. There are a lot of opportunities for Biology students at Wagner. I have benefited greatly from my time at Wagner." The memorable ceremony was a huge success and couldn't have been possible without the help of seniors Ryan Rogers, Tanya Modica, Dina Hussam, Yulia Seldina, Georgia Dellas, and juniors Yolana Fuks and Michael Stanton. On behalf of Limulus, we wish the seniors from Tri-Beta the very best on all of their future endeavors!



NEW MEMBERS OF TRI-BETA:

Congratulations to the new members of Tri-Beta!

Ashley Benvenuto, Medije Mashkulli, Anna Pullaro, Jessica Cozzolino, Francis Tiripicchio, Almir Spahiu, Peter Pisano, Shannon O'Neill, Salvatore Valenti, Emily Werkheiser, Violeta Capric, and Nidhi Khanna.

TRI-BETA ELECTIONS

Tri-Beta recently held elections for its new officers. Congratulations to all! President: Yolana Fuks, Vice President: Michael Stanton, Secretary: Jessica Cozzolino, Treasurer: Violeta Capric, Historians: Robyn McLaughlin and Shannon O'Neill.

Contributed by Nidhi Khanna with photographs by Ryan Rogers

RAHWAY RIVER CLEANUP

On Sunday April 19th, the Biological Honor Society Tri Beta went on their annual cleanup at the Rahway River. New and current members of Tri-Beta spent hours cleaning the Rahway River with Dr. Palestis. While members were picking up trash, Dina Hussam (Treasurer) found a garbage can in the river along with a crate! Some members even found traffic cones in the river! Students collected hundreds of plastic bottles, aluminum cans, take-out containers, and even empty ChapSticks! Many new members of Tri-Beta thought the cleanup was a fun bonding experience. After four hours, Tri-Beta collected dozens of bags of trash! The Rahway River Clean-Up was a memorable experience filled with hours of laughter. The seniors began this tradition about two years ago, and Tri-Beta hopes to continue cleaning the Rahway River for years to come.

Some photographs from this experience are posted on the next page.

Contributed by Nidhi Khanna with photographs by Dina Hussam





Senior Yuliya Seldina can't wait to start beautifying the Rahway River!



Tri-Beta poses after cleaning up the Rahway River.



New member Salvatore Valenti picks up trash near the river.



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

COMMUNITY SERVICE OPPORTUNITY

Greetings Everyone,

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

Contributed by Nidhi Khanna



EXPERIENCES

RECYCLEMANIA: AN INTERVIEW WITH DAVID HAMMILL



Wagner College's very own Sustainability Committee is participating in an exciting competition called "RecycleMania." Many notable colleges and universities around the world partake in this annual event. Currently, 514 colleges and universities have registered to compete this year alone.

In order to fully understand the purpose of this competition, it is important to be aware of the history of RecycleMania. About eight years

ago, Ed Newman, (a student from Ohio University) and Stacy Edmonds Wheeler, (a student from Miami University) spearheaded the idea of RecycleMania. The first official competition was between Ohio and Miami University, and lasted about ten weeks. After its first year as a certified competition, Miami University held the title as champions.

RecycleMania continues to be a growing competition worldwide. The ultimate goal of this competition is to help reduce the amount of waste that is thrown every day at college campuses. RecycleMania wants to promote recycling, and this international competition is an excellent way for more students to get involved in an important cause.

All colleges and universities that offer on-site degrees in North America are qualified to participate in this annual competition. Secondary institutions outside North America are allowed to participate in the competition, but will only be able to participate in the benchmark division if they offer certificates, and not degrees. Higher institutions are judged by reporting the total amount of trash that they dispose and recycle weekly. The waste is categorized into four divisions: the largest amount of recyclables per capita, the largest amount of total recyclables, the least amount of trash per capita, and the highest recycling rate.

Wagner College's Sustainability Committee has decided to partake in this national event. David Hammill, the Coordinator of the Sustainability Committee was generous enough to take the time out of his busy schedule to elaborate more about Wagner's participation in this event.

Q: How did the Sustainability Committee first hear about RecycleMania? How many years has Wagner been participating in the competition?

A: The Sustainability Committee first heard about RecycleMania via one of the waste publications that we subscribed to. This will be Wagner's first year participating. Within this competition there are two ways to participate. One such way is the full on competition where the entire campus is involved. Since it's our first year, we have decided to take part in the benchmarking piece of the competition. This means that we can just use pieces of the campus as compared to the whole campus. However, this also means we

are not eligible for a trophy. It was a tough decision to decide to participate in the benchmarking piece, but it's proven to be a positive one as the competition presents a large organized effort. Since Wagner is in its infancy in terms of recycling, it provides a great way to test the waters.

