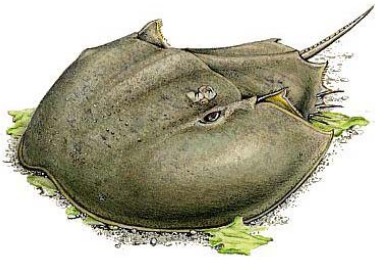
Limulus



NEWSLETTER

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

Volume 2008, Issue Spring-02 **February, 2008**

LETTER FROM THE EDITOR

THE FEBRUARY LIMULUS

Our special edition in January was mailed to alumni of our department and was evidently well received. I got some responses that I insert in this edition under LETTERS TO THE EDITOR. Altogether I think that the start of our department newsletter was quite successful as I conclude from the positive comments by faculty members and students. However, the best support for our efforts is to see students reading the newsletter at the department's board on the corridor when they wait for a class or an appointment.

Now in February it is time to collect department news and interesting contributions again. I inserted some important curriculum changes that will take effect in the fall semester. Some activities of the Biology Club are reported and TriBeta organized a luncheon which was "prey" for Dr. Moorthy's camera. I left my offer for research collaborations in my lab in the newsletter in order to stimulate other faculty members to post the opportunities they can offer in a similar format. We also already have "EXPERIENCES." Read about a class field trip to the Staten Island Greenbelt Native Plant Center and about Dr. Stearns' and Dr. Mosher's trip to Boston to attend a conference. I opened a new "OPINION" section and hope that it will find more contributions in future issues. The 2008 publications, submitted conference contributions and the more entertaining final part with a new cartoon and a new maze complete the February newsletter.

I plan to soon begin a series under "BIOLOGY STAFF AND FACULTY NEWS," addressing the adjunct professors of the department. These often underpaid colleagues should have a platform in our newsletter. I would appreciate if somebody could make a related contribution for the March newsletter. The "BIOLOGY STUDENT NEWS" has still not had a single article. In the last newsletter I announced two Assistant Editor positions for students, hoping that students on the editorial board could give this section of the newsletter more importance and would facilitate student input. Until now nobody responded and I renew the offer for two student assistant editor positions in this issue.

I hope you enjoy the February issue of the newsletter,

Dr. Horst Onken, The Editor

LETTERS TO THE EDITOR

Dr. Onken -

Thank you so much for including me on the distribution list for the newsletter. Also thanks for your time in putting it together - it looks great! If it's not too much trouble may I please be included on the monthly distribution list. Thanks again and I appreciate your time, Michele Leone (formerly Belliveau)

Michele, thank you very much for your nice and encouraging response. Your address was included in our monthly distribution list. We are glad to have you as a monthly reader and we would be delighted to hear more from you. If you like, tell us about your time after Wagner College in a contribution for the "ALUMNI" section. The Editor.

Thank you for sending me the newsletter. Nice to read what the dept. is doing as well as the people doing it. I graduated in '71, BS Biology, Dale Yarns was dept. chairman, Dr. Kanzler, Dr. Kiley as well as others were there. Pls keep me on your e-mail list. bob piegari.

Bob, thank you very much for your response. Unfortunately, I have never heard of the names you mention, since I am a member of the faculty at Wagner only in my 4th semester. May be somebody of the "older" Wagnarians could give us a clue. Of course, Bob, we would also love to hear more of your time at Wagner College, or what you have done since then. Use the "ALUMNI" section of the newsletter, if you like. The Editor.

Dr. O.,

Thanks for including me on your note. I enjoyed reading the Newsletter. I'm going to go out on a limb....if my Bregenz exchange experience serves me well, "Es gibt immer Möglichkeiten" would be better translated, "There are always possibilities" There is folly, I recognize, in presuming to challenge a professor named Horst on German usage! No offense intended. Cheers (Tschüß), Ed (BS '77)

Ed, thank you very much for your mail. Like the others you are very much invited to tell us about your post Wagner experiences in the "ALUMNI" section. I have to admit that Ed and I already had a little e-mail exchange about the translation issue. Would you be surprised to hear that Wagner's German education was excellent (hopefully not only in the 70s)? No doubt, Ed's correction of my translation is absolutely right!

BIOLOGY STAFF AND FACULTY NEWS

!!! NEW SERIES !!!

We are planning a series about presenting the adjunct professors of our department in the future issues of the newsletter. I would very much appreciate any contributions related to this project.

BIOLOGY STUDENT NEWS

A section for news about students of our department.

YOUR CONTRIBUTION COULD BE HERE!

