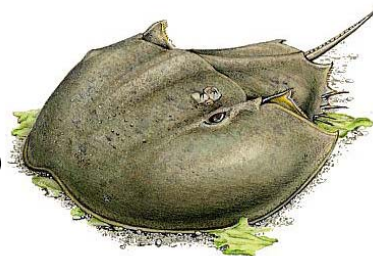


LIMULUS



NEWSLETTER

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

Volume 2008, Issue Spring-01

January, 2008

LETTER FROM THE EDITOR

THE JANUARY LIMULUS

Some of you may have wondered why there was no December issue of our newsletter. First, there were no new contributions until the deadline. On top, like many of you I was struck with the terrible news about our chaplain, Lyle Guttu, and I simply could not do business as usual.

Lyle, you will be in our thoughts!



Who wants to read more is referred to the web page "In memoriam: Chaplain Lyle Guttu, 1936-2007" maintained by the college at: <http://www.wagner.edu/news/node/841>

The January LIMULUS is our first special issue. It will review the last fall semester and it will be sent out not only to current students and faculty, but also to alumni and to some selected "celebrities" of the college.

Until now the section "Biology Student News" did not get any contributions. In order to stimulate more active contributions by students I am offering two students to act as Assistant Editors. If you are interested, send an e-mail or meet me during my office hours.

I wish everybody a successful spring semester!

Dr. Horst Onken, The Editor



LETTER FROM THE CHAIR

Welcome back! First I would like to thank Dr. Onken for putting together this newsletter. Second, I would like to welcome those who are new to the department or who are considering a major or minor in one of our programs. These programs include majors and minors in both Biology and Microbiology, a graduate program in Microbiology, participation in an interdisciplinary major in Biopsychology, and an interdisciplinary minor in Environmental Studies. There are also many opportunities for students to get involved outside of the classroom, including undergraduate and graduate research, Biology Club, Beta Beta Beta Biology Honor Society, and by contributing to this newsletter. Please take advantage of these opportunities.

Sincerely,

Brian Palestis, Chair of the Department of Biological Sciences

LETTERS TO THE EDITOR

NO LETTERS RECEIVED!

BIOLOGY STAFF AND FACULTY NEWS

FACULTY PHOTOGRAPH

Shortly before the winter break a photograph of the faculty members of the department was taken that will soon find its place on the website of the Department of Biological Sciences:



Standing from left to right: Dr. Mosher, Dr. Fulop, Dr. Onken, Dr. Stearns and Dr. Palestis. Sitting from left to right: Professor Raths, Stephanie Rollizo (department secretary), Dr. Moorthi and Dr. Cook.



WELCOME PROFESSOR BEECHER



Since the beginning of the Fall semester 2007 the Department of Biological Sciences has a new Adjunct Assistant Professor. Professor Sierra D. Beecher earned her Bachelor of Science in Biology in 2004 and her Master of Science in Environmental Science and Regional Planning in 2006 at Washington State University in Pullman, WA.

In this semester, Professor Beecher teaches Human Biology (BI 120) for non-science majors and Forms and Functions of Life (BI 217). In the spring semester 2008, Professor Beecher teaches classes that relate more closely to her interests in environmental sciences.

Welcome to the Department of Biological Sciences at Wagner College!

Contributed by Dr. Onken

BIOLOGY STUDENT NEWS

A section for news about students of our department.

YOUR CONTRIBUTION COULD BE HERE!

I am looking for two students who would act as Assistant Editors with special responsibility for this section of the newsletter. If you are interested, contact me by e-mail or meet me during my office hours (Tuesday and Thursday 10am to 12).

Dr. Onken

CURRICULUM NEWS

News about the curricula of the different programs of the department will be posted here.

At the department meeting in November the faculty of the Department of Biological Sciences has decided to update some of the course descriptions in the Undergraduate & Graduate Bulletin. Respective proposals were made to the Academic Policy Committee (APC). As soon as respective decisions are made the course descriptions will be updated in the Bulletin and on the website of the department.

Contributed by Dr. Onken

At the department meeting in December the faculty members were informed about the procedures for the Anthony Pfister Scholarship. Based on a presentation by Dr. Stearns the programs of two new majors were discussed: Environmental Science and Environmental Studies. Another topic that was debated were changes to the Senior RFT. The latter two points may result in future curriculum changes/extensions.