Q: How do you plan to get the Wagner community to participate in the competition?

A: Our plans to get the campus participating start in the residence halls. It was our belief that students are the ones who spend the most time on campus and will be the force behind putting the trash and recyclables in their respected places. So far we've reached out to Resident Education and asked to provide floor programs for the RA's. This has proved to be mildly successful with a handful already signed up.

Q: Is everybody in the community allowed to participate? Will you be revealing the data you collected to the rest of the Wagner community?

A: Everyone in the community is indeed encouraged to participate. However with limited resources, we have just focused on the residence halls in order to try to get the most bang for our buck. The data that is collected will be available to the Wagner community. It will start with electronic sources in an attempt to save paper.

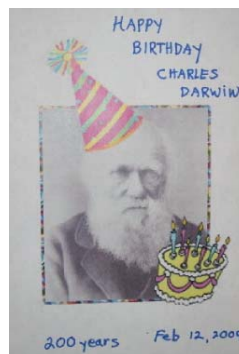
Q: I read that some schools give out awards to participants. Will the Sustainability Committee giving out prizes for its best competitors?

A: The Sustainability Committee will be giving out shirts to those caught doing the right thing, i.e. recycling. This is what we are calling "get caught green handed." We wish that we could take the credit for that, but another school came up with the phrase. One way that we are encouraging students in the dorms will be to provide pizza parties for those doing the most recycling.

We are excited that the Sustainability Committee has decided to participate in this international competition, and aims to promote awareness about recycling. Best of luck to all participants! For more information about RecycleMania, please visit www.recyclemaniacs.org. We would also like to give a special Thank You to Dave Hammill for speaking with the Limulus Staff about this excellent cause he is endorsing all over campus! If you would like to get involved with RecycleMania, please contact David Hammill (david.hammill@wagner.edu).

Contributed by Nidhi Khanna

BIOLOGY DEPARTMENT CELEBRATES DARWIN'S 200TH BIRTHDAY



February marked two important milestones in history. Abraham Lincoln and Charles Darwin both celebrated their 200th birthday on Thursday February 12, 2009. President Lincoln and Darwin served as important revolutionaries of their historical epochs, and are still admired by individuals around the world. Many people across the globe commemorated Darwin's historic anniversary in several ways.





Documentaries, lectures, and museum visits were planned, and even a replica of the H.M.S. Beagle was scheduled to sail in the exact route that Darwin traveled while aboard the famous Royal Navy ship. Although many scientists and biology enthusiasts are remembering Darwin's accomplishments, some



individuals often fail to fully understand the concept of evolution and the obstacles Darwin encountered when he tried to have his ideas acknowledged by rest of the scientific world. Darwin presented his theory of evolution in 1859 and faced major criticism for his most famous work, *The Origin of Species*. Despite receiving very little support for his brilliant insight, Darwin did not stray away from his beliefs. Alfred Wallace single handedly proposed the idea of natural selection prior to Darwin's publication of *The Origin of Species*. According to *New York Times* reporter Nicholas Wade, Wallace simply did not have the audacity to persuade the science community to consider his original idea of natural selection. However, Wade portrays Darwin in a more positive manner and praises his ability to methodically study any opposition to his theory of evolution and natural selection.

Darwin's work influenced the discipline of biology, and many scientists have realized that Darwin made fairly accurate claims. Modern science allows biologists to extensively study a vast variety of resources, such as fossil records and DNA. Darwin was not fortunate enough to be able to utilize a detailed fossil record. Scientists today can study fossils that provide ample evidence of life that dates back more than three billion years ago. The introduction of genetic information and DNA was not fully comprehended by scientists until almost a hundred years after Darwin published his renowned *Origin of Species*. Even though certain aspects of Darwin's theory were inaccurate, many scientists are amazed by method in which he was able to formulate his ideas with such limited resources. Günter Wagner, an evolutionary biologist at Yale University, expressed his appreciation for Darwin in a recent article in *Time Magazine*. He said, "You can't even start to make sense of all this data without a framework of evolution."



Many scientific break-throughs have served as vital evidence for Darwin's theory of evolution and natural selection. Scientists have studied bacteria that are able to protect themselves from powerful drugs. They can now conclude from their observations that gene mutations have allowed these bacteria to become more resilient against specific drugs, thus enabling them to produce generations of offspring with advantageous traits.