I am still 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

Some curricula changes of the courses taught by the department will be implemented in the fall semester 2008. The updated requirements for the majors are given below. The department's website will be updated soon and will also contain the changes made to the descriptions of the individual courses:

Requirements for a Major in Biology (B.S.)
A minimum of 18 units with the following distribution:
Foundation requirements—5 units of Biology as follows: BI 213, 215, 217, 219, and 221
Upper-level requirements—2 units as follows: BI 311, 333
Upper-level electives—3 units chosen from the following: Any 300-level or higher Biology course(s) with a laboratory or BI 493 or CH 517 or the second Capstone Course listed below.
Senior Learning Community—2 units: BI 400E (zero units), 400, and either 495 Molecular Cell Biology or 492 Ecological and Evolutionary Theory
Cognate courses—4 units of Chemistry and 2 units of Physics: CH 111, 112, 211, and either CH 212 or 517 (if not used as an elective); PY 131, 132 or PY 141, 142

Requirements for a Major in Microbiology (B.S.)
A minimum of 18 units with the following distribution:
Core requirements - 8 units of microbiology as follows: Microbiology 200, 219, 221, 314, 512, 521, 522, 525
Electives - 2 units chosen from: 200-level or higher microbiology courses, Chemistry 517
Senior Learning Community - 2 units: Microbiology 400, 400E, 491
Cognate courses - 6 units of Chemistry and Physics: Chemistry 111, 112, 211, and either 212 or 517 (if not used as an elective); Physics 131, 132 or Physics 141, 142

New Summary of the Biopsychology Major:
14 units including the following required courses and electives: Biology 213, 217, 306; Psychology 101, 351, 442; Biology 221 or Psychology 116; Chemistry 111.
Elective courses (Select two courses from Experimental Psychology and two from Biology)
Experimental Psychology: select 2 courses
Biology: Biology 219, 304, 311, 312, 324, 333.
One of the following senior-level learning communities:
Biology 400 and 400E, and Biology 495 Molecular Cell Biology (recommended for students considering medical school or graduate studies in the biological sciences or neuroscience/neurobiology) or Psychology 400 and Psychology 441 (recommended for students considering graduate studies in psychology or neuroscience with emphasis on biopsychology). *Student must make this decision in their junior year and inform the appropriate department. Students selecting the Biology Senior Learning Community must take Biology 219, because it is the prerequisite to Biology 495.*
Students majoring in biopsychology may not also major or minor in psychology or biology.

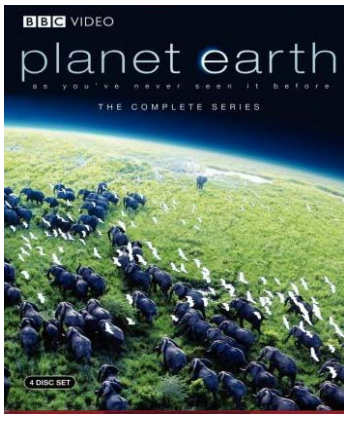
Requirements for a Minor in Biology
A minimum of five units in biology, including BI 213 and at least two additional courses at the 200-level or higher.

Requirements for a Minor in Microbiology
A minimum of five units at the 200-level or higher in microbiology. MI 200 is required and MI 314 and 512 are strongly recommended.

Contributed by Dr. Onken

BIOLOGY CLUB NEWS

The Biology Club meets on Sunday, March 2, at Blazing Star Cemetery for another clean-up of the cemetery and the grassland at the Arthur Kill shore near Rossville Avenue.



The Biology Club is also considering to initiate a Biology Cinema Series, showing the movies from the "Planet Earth" DVD series produced by the BBC and narrated by David Attenborough. The series of 5 DVDs was produced with a budget of 40 million £ and shows the Earth as never before with groundbreaking footage of our planet and its wildlife.

Contributed by Dr. Onken

TRI BETA NEWS

TriBeta organized a faculty luncheon on the 13th of February, offering delicious food, fun and lots of conversation. The following photographs of the event were contributed by Dr. Moorthy:

Contributed by Dr. Onken with photographs by Dr. Moorthy

Three very helpful graduate students of the microbiology program get their share.

Hmmmmmm!