Contributed by Dr. Onken



BIOLOGY CLUB NEWS

A Biology Club has been founded in November. The officers of the Club are Sejmir Izeiroski (President), Cassandra Bray (Vice President), Melissa Alvarez (Secretary), Lauren Levy (Treasurer), and Shannon O'Neill (SGA representative). Accreditation with the Student Government Association of Wagner College is planned for the spring semester. If you are interested in a membership or in further details about the new club, please contact Sejmir Izeiroski (sejmir.izeirovski@wagner.edu) or Melissa Alvarez (melissa.alvarez@wagner.edu).

Contributed by Dr. Onken

TRI BETA NEWS

Beta Beta Beta Biological Honor Society has had a busy semester. Here are some of the awesome activities we have done.

On November 9th, 2007, Mrs. Falabella's third grade students from St. Christopher's School on Staten Island came to Wagner College to participate in Connect Science. Connect Science is Beta Beta Beta Biological Honor Society's annual community program where college students perform science



experiments with younger children to show them how exciting science can be. This year, we had a very successful event and here are some of the cool experiments the members did.

Making colorful gels was done by Allie Mercil and Chris Cappelli. Paper chromatography with Kool-Aid was done by Lauren Maltese. An experiment with magnetic fields and optical illusions was done by Yulia Seldina and Kim Karper. An exploding volcano was made by Dina Hussam and Kayla Wong. A buoyancy experiment was done by Lauren Carasso and then by Chris Cappelli. Becky Ginnattasio and Christina Lamb taught the students how to use a microscope and gave a tour of the building, including the zebrafish room in the basement. It was a blast!

During this semester, Tri Beta participated in four other service projects. Some of our members participated in the annual Tunnel to Towers Run from Brooklyn to Manhattan to commemorate the anniversary of September 11th. Also, many of our members including Tanya Modica, Yulia Seldina, Dina Hussam, Justina Yuen, Ryan Rogers, Lauren Maltese, and Christina Lamb walked in the annual Making Strides Against Breast Cancer at Clove Lakes Park.

On campus, Tri Beta teamed up with the Chemistry Honor Society to create a "mad science laboratory" for the Haunted Hallways trick-or-treat extravaganza. As a group, we led the young children from Staten Island through a maze of skeletons, hearts, brains, and real eyeballs. The kids loved it, but some of the parents looked a little sick! ☺



Most recently, Tri-Beta participated in the annual ODK turkey drive. This year the challenge was to collect canned goods and create a structure representing your organization. In true Biology fashion, Tri Beta created a DNA double helix that was undergoing replication. The event collected over 200 cans for The Seamen's Society for Children and Families.

It has been a wonderful semester, and all of the members of Beta Beta Beta have been truly magnificent! We can't wait to continue our work next semester.

Contributed by Christina Lamb

OPPORTUNITIES

This section of the newsletter is open to faculty or staff to announce opportunities for students in their research. Internships may be recommended here. Volunteers may be found through postings in this section.

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 principle investigators of this project address larval mosquitoes, because it appears more straight forward to fight these vectors as long as they are confined in an aquatic habitat.



In collaboration with colleagues from the US (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 2-3 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

EXPERIENCES

CLEAN-UP OF BLAZING STAR BURIAL GROUND

The Blazing Star Burial Ground is located on Arthur Kill Road in Rossville with a view on the ship graveyard that has attracted many photographers to document this "natural art" of an industrialized society. The weather was threatening an initiative of the Department of Biological Sciences to clean the burial ground. Heavy rain and gusty winds made the first trial on October 27 impossible. However, on November 3 loads of



candy wrappers and fast food utensils, hundreds of plastic and glass bottles, some car tires and seats and an air conditioner were found on or close to the old burial ground and were prepared for the pick up by the

NYC Department of Parks and Recreation.