Another important idea that Darwin proposed dealt with the issue of common ancestry amongst various species. In the past two decades, paleontologists have been evaluating fossil records of land whales that had legs. Scientists believe that contemporary whales may be related to these land whales. DNA has been tremendously useful and has allowed scientists to compare genetic similarities amongst various species. DNA evidence shows that human beings share more genetic similarities with mushrooms than with sunflowers.



As a curious science student, I have come to appreciate all of Darwin's major accomplishments in the field of biology. It is astonishing that Darwin could make so many claims to his theory without the use of modern technology. He has helped modern biologists understand certain concepts in a more organized fashion.

In honor of Darwin's major contributions to the field of science, the Biology Department joyously celebrated his 200th birthday.

Stephanie Rollizo and Professor Linda Raths spearheaded the event. The fourth floor of Megerle was decorated with various images that pertained to Darwin, including the finches Darwin studied, maps of his voyages around the globe, the Beagle, and of course, pictures of the birthday boy himself!



The Biology Department distributed specially made stickers of Darwin. The celebration did not end there! Faculty, staff, and students from the sciences



participated in the event by enjoying several homemade foods and partaking in interesting conversation. The event was a huge success! We would like to thank to all those who attended and prepared delicious food. A special thank you goes out to Stephanie Rollizo and Professor Linda Rath for organizing such a great event!

Contributed by Nidhi Khanna with photographs from Dr. Onken

APRIL 22nd IS EARTH DAY

Earth Day was established in the United States about forty years ago to encourage more Americans to take better care of the environment. Earth Day was originally founded to raise awareness about pollution, oil spills, and the destruction of wildlife. Since then, Earth Day has become a day that is internationally celebrated. People around the globe are urging more individuals to take action and to help preserve the planet. The central focus of Earth Day presently is global warming. Many scientists have warned politicians and citizens about the dangers of global warming. It is estimated that almost half a billion people are involved in Earth Day events every year. The message of Earth Day is simple; anybody can get involved and make an impact to save the planet. Here are some great daily tips that can help save our planet:

1. Make sure you turn off all electronic devices (such as cell phone chargers, stereos, televisions, etc) when you are not using them. It is estimated that you could even save about \$10.00 a month on your electric bill if you unplug electronic devices like toasters and washing machines.
2. Most water heaters are set to around 145 degrees Fahrenheit. Just by lowering water heaters by 25 degrees will save around 160 pounds of carbon dioxide!
3. Fix any leaks that you may have around the house. On average, a leaky toilet wastes 200 gallons of water a day.
4. Climate change can be observed even at the workplace. Put computers and other office supplies on stand-by. It also helps to turn off lights after leaving the office. By switching light bulbs to ENERGY STAR bulbs, you can save at least \$60 a year on energy bills.
5. Contact to your local politician or councilman to make sure their policies focus on environmental preservation. Ordinary citizens can make a difference. (This tip was cleverly suggested by Dr. Stearns).
6. Reduce, reuse, and recycle! It is important to do all three of these things to reduce greenhouse gas emissions and pollution.

Wagner College's Earth Club is planning many on campus events during Earth Week. For example, the Earth Club is planning to do a clean up behind Haborview Hall. If you would like to get more information on Earth Week, please contact the active president of Earth Club, Megan Allen (megan.allen@wagner.edu).

If you would like more information on how to save energy, please visit <http://www.earthday.gov/athome.html> and <http://www.epa.gov/earthday/>. Remember, everyday is Earth Day! Statistics were compiled from www.epa.gov.

Contributed by Nidhi Khanna

FIRST WIND TURBINE ON STATEN ISLAND

Many countries around the world are investing in wind power. Germany is currently the nation that uses the most wind power. In the United States, only one percent of our electricity is produced by wind energy. Many environmentalists are hoping that the tax credit offered in the new economic recovery will allow the wind industry to develop more turbines throughout the United States.

Ray Mascucci, is the developer of the living community called the "Tides of Charleston." The "Tides of Charleston," is located in the Arthur Kill section of Staten Island and is also home to the island's very first wind turbine. Mascucci hopes that his wind turbine will encourage more Staten Island residents to invest in wind energy. Many residents hoped that a wind farm would be built over the old Fresh Kills Landfill. Fresh Kills is ideal for a wind farm because this area is near the coastline. It is estimated that seven wind turbines could be built in Fresh Kills and they would probably stand at around 400 feet. Mascucci realizes the importance of wind energy, and he has even dedicated his career to alternative energy. He owns a company that sells and fixes wind turbines. The "Tides of Charleston" wind turbine may bring around \$3000 worth of electricity to the area each year. Many local residents are hoping that more wind turbines will be installed all over Staten Island. According to the American Wind Energy Association, wind turbines can save the average person around 50-90% on reduce electric bills. The average life span of one wind turbine is about 20 years, and statistics like these are encouraging more residents to invest in wind energy. The best part of wind turbines is that very little maintenance is required because the wind does all of the work for you!