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

VISITING A NATIVE PLANT CENTER

Professor Beecher's Environmental Biology class recently enjoyed a trip to the Staten Island Greenbelt Native Plant Center (GNPC). GNPC taxonomists collect the seeds, shoots, and rhizomes of native plants from various New York City parks and bring them back to the center where they are processed, catalogued, stored, and propagated for use in many local and regional restoration efforts. This is not such an easy task! For example, many native plant seeds require several environmental cues such as temperature and moisture regimes that must occur in a special sequence in order to germinate. GNPC staff must do much research about the ecology and life histories of the plants that they are coaxing into propagation, and use many innovative methods to simulate natural climatic conditions in order to be successful. The GNPC houses Staten Island's native seed bank…one of the very few native seed banks in the country! While walking through their greenhouses, we got an inside peek at some native grasses and sedges, and Tim Chambers and Ed Toth (GNPC directors) shared information on what types of restoration projects these plants were headed for. We learned that the GNPC fills a lot of orders for salt marsh grass *Spartina alterni-flora* which provides habitat for nesting birds and is an important component of the estuarine ecosystem on Staten Island and elsewhere throughout NYC. *Spartina alterniflora* can grow in these special ecosystems because it is salt tolerant, and not inhibited by brackish water. The GNCP is providing most of the native plant needs for the restoration of the Staten Island landfill. This is one of the most ambitious urban restoration projects underway on the planet. It aims to turn a 2,000 acre abandoned landfill into a beautiful interconnected park that will provide not only recreation opportunities and economic development, but also wildlife habitat and ecosystem functions like flood and pollution control to Staten Islanders. Native plants are important to these efforts, because they are co-evolved with other native species and the conditions of the area. They will provide habitat for native animal species and won't require a lot of irrigation and care…planting native species of plants will give the area the opportunity to restore itself!

Contributed by Professor Beecher

WAGNER IN THE SNOW

February 22, 6am, I get out of bed. I had promised Dr. Stearns to give a presentation in his class at 8:30am. When I look out of the window I see white, nothing but white snow. It is a lot of snow, at least a couple of inches. What will my commute be like? After getting through the shower I start the computer in the hope for an e-mail that may release me from the terrible drive during the rush hour. At 06:17:36 AM EST Lee Manchester wrote: "Wagner College is closed for the day due to snow." Thank you so much - you just made my day, preventing me from the hurry through the winter storm.

After a relaxing breakfast I dig my car out of the snow and risk the drive. It took me about an hour for the 12 miles from Rossville to Grymes Hill. When I arrive at the College only staff is there - and students who live on campus. On our floor I meet Ruth who is, as always, busy cleaning. A walk through the snow-covered campus unravels fairy-tale atmosphere: We have a beautiful campus, don't we? At 1pm I am back home, grading with a hot cup of tea in my hand.

Contributed by Dr. Onken.

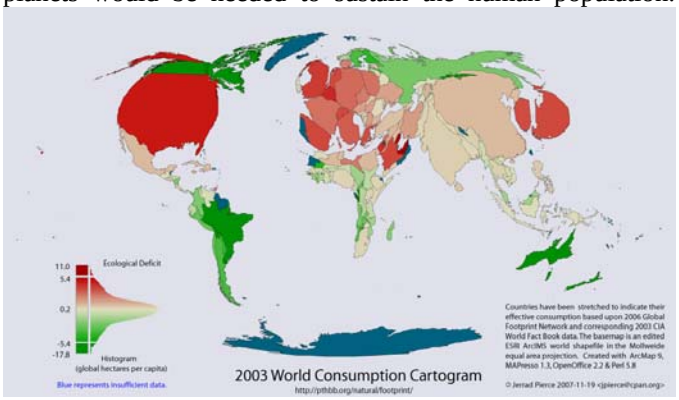
OPINION

GLOBAL WARMING AND SUSTAINABILITY

In the last 100 years the average air temperature at the earth's surface rose by about ¾ of a centigrade and according to the IPCC (Intergovernmental Panel on Climate Change) "most of the observed increase in globally averaged temperatures since the mid-twentieth century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations." The above conclusion by the IPCC has been endorsed by numerous important scientific societies and academic institutions. For example, the American Association for the Advancement of Science stated "The scientific evidence is clear: global climate change caused by human activities is occurring now, and it is a growing threat to society" and the website of the American Physical Society reads "Emissions of greenhouse gases from human activities are changing the atmosphere in ways that affect the Earth's climate. The evidence is incontrovertible: Global warming is occurring." Depending on the measures taken to reduce greenhouse gas emission, climate models predict a temperature increase of up to 6 centigrades during this century, which is a catastrophic threat to the current composition of the biosphere.