Cleaning a historic burial ground sounds more like an activity of a history department. The neighborhood to the ship graveyard may favor the connection to an art department. However, why do biologists get involved? Indeed, the predominant interest of Wagner's Department of Biological Sciences is not related to the cemetery but to the shore line of Arthur Kill behind it. A path from the tree-embedded burial ground leads down a slope to approximately seven acres of grassland that, entrenched between two reed grass belts, borders the mudflats of Arthur Kill. This area has the potential to develop into a site where Wagner students could study flora and fauna of an interesting coastal biotope and how an industrialized society influences it. Ecological and ecophysiological courses could use the area for field trips, and students could develop research projects for their senior thesis, observing and studying this site between Arthur Kill Road and the mudflats.

Of course, profit does never come without cost, but the chances to benefit increase with the efforts invested. A beginning has been made and it is planned to soon extend the activities to the grassland itself. We may be able to one day convince the NYC Department of Parks and Recreation to support us and to develop an area that is today considered as dangerous into a nature preserve for the people of Staten Island. May the presence of the burial ground and of the ship graveyard stimulate other departments to join our efforts. For the time being our thanks go to the team of the first clean-up.



Contributed by Dr. Onken





FORMS AND FUNCTIONS ON THE ROAD

Professor Beecher's Forms and Functions class has been working very hard this semester. Even so, we did manage to have a little fun. During the time that we were studying plant forms and functions, we visited the **Staten Island Botanical Gardens**, where we enjoyed experiencing the diversity of plant forms and considering how these forms are related to their functions. We also took a trip to the **Staten Island Zoo** during our discussions of comparative forms and functions of animals. We each chose an animal to study in-depth, and we are sharing what we learned about these creatures' ranges, habitats, adaptations, conservation statuses, and diet with each other through papers. Please learn more about the places we visited by clicking on the links below. Also included is a link to the Staten Island Greenbelt, which is an interconnected system of undeveloped land on Staten Island that contains many parks and hiking trails. Enjoy!



<http://www.sibg.org/>
<http://www.statenislandzoo.org/>
<http://www.sigreenbelt.org/>

Contributed by Professor Beecher

BIODIVERSITY AND ECOLOGY CLASS TOURS BEHIND THE SCENES AT THE AMERICAN MUSEUM OF NATURAL HISTORY (AMNH)

As a required component of the *Biodiversity and Ecology* course, which is team-taught each semester by Drs. Brian Palestis and Donald Stearns, the students are treated to a



behind-the-scenes tour of the American Museum of Natural History. Last December, the fall semester class met at the museum, where they were introduced to the entomologist and ecologist Dr. Sacha Spector. Dr. Spector took the students to his research area in the bowels of one of the buildings, where he described his responsibilities as Manager of the Invertebrate Conservation Program of AMNH's Center for Biodiversity and Conservation, one of several centers worldwide that form a network aimed at conserving species. As questions were coming nonstop, students peered through microscopes to see the diversity of carapace structures and colors of several species of scarabaeine dung beetles, Dr. Spector's particular area of expertise. The students were then taken to a collection room with mechanically movable rows, where they were

shown truly strange and fascinating species of insects such as stick insects, beetles, and other insects from all over the world. A lepidopterist/curator on the floor described the diversity of the museum's butterfly collection—one of the best collections in the world—and showed the students some outstanding specimens. We were told the incredible, true, and still not completely understood story of the migration of the monarch butterflies between their spring/summer locales in the United States and their fall/winter home in central Mexico.

After lunch in the museum's cafeteria, the students visited the Biodiversity Exhibit, a permanent exhibit that serves as a useful review of the course. The students also visited the Hall of Ocean Life, another exhibit that helps as the students prepare for their oral finals. The entire tour was peppered with excellent questions—always a good sign.

The class takes this tour each semester, and others are invited to come as well. This time, Professor Linda Rath joined us and took the photograph that accompanies this article. Everyone had a great educational experience and a good time; two students even inquired about museum internships. For those of you in the course right now, you have a treat in store for you.

Contributed by Dr. Stearns, Dr. Palestis and Professor Rath.