For more information on wind turbines, please visit <http://www.awea.org/>. If you would like to know more about the "Tides of Charleston" wind turbine, please visit <http://www.nytimes.com/2009/03/15/nyregion/thecity/15disp.html?ref=science>.

Contributed by Nidhi Khanna

PUBLICATIONS

Etinger, A., J. Lebron, and B.G. Palestis. (2009, in press). Sex-assortative shoaling in zebrafish (*Danio rerio*). *Bios*.

Izeirovski, S., Moffett, S. B., Moffett, D. F. & Onken, H. (2009). The anterior midgut of larval yellow fever mosquitoes (*Aedes aegypti*): Effects of nutrients on the transepithelial voltage and strong luminal alkalinization. *Wagner College Forum for Undergraduate Research*.

Moffett, D.F. and **Onken, H.** (2009, in press). The Cellular Basis of Extreme Alkali Secretion in Insects: A Tale of Two Tissues. In: *Epithelial Transport Physiology* (ed. George A. Gerencser). Totowa, New Jersey: Humana Press.

Onken, H., & Moffett, D. F. (2009). Revisiting the cellular mechanisms of strong luminal alkalinization in the anterior midgut of larval mosquitoes. *Journal of Experimental Biology*. 212: 373-377.





Onken, H., Patel, M., Javoroncov, M., Izeirovski, S., Moffett, S.B. & Moffett, D.F. (2009). Strong alkalization in the anterior midgut of larval yellow fever mosquitoes (*Aedes aegypti*): Involvement of luminal Na⁺/K⁺-ATPase. *Journal of Experimental Zoology*. 311A: 155-161.

Palestis, B.G. (2009, in press). Fluctuating asymmetry in common tern chicks varies with hatching order and clutch size. *The Auk*.

Palestis, B.G. (2009, in press). Use of artificial eelgrass mats by saltmarsh-nesting common terns. *In Vivo*.

Trivers, R., **B.G. Palestis** & D. Zaatari. (2009). *The Anatomy of a Fraud: Symmetry and Dance*. TPZ Publishers. Antioch, CA.

Zaatari, D., **Palestis, B.G.** & Trivers, R. (2009, in press). Fluctuating asymmetry of responders affects offers in the Ultimatum Game oppositely according to attractiveness or need as perceived by proposers. *Ethology*.

PROFESSIONAL MEETINGS

EASTERN COLLEGES SCIENCE CONFERENCE

On Saturday April 25th, Wagner College hosted the Eastern Colleges Science Conference. 271 undergraduate students participated in the meeting with twenty student presentations from Wagner for this prestigious event. A handful of students represented the Biology Department in the conference. Participants included: Christopher Cappelli, Georgia Dellas, Sejmir Izeirovski, Lauren Levy, Anna Lysenko, Tanya Modica, Ryan Rogers, Joseph Scala, Yuliya Seldina and Marlene Streisinger.



Members of Tri-Beta and the Biology Club served as volunteers for the event. Many helped registered visiting participants and acted as student guides. During the afternoon, many attendees were allowed to listen to three guest speakers who spoke simultaneously. Dr. Susan S. Kilham, a Professor of Environmental Science at Drexel University gave a lecture about global warming and the mountains of evidence that supports it. She does extensive research that deals with the effects of climate change on various ecosystems. Dr. Alejandra Alonso is currently a Professor of Neuroscience at the College of Staten Island and she gave an interesting lecture about the research she has completed on Alzheimer's disease.



The third speaker was Dr. Samuel Gaertner, a Professor of Psychology at the University of Delaware. He spoke about his research pertaining to research and prejudices amongst many social and cultural groups.

The students of the Department of Biological Sciences contributed with manuscripts, platform presentations and posters. See below for the titles and authors. Two manuscripts and a poster presentation won Excellence Awards. The Limulus Staff would like to congratulate all of the participants and winners for a job well done!

The ECSC was a huge success and could not have been possible without the hard and very successful work of Dr. Donald Stearns (President of the ECSC), Professor Linda Raths, and Ms. Stephanie Rollizo.