The above sounds very convincing to me. Nevertheless, there are some scientists who express doubts about the conclusions of the IPCC. Although they reflect a small minority, their critical input should not be neglected. However, I welcome the direction that the discussion about global warming has taken for another reason. I believe that the threat of global warming offers a chance to change human activities on this planet to return to a sustainable coexistance of the human society with the rest of the natural world, a path that humanity has evidently left before or during my lifetime.

Sustainability can be defined as the capacity of an ecosystem to maintain ecological processes and functions, biological diversity, and productivity over time. For the human society it means to use ecosystems and their resources in a manner that satisfies present requirements without compromising the requirements or choices of future generations. As estimated on www.earthday.net my personal ecological footprint amounts to 3.7 global hectares. If everybody would live like I do, two planets would be needed to sustain the human population.



The consumption of most nations of the earth is shown as the area occupied in the map above. The color indicates the ecological footprint of the average citizen of a country, with dark red being over 10 global hectares per person. Thanks to the small ecological footprint of the vast majority of the global population humanity's footprint exceeded the biological capacity of the planet only by 25% in 2003. We consume the "capital" of the natural resources offered by the earth instead of using the "interest." I very much welcome the initiative of Dr. Guarasci to sign the American College & University Presidents Climate Commitment, the installation of the Sustainability Committee, the initiative of Professor Wesby in the Committee of the Whole, and all other efforts to reduce the ecological footprint of Wagner College. I promote below the "Ten Things You Can Do" forwarded by Professor Wesby:

Contributed by Dr. Onken

TEN THINGS YOU CAN DO

1. **Change a light bulb:** Replace regular bulbs with compact florescent bulbs; save 150 lbs of CO_2 per year per bulb.
2. **Drive less:** Walk, bike, carpool, use mass transit; you save one pound of CO_2 for every mile you don't drive.
3. **Recycle more:** Save 2,400 lbs of CO_2 per year by recycling half of your household waste.
4. **Check your tires:** Proper inflation can improve gas mileage by more than 3%; every gallon saved keeps 20 lbs of CO_2 out of the atmosphere.
5. **Use less hot water:** It takes a lot of energy to heat water. Install a low flow showerhead to use less hot water (saves 350 lbs of CO_2 per year).Wash your clothes in cold or lukewarm water (saves 500 lbs of CO_2 per year).
6. **Avoid products with a lot of packaging:** Save 1200 lbs of CO_2 per year by cutting down your garbage by 10%.
7. **Adjust your thermostat:** Move down 2 degrees in winter and up 2 degrees in summer - save 2000 lbs of CO_2 per year.
8. **Plant a tree:** A single tree will absorb a ton of CO_2 in its lifetime.
9. **Be smart about electronics:**
   a. Turn off electronic devices. Turn off your TV, DVD player, computer or other device when you're not using them; save thousands of pounds of CO_2 per year
   b. Unplug electronics from the wall when you're not using them. Even when turned off, things like hairdryers, cell phone chargers and televisions use energy. In fact, the energy used to keep display clocks lit and memory chips working accounts for 5 percent of total domestic energy consumption and spews 18 million tons of carbon into the atmosphere every year!
   c. Choose energy efficient appliances when making new purchases. Look for the Energy Star label on new appliances to choose the most efficient models. If each household in the U.S. replaced its existing appliances with the most efficient models available, we'd eliminate 175 million tons of carbon dioxide emissions every year!
10. **Spread the word:** (visit www.climatecrisis.net) See *An Inconvenient Truth* and other films and programs on climate crisis. Stay informed. Support measures to curb further carbon emissions.

Contributed by Professor Roger Wesby

PUBLICATIONS

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 Physioogy. 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*.

Moffett, D.F. and **Onken, H.** (2008, *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.

PROFESSIONAL MEETINGS

CONTRIBUTIONS

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.

SUBMISSIONS

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 (FASEB), Experimental Biology meeting, April 2008.

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

REVIEWS

Dr. MOSHER AND Dr. STEARNS REPRESENT WAGNER COLLEGE IN BOSTON

Approximately 800 participants attended the conference of the Association of American Colleges and Universities (AAC&U) in Boston, MA. Drs. Mosher and Stearns presented a poster during a well-attended poster session. The abstract of this contribution is reprinted below.