LITTLE KNOWN FACTS ABOUT HIPPO POOP

Two summers back, I was very fortunate to receive an invitation to visit my niece who is a high school Physics teacher in Zambia, Africa. We were simply delighted and got ready for the trip and made sure we took the shots and got our malarial pills and did all the right readings. We landed in Lusaka, the capital city of Zambia and took a helicopter ride to Chingola where my niece teaches. She had planned a safari for us in the South Luango National Parks in Zambia. Our cottage was right within the Safari Park and we lived for four days in THE WARTHOG LODGE, Built on Stilts and overlooking the river where the Hippos roam. Safari trips are usually done in the early morning hours or late in the day and we were lucky in that we saw all the big fives (Hippos, elephants, lions, leopards and the buffalos) in additions to a whole variety of other animals. Hippos were everywhere, mostly soaking themselves in the river with Nile cabbages growing all over them. They come out with their kids, make those snorting noises and relieve themselves all over. And when they do the mighty hippo's shit goes flying everywhere like a giant spray coming out of volcanic eruptions. The tiny excuse for a tail positioned directly above the hippo's rump acts as a wind shield wiper. It



spins faster and faster like the tip of a dradle and there you have it "a spray of feces" Intrigued by this strange sight I asked my safari guide for an explanation and here we have it.

During the days of creation, when God was busy making all the creatures and placing them in the right places on earth, the Hippo with





its tender and soft skin got misplaced in the harsh tropical climate along with the pachyderms and the Rhinos. The harsh heat of the tropics burned the Hippo's skin and so they went back to God to get moved out of Africa to a better place, a nice cold country But alas God refused to do this The Hippos pleaded for the next best option – to get placed in the waters with all the water creatures. God was not willing to do this since he was concerned that the mighty Hippo will make a meal of all his water animals. "They are all smaller and are not capable of defending against you. So I cannot grant you this wish": was God's answer to the plea of the Hippo. Hippo promised that he will remain a vegetarian and never eat any of God's creatures if he gets his wish. : How do I know that you will keep you promise?" asked the Almighty and the Hippo replied that he will get on land and spray out his shit so that it can be checked easily to make sure that he is keeping his promise. And to this date the Hippo has kept the Promise

Contributed by Dr. Moorthi

CLASS FIELD TRIPS TO WASTEWATER TREATMENT PLANT PROVIDES MEMORIES, OLFACTORY AND OTHERWISE

During the fall, 2007 semester, two classes (Dr. Cook's FYP *Reflective Tutorial* and Dr. Stearns' *Environmental Biology* class) toured the Edward P. Decher Secondary Wastewater Treatment Facilities. This plant collects residential and industrial wastes from eleven municipalities (600,000 people) in Essex and Union counties, in New Jersey. The plant is owned and operated through the partnering of these municipalities; that partnership is called Joint Meeting of Essex and Union Counties.

Each class trip was arranged ahead of time by the course instructor and involved an on-site tour guide. Students learned firsthand the steps involved in sewage treatment:

- preliminary treatment that removes non-sewage items such as chunks of wood and rags
- primary treatment that separates "floatables" like oils and greases from the heavier stuff called sludge
- secondary treatment where large vats of organic matter are aerated like giant chocolate milk shakes to keep the teeming bacteria there alive so they can break down the organic molecules
- anaerobic digestion, which is similar to secondary treatment except that the involved bacteria are anaerobic and therefore are kept in large, sealed containers away from free oxygen
- chlorine treatment of the water to kill possibly toxic organisms, then chemical removal of the chlorine before the water is pumped into the Arthur Kill
- dehydration of the leftover solids to make the final sludge for out-of-state landfills and possible use as fertilizer for plants not used for human consumption

Students also learned that the facility uses the methane gas released by the anaerobic digesters to fuel generators to produce electricity, cutting the cost of electricity for the plant by close to half. They also learned that drug busts upstream from



the plant often result in lots of cash suddenly turning up at the treatment facility after being flushed. They also learned that gulls will swim in and eat just about anything.

Such field trips are clear reminders to us all of the environmental impacts of our own biological processes when replicated in large numbers. These trips also falsify the out-of-sight, out-of-mind myth when it comes to dealing with waste.

Contributed by Dr. Stearns and Dr. Cook

SECOND ANNUAL HOLIDAY CELEBRATION

After the very successful Holiday Celebration last year at the German restaurant "Killmeyer", faculty, staff and some students of the science departments met on December 11 for the second Holiday Celebration at the Restaurant "R. H. TUGS" on Richmond Terrace. The photos below (taken by Dr. Moor-thi) clearly show that it was again fun to meet with colleagues in a different setting than in the Science Building.