Contributed by Nidhi Khanna with photographs by Ryan Rogers

MANUSCRIPTS SUBMITTED TO ECSC

GENDER DIFFERENCES CREATED BY URINARY CREATININE ADJUSTMENTS MADE TO HEAVY METAL MEASUREMENTS. Christopher Cappelli¹, Mary Gamble², X Liu³, Pamela Factor-Litvak⁴, Vesna Slavkovic² and Joseph Graziano², ¹Department of Biological Sciences, Wagner College; ²Department of Environmental Health Sciences, Columbia University; ³Department of Biostatistics, Columbia University; ⁴Department of Epidemiology, Columbia University (**Excellence Award!**).

THE ANTERIOR MIDGUT OF LARVAL YELLOW FEVER MOSQUITOES (*Aedes aegypti*): EFFECTS OF NUTRIENTS ON THE TRANSEPIHELIAL VOLTAGE AND STRONG LUMINAL ALKALINIZATION. Sejmir Izeirovski¹, Stacia B. Moffett², David F. Moffett² and Horst Onken¹, ¹Department of Biological Sciences, Wagner College; ²School of Biological Sciences, Washington State University (**Excellence Award!**).

PLATFORM PRESENTATIONS AT ECSC

THE STUDY OF CHROMOSOMAL ABERRATIONS IN *Vicia faba* AS A RESULT OF EXPOSURE TO UVA AND UVB RADIATION. Ryan Patricia Rogers and Ammini S. Moorthy, Department of Biological Sciences, Wagner College; ²Department of Biological Sciences, Wagner College.

THE EFFECTS OF OSCILLATING ELECTRICAL FIELDS ON *ESCHERICHIA COLI* AND *STAPHYLOCOCCUS AUREUS*. Yuliya Seldina and Joseph Scala, Department of Biological Sciences, Wagner College.

POSTER PRESENTATIONS AT ECSC

ELECTRICAL SUPPRESSION OF BACTERIAL GROWTH AND REPRODUCTION. Joseph Scala and Yuliya Seldina, Department of Biological Sciences, Wagner College.



GENDER DIFFERENCES CREATED BY URINARY CREATININE ADJUSTMENTS MADE TO HEAVY METAL MEASUREMENTS. Christopher Cappelli¹, Mary Gamble², X Liu³, Pamela Factor-Litvak⁴, Vesna Slavkovic² and Joseph Graziano², ¹Department of Biological Sciences, Wagner College; ²Department of Environmental Health Sciences, Columbia University; ³Department of Biostatistics, Columbia University; ⁴Department of Epidemiology, Columbia University (**Excellence Award!**)

THE ANTERIOR MIDGUT OF LARVAL YELLOW FEVER MOSQUITOES (*Aedes aegypti*): EFFECTS OF NUTRIENTS ON THE TRANSEPITHELIAL VOLTAGE AND STRONG LUMINAL ALKALINIZATION. Sejmir Izeirovski¹, Stacia B. Moffett², David F. Moffett² and Horst Onken¹, ¹Department of Biological Sciences, Wagner College; ²School of Biological Sciences, Washington State University

MORPHOLOGICAL CHARACTERIZATION OF NEUROVASCULATURE AND WHOLE BLOOD OF THE ADULT ZEBRA FISH (*Danio rerio*). Marlene Streisinger¹, Lauren Levy², Zulmarie Franco³, Linda Rath², Christopher Corbo² and Zoltan Fulop², ¹Department of Nursing, Wagner College; ²Department of Biological Sciences, Wagner College; ³Department of Microbiology, Wagner College

PREPARATION OF THIN SECTIONS OF DROSOPHILA OVARIES FOR EXAMINATION BY TRANSMISSION ELECTRON MICROSCOPY. Tanya Modica¹, Georgia Dellas¹, Christopher Corbo² and Heather A. Cook¹, ¹Department of Biological Sciences, Wagner College; ²Department of Center For Developmental Neuroscience, CUNY Staten Island