Mosher, R. and **Stearns, D.** (2008). Direct Measures for Assessing the General Education Program at Wagner College. *Wagner College is a private institution of 1,800 undergraduates and 300 graduate students located in Staten Island, New York. The college's undergraduate curriculum is centered on the Wagner Plan for the Practical Liberal Arts, which requires that students complete a general education program (GEP) and an in-depth major to graduate. The GEP includes foundation courses, two intercultural courses, learning communities with experiential learning components, reflective tutorials, and courses that fulfill disciplinary perspectives. The primary goals of the GEP include: (a) critical and civic thinking skills; (b) competency in listening, speaking and writing; and (c) a competency in "learning by doing." The GEP is evaluated using an overlapping assessment strategy that utilizes multiple tools to evaluate student progress, both directly and indirectly. Direct methods employed include the Writing Assessment Project, the Collegiate Learning Assessment, and assessments from the Critical Thinking for Civic Thinking initiative. Through this poster session, audience members will learn more about Wagner's assessment strategy and consider both its benefits and its limitations.*

This presentation was identified as a LEAP (Liberal Education and America's Promise) Campus Action Network Exemplar by the AAC&U, because it addressed some of the desired student learning outcomes presented by LEAP as important for a liberal education.

During the conference, Drs. Mosher and Stearns also met with representatives from Belmont University, a small university in Nashville, Tennessee. Belmont and Wagner are working together on a funded grant with the goal of developing assessment tools to directly measure the value-added component of experiential education. Dr. Mosher served on a panel at the AAC&U conference, to discuss this joint venture with a larger audience.

Contributed by Dr. Stearns

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 submission, 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/newsletter

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 MISS A SECTION? LET ME KNOW WHICH AND MAKE A CONTRIBUTION!

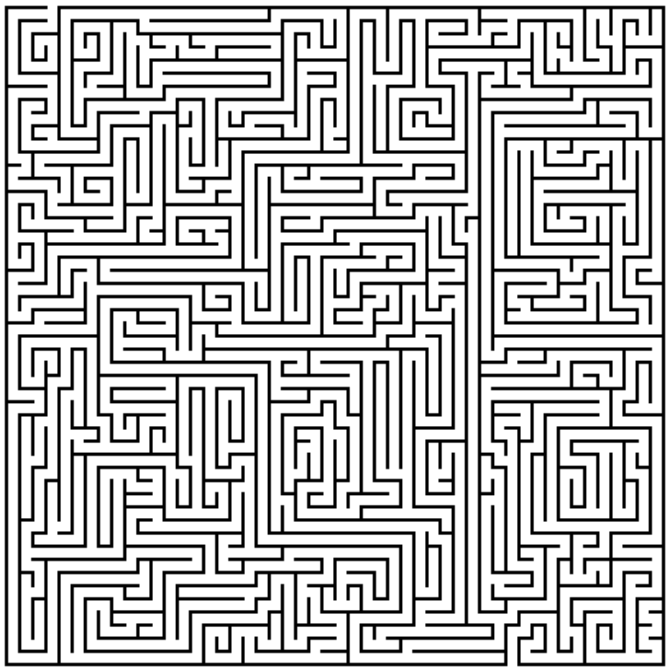
PUZZLES, JOKES, QUOTES, CARTOONS

NUMBERS:

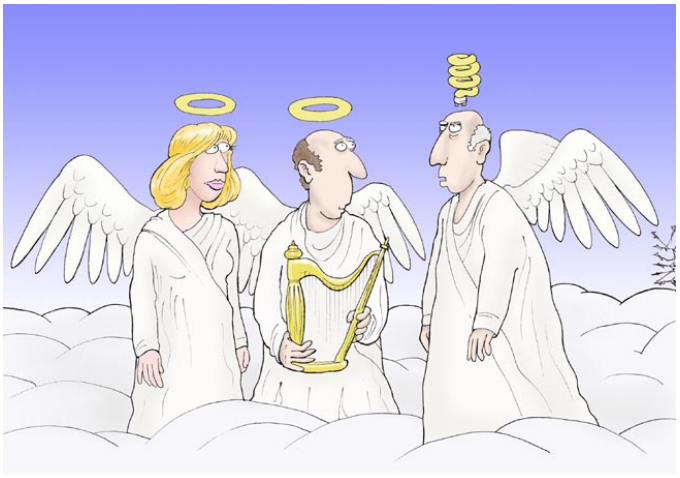
1
11
21
1211
111221
312211
13112221

What row of numbers comes next? Solution: 1113213211. What is the next row? Send an e-mail to the editor with the system that explains which row is next.

MAZE:



CARTOON:



"Don't laugh, you're next. St Peter says these new units are more energy-efficient."

Don't laugh. You're next. St. Peter says these new units are more energy-efficient.

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 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 MARCH NEWSLETTER:

MONDAY, MARCH 24