Stephanie:

Thank you for your efforts organizing the event!



Contributed by Dr. Onken with photographs from Dr. Moorthi

PUBLICATIONS

Gerwing, J., McConnell, D., **Stearns, D.**, and S Adair. 2007. Critical thinking for civic thinking in science. *Academic Exchange Quarterly* 11(3):160-165

Freire, C.A., **Onken, H.** and McNamara, J.C. (2008, *in press*). A structure–function analysis of ion transport in crustacean gills and excretory organs. *Comparative Biochemistry and Physiology. A*, doi:10.1016/j.cbpa.2007.05.008.

Onken, H., Moffett, S. B. and Moffett, D. F. (2008, *in press*). Alkalinization in the isolated and perfused anterior midgut of the larval mosquito, *Aedes aegypti*. *Journal of Insect Science*, *in press*.

PROFESSIONAL MEETINGS

CONTRIBUTIONS

Palestis, B. G. (2007). Use of artificial eelgrass mats by saltmarsh-nesting common terns. Waterbird Society. Barcelona, October 30-November 3.

Dr. Palestis presented his work also at a local event for the Greater New York/New Jersey Harbor Colonial Waterbirds Working Group, Staten Island, November 27-28. The poster can be visited outside room 309 in the Megerle Science Building

Lamb, C.; Baldeviano, G. C.; Čiháková, D. ; Noel R. Rose, N. R. (2007). Gene expression of inflammatory cytokine IL-17 during the course of Experimental Autoimmune Myocarditis (EAM).

This work reflects Christina Lamb's summer collaboration with Johns Hopkins University, Baltimore, MD.

Pistilli, A., Roxbury, C., Zambidis, E. and Kimmel, S. (2007). MicroRNAs regulate normal and malignant hematopoiesis. 40th Fall Conference of the Metropolitan Association of College and University Biologists (MACUB), St. John's University, New York City, New York, October 20, 2007.

This work reflects Andrew Pistilli's summer collaboration with John Hopkins University, Baltimore, MD.

Stearns, D. (2007). Science in general education: an environmental/human health learning community and the critical-thinking-for-civic-thinking model. Invited presentation. The Mellon Project. *Science in General Education*. September 26, 2007, Hunter College, Manhattan, New York.

SUBMISSIONS

Mosher, R. and Stearns, D. (2008). Direct Measures for Assessing the General Education Program at Wagner College. Association of American Colleges and Universities. Integrative Designs for General Education and Assessment. Network for Academic Renewal Conference, Boston (MA), February 21-23.

Onken, H., Cataldo, C.S., Coppolo, J.A., Lamb, CM., LoRe, E.G., Post, A.K., Zangara, N.E. An Animal Physiology lab project that promotes undergraduate student interest and responsibility. Federation of American Societies for Experimental Biology, Experimental Biology meeting, April 2008.

Onken, H., Patel, M., Javoroncov, M., Moffett, S.B., Moffett, D.F. Apical Na⁺/K⁺-ATPase and strong alkalization in the anterior stomach of larval yellow fever mosquitoes (*Aedes aegypti*). Federation of American Societies for Experimental Biology, Experimental Biology meeting, April 2008.

Onken, H., Parks, S., Goss, G., Moffett, D.F.; Extremely alkaline intracellular pH in the anterior stomach of larval yellow fever mosquitoes (*Aedes aegypti*). Federation of American Societies for Experimental Biology, Experimental Biology meeting, April 2008.

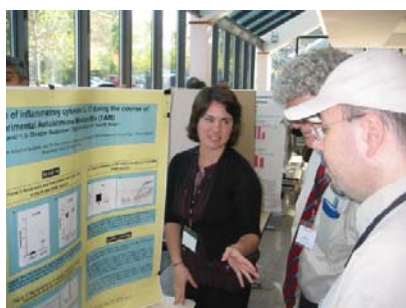




REVIEWS

STUDENTS AND FACULTY AT MACUB

The 40th fall conference of the Metropolitan Association of College and University Biologists was held at St. John's University in Queens on Saturday, October 20. A busload of faculty members and students were driven to Queens by our awesome department secretary, Stephanie Rollizo. After settling in with the traditional breakfast, the president of MACUB, Professor Gary Sarinsky from Kingsborough Community College, welcomed everybody to celebrate the fourth decade of the Society and its meetings. The first keynote speaker, Paul Fisher from the Columbia-Presbyterian Medical Center, presented his contribution entitled "Differentiation Therapy of Cancer: From Bench to Bedside." After these truly exciting news about the advances of cancer therapy, the meeting continued with a poster session.