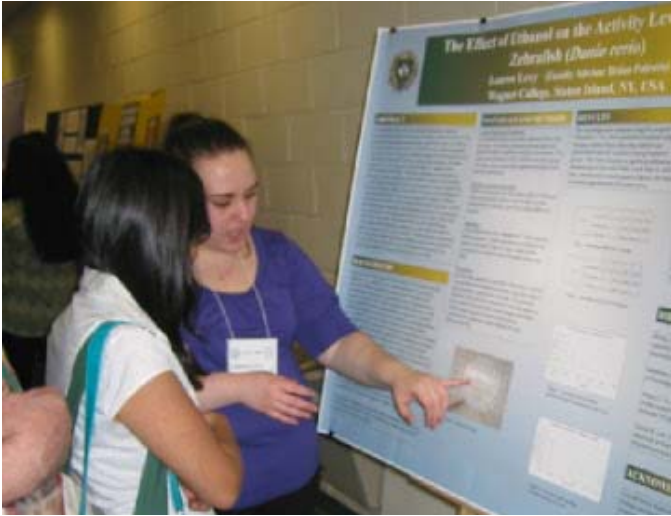
USE OF SQUASHED RETINA AND OPTIC TECTUM TO STUDY REGENERATIVE CAPACITIES OF THE VISUAL SYSTEM IN ADULT ZEBRAFISH (*Danio rerio*). Michael Gutkin, Anna Lysenko, Christopher Corbo, Linda Rath and Zoltan Fulop, Department of Biological Sciences, Wagner College

THE EFFECTS OF DIFFERENT ETHANOL CONCENTRATIONS ON THE ACTIVITY LEVEL OF ADULT ZEBRAFISH (*Danio rerio*). Lauren Levy and Brian Palestis, Department of Biological Sciences, Wagner College



PHOTOGALLERY OF THE ECSC





ERRATA

STUDENT PROFILE IN MARCH ISSUE OF LIMULUS

It was brought to my attention that the last issue of Limulus had a error in the student profile. In Ryan Rogers' interview, it should have said that she had "really poor vision" and not "early poor vision." I apologize for the mistake.

Contributed by Nidhi Khanna

APOLOGIES

E-MAIL INCONVENIENCE

I want to apologize! Since the beginning of the LIMULUS I have sent out the newsletter to address lists. I sent these mails directly to all addresses in the list. Only now I became aware that this allows everybody to see everybody's e-mail address. I hope this did not cause any inconvenience to anyone. From now on the newsletter will be sent out with the addresses under BCC.

You never stop learning, THE EDITOR.

ALUMNI

Some responses from alumni to the January Newsletter:

Dr. Onken,

Thank you for sending me the recent Biology newsletter. As a proud member of the Class of '79, I was a Biology/Psychology double major and have nothing but wonderful memories of my years on the 4th Floor. Under the guidance of Dr. Yarns, Dr. Hazen, Dr. Priddy and Dr. Kanzler we learned in an environment which was unique and that I hope remains today.

The relationship we had with our professors was special in that we not only had the utmost respect for them, but truly enjoyed them as individuals. Each day for lunch the faculty would eat together in the conference room over a daily bridge game. Students were allowed to observe. It was wonderful since all but Dr. Yarns took the game seriously as we commented on the day's events peppered with a brief retort by a professor in the middle of a trump...whatever that is?

Dr. Yarns, the most fit of the professors, would ride his bike up Howard Ave each day. ... Yarns took his subject matter seriously, but was not afraid to inject humor into his lectures.

Dr. Annette Ruark-Hazen was the most brilliant woman I'd had the honor of knowing. She was able to break down Neuroanatomy/physiology in a class by sharing the information, not preaching. She was also one of the first, female, ordained Episcopalian priests ordained. While dissecting a calves' brain in neuroanatomy lab, I asked her how she reconciled the Creation/Big Bang Theory, she calmly and directly said, "Someone had to push the button."

I spent the most time with the above mentioned professors, but I have to say that the faculty in general shared a common trait. They all took what they did very seriously and put the students first, but most importantly they took themselves lightly. It was a most endearing quality. I would love to say that I took my



degree and pursued a related career, but alas I had an eighteen year career on Wall Street which ended after 9/11. I've pursued more creative endeavors, but I have to say that I still recall the material learned in the labs and can converse about human anatomy and physiology with a level of confidence. Thank you again for sending the newsletter. It forced me to take a trip down memory lane, a wonderful place in this instance, and remember some major influences in my life whom I admired and from whom I learned about Biology and Humility.

All the best,
Harold Theurer Class of '79

Dr. Onken,
Thank you for including me on your distribution list for the Wagner College Biology Department Newsletter. I continue to be proud of Wagner and its ability to inspire students in Biology and the Health Sciences.

In the section on when Biology became prominent at Wagner, I wonder about that as well. My first impulse is to suggest the Dr. Ralph E. Deal may have been the beginning of that. He retired during my Senior Year in 1966 but I recall that prior to his becoming THE Biology Professor at Wagner he was a young professor in a Columbia University annex 'The Cloisters' and was a Bio-Evangelist who would give tent lectures along side of William Jennings Bryan with the purpose of promoting interest in making biological sciences a subject that would be taught at all liberal arts colleges. Therefore I imagine one need not look any further back in time than Dr. Deal to find when Wagner provided courses in biological sciences. Natale Collosi taught microbiology at Wagner but I am not sure if that was there before or after Dr. Deal as microbiology was a separate track, quite possibly aligned with Nursing, when I was a student.

The topic I spoke on when we had the dedication of our electron microscope has now made it into the fabric of biology and immunology science. Here is a recent review by Dutch Scientists that makes that point. I also include a "preview" I wrote for a confirming article.

And, here is an online Power Point Presentation that includes some of the slides I presented at Wagner.

http://www.geocities.com/artnscience/Crosby/Art_and_Science_files/fullscreen.htm

Best regards.

Art



Arthur O. Anderson MD
Director, Office of Human Use and Ethics, Research Integrity Officer
US Army Medical Research Institute of Infectious Diseases
1425 Porter Street, Fort Detrick
Frederick MD 21702-5011

"There is always an easy solution to every human problem -- neat, plausible and wrong." - H. L. Mencken



Thanks you so much for forwarding the newsletter to me. I thoroughly enjoyed reading it. Very well put together with a lot of information. I graduate in 1971 with a BS in Biology. Things have really changed! For the better I might add.
bob piegari

BRIAN PETUCH CERTIFIED BY NRM

Brian Petuch, an alumnus of Wager College, was recently certified by the National Registry of Microbiologists. We received the following press release from the American College of Microbiology:

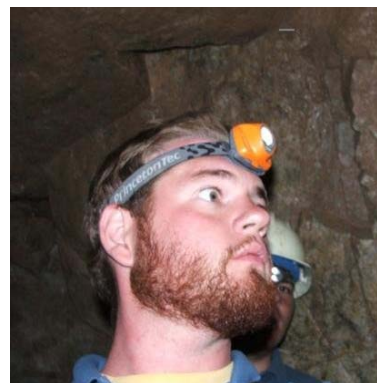
WASHINGTON, DC—February 24, 2009— Brian R. Petuch, M.S., Biosafety Officer, Merck & Co., West Point, PA, is now a Registrant of the National Registry of Microbiologists (NRM). On November 17, 2008, he became certified as a Specialist Microbiologist in Biological Safety Microbiology. To earn the NRM credential, Mr. Petuch first met rigorous educational and experiential eligibility requirements and then passed a comprehensive written examination. He has demonstrated the knowledge and skills necessary to develop, implement, and manage a comprehensive biological safety program.

The NRM is a voluntary certifying body which was founded in 1958 and has certified microbiologists in all 50 states, the District of Columbia, and Puerto Rico and on six continents. The goals of the NRM are to minimize risk to the public by identifying qualified microbiologists; encourage mastery of microbiological knowledge and skills that contribute to improving the human condition; and foster professional pride and a sense of accomplishment in qualified microbiologists.

The American College of Microbiology is the component of the American Academy of Microbiology responsible for accreditation of postdoctoral training programs, certification of microbiologists and immunologists, and other programs consistent with its mission of providing leadership in promoting the high quality and ethical practice of the microbiology and immunology professions for the benefits of human, animal, and environmental well-being. For more information about the NRM or other programs of the American College of Microbiology, please visit www.microbiologycert.org or contact the College at college@asmusa.org.

Contributed by Dr. Onken

NEWS FROM THOMAS SMOLKA



Thomas Smolka graduated in 2004 with a BS in Biology. In summer 2005, Thomas worked as a bear biologist in New Mexico. Until 2007 he managed an event production company. Then Thomas became a technology teacher at St. John's Lutheran School. His robotics team

recently won the second place in the first NYC Robotics



tournament and was recently featured in the SI Advance. Congratulations!

The article in the SI Advance can be accessed at <http://www.silive.com/siadvance/stories/index.ssf?/base/news/1237469406265670.xml&coll=1>

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!