Two students from the Department of Biological Sciences at Wagner College, Christina Lamb and Andrew Pistilli, presented the results of their summer collaborations at John's Hopkins University.

After lunch and after another keynote speaker (Sam Rhine addressed "Advances in Pluripotent Stem Cell research") the afternoon was spent with workshops and presentations of member papers. In this frame Dr. Stearns organized the Workshop "Teaching Critical Thinking / Civic Thinking in Science using an NSF-Funded Model".

Contributed by Dr. Onken

ALUMNI

Dear Alumni,

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

You will receive this newsletter by e-mail every first month of a semester (January and September). These two newsletters are special issues that review the previous semester. If you would also like to receive the monthly newsletter (that repeats itself until it grows into the next special issue), send me an e-mail requesting to be put on the respective mailing list, or visit our website to download the current issue at

http://www.wagner.edu/departments/biological_sciences/newletter

RECOMMENDED

Recommend a website, a book or a restaurant that you think everybody at our department should have experienced.

YOUR RECOMMENDATION COULD BE HERE!

CLASSIFIED

You want to sell your PC, buy a used printer? Are you looking for company for your Friday night trip to Manhattan or for your weekend trip to the NJ shore? Post it here, if you need help to fix your car or if you are able to fix them.

WANT TO POST YOUR AD HERE?

MISCELLANEOUS

If your contribution does not fit in any of the sections above, you can post it here.

***DO YOU KNOW A SECTION THAT I MISSED?
LET ME KNOW WHICH AND MAKE A CONTRIBUTION!***





PUZZLES, JOKES, QUOTES, CARTOONS

NUMBERS:

- 1
- 11
- 21
- 1211
- 111221
- 312211
- 13112221

What row of numbers comes next? Solution in February!

SOME RIDDLES (FROM NOVEMBER WITH THEIR SOLUTIONS):

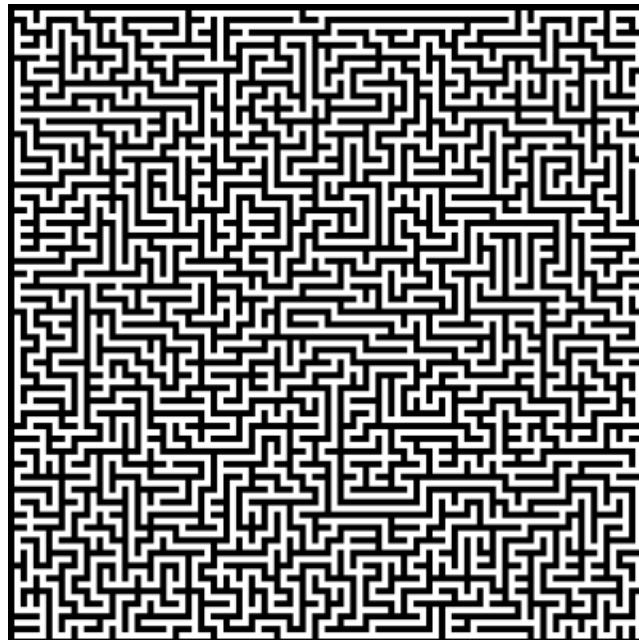
I have holes in my top and bottom, my left and right, and in the middle too, but I still hold lots of water. What am I?
Sponge!

What can run but never walks, has a mouth but never talks, has a head but never weeps, has a bed but never sleeps?
River!

What building has the most stories? **Library!**

Why is the sun so bright? **Because it has so many degrees!**

MAZE:



Find Entry and Exit and their connection!

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 submission of a contribution is the 20th of this 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.

**DEADLINE FOR THE FEBRUARY NEWSLETTER:
MONDAY, FEBRUARY 25**

CARTOON:



THERE ARE ALWAYS OPPORTUNITIES