PUZZLES, JOKES, QUOTES, CARTOONS

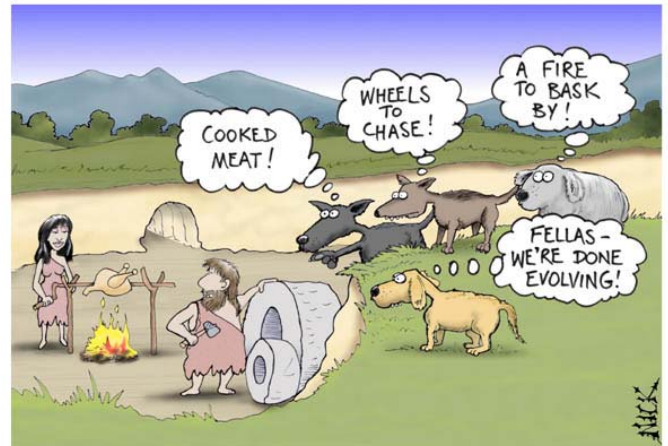
LATERAL THINKING WORD PUZZLES:

| | | |
|---------------------------|--|----------------------------|
| <u>Man</u> Board | <u>Stand</u> I | /R/E/A/D/I/N/G/ |
| R O ROADS D S | cycle cycle cycle | Q M.S. Ph.D. |
| Knee Light | <u>Ground</u> feet feet feet feet feet feet | T O W N |
| THINK | T O U C H | ecnalg |
| Death / Life | <u>ii ii</u> ● ● | ababaabbaabbaaabbbaaabb... |

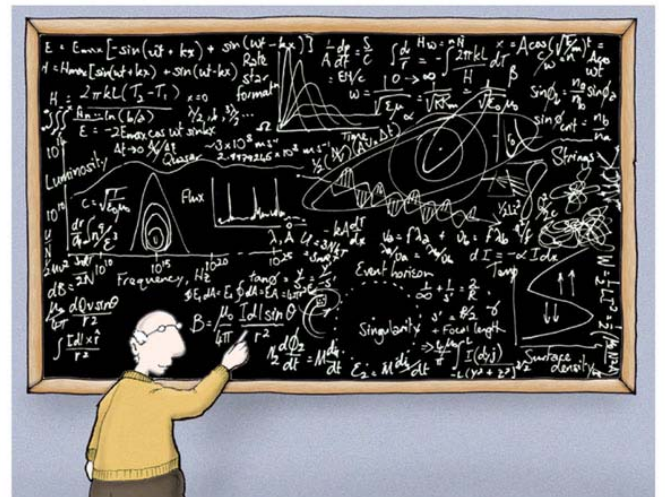
Answers:

| | | |
|------------------|-------------------------|---------------------------|
| man overboard | I understand | reading between the lines |
| crossroads | tricycle | two degrees below zero |
| neon light | six feet underground | downtown |
| think big | touchdown | glance backwards |
| life after death | dark circles under eyes | long time no see |

CARTOONS:



Forget the experts; domestication of the dog only took about 8 seconds.



Science made simple!



"I'd rather we don't mention this in the annual report."

All cartoons from www.lab-initio.com





MISCELLANEOUS

SWINE FLU

The swine flu is making headlines this past week. The last time a major pandemic wiped out a majority of the world's population was in 1919. The Spanish flu killed millions of people worldwide because the virus started spreading across the globe. A virus that is found in pig populations causes swine flu. This virus has strains referred to as swine influenza virus. There are three types of SIVs including Influenza A, Influenza B, and Influenza C. Influenza A is the more commonly found and the World Health Organization believes that Influenza A is responsible for all of the recent cases of swine flu. Influenza A can be further examined into smaller categories. These smaller categories are referred to as subtypes. Influenza A has five subtypes: H1N1, H1N2, H3N1, H3N2, and H2N3. The reported cases of swine flu have been traced to the subtype H1N1. Many people around the world are trying to avoid this flu. Individuals who handle pigs on a regular basis are more vulnerable for infection. The virus spreads when people come in contact with certain poultry or pig populations. The virus strain that is found in pigs can spread to human populations. The SIV strain mutated and this basically means the genetic code of the SIV strain changed. This allowed the virus to spread from one human being to another. According to CNN, most people that were reported to have swine flu came in contact with pigs. CNN reported that there are 90 cases of swine flu in the world and 42 of those cases are in the United States alone. The WHO believes that the swine flu started in Mexico, and the United States has started to increase security at the Mexican border. Symptoms of swine flu are: sore throat, headaches, fever, cough, and fatigue. If a person has been infected by swine flu, it is recommended that they take antiviral drugs. For more information on swine flu, please visit:

<http://www.cnn.com/2009/HEALTH/04/28/swine.flu/index.html#cnnSTCOther1> and <http://www.nytimes.com/2009/04/28/health/28hong.html?ref=health>.

Contributed by Nidhi Khanna

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 major)

Student Assistant Editor: N.N.

