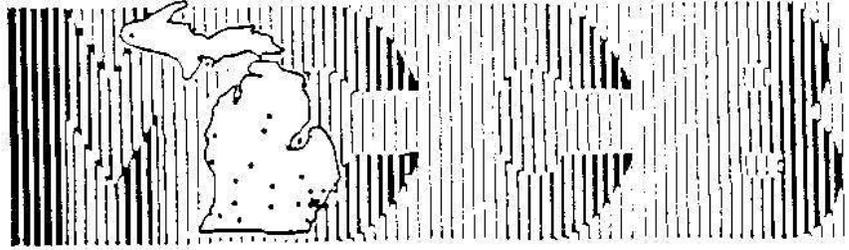


MCCB NEWS

Summer 2007

www.mccb1.com



Michigan Community College Biologists



Mom and baby Polar Bears at the Arctic Encounter exhibit

Big Fun at a small Zoo

On May 19th, a small group of MCCB members and their families traveled to the Toledo Zoo. In attendance were Past President Mark Robertson (Delta College) and his wife Cathy and 2 kids, Amy Weaver (Montcalm CC) with her mother, daughter and daughter's friend, Ed Hoffman (Macomb CC), Mario Lamberti (Oakland CC) and his wife Kelly, and your intrepid Communications officer, Susan Starr (Washtenaw CC).

We started off the morning at the Aquarium where the Aquarist, Jeff Cypher (an EMU grad) took us on a behind the scenes tour. We learned all about how the tanks are maintained, the filtering systems used at the aquarium, and how much "Instant Ocean" salt they go through (thousands of pounds per year, their largest upkeep expense). We also heard about how surgery is performed on sharks(!), and how the 120 pound, 5+ foot long South American Arapaima tries to jump out of the tank regularly, putting holes in the cage surrounding the tank and necessitating a several inch thick foam lining around the

cage to prevent it from jumping out completely or injuring itself. There are lots of invertebrates, too. We learned about the care and feeding of moon jellies, and that their female octopus recently laid eggs and now will die (since she didn't have to access to a male, the eggs are infertile). We spent the rest of the day wandering individually and in small groups around the Zoo. I met and joined several group throughout the day, then went my own way eventually to meet with another individual or group. It was a most enjoyable way to spend a saturday afternoon.

In This Issue:

- Conference review
- Biology in the news
- Toledo Trip review
- Fall Conference preview

Komodo Dragon in Science Museum at left

Giraffe and Wildebeasts in Afrika! exhibit (with 'termite mounds' in background) at right



Spring conference in beautiful Alpena Oct. 12,13

Deb Hautau, and Mike Milostan, (Alpena Community College) are hard at work planning the fall conference . The weekend of October 12, 13 was chosen for a couple of reasons: the expectation of great fall colors at that time, of course, and it is also the same weekend as the Great Lakes Lighthouse Festival in Alpena, which is Oct 11-14. There will be lots for our families to do while they we at the conference, and for ourselves to do if we come early and/or stay past the convention dates. BUT that also means you will need to make your reservations NOW. The best place would be the Holiday Inn which is a block from campus and has an indoor pool (989) 356-2151. Second best bet would be the Days Inn (with indoor pool) but is about 2 miles from campus (near Walmart and Lowes) at (800) 582-9050. Across the street from Days Inn is a Best Western at (800) 937-8376. Then there are numerous small places. But you REALLY need to book early.

Deb and Mark tried to reserve a bank of rooms at the Holiday Inn but they wouldn't allow it due to the expectation of a full house even without the extra conference booking. It looks like a great line-up of speakers and activities is being planned. Deb will present a session on Bees/ Beekeeping in the classroom. (Can you imagine???) I attended a workshop on a botany lab that Deb presented several years ago, and found it so interesting and fun that I used that lab every time I taught Botany from then on! In other words, Deb is a very effective presenter. They are also working on lining up a presentation at the National Marine Sanctuary in Alpena. As many of you know, there are a great number of shipwrecks in the Great Lakes, and a lot of interesting fish and invertebrate habitat because of them. It would be fascinating to see this sanctuary and learn about how it operates. Mark arranged to book a speaker, Dave Clark, from Alma College to come up and present on his latest research. He is working in two areas: spiders and tuataras. I don't know which he is presenting on, but either could be great. Another speaker is in negotiations who might present on toxicology but that has yet to be confirmed.

As you can see, as every conference is at this stage, it is a work in progress. I'm sure Mark and Deb will put together a great conference (as they did several years ago, the last time we went to Alpena). I can hardly wait!



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New Education Department Official Says She'll Work to Raise Profile of Community Colleges

By ELYSE ASHBURN

Raising the profile of community colleges will be one of the top priorities of the new senior official in charge of two-year institutions at the U.S. Education Department.

In order to do that, Patricia Stanley, the agency's new deputy assistant secretary for community colleges, told a group of college leaders meeting in Washington last week, she plans not only to "preach to the choir" but also to talk to groups of business leaders, four-year college officials, elementary- and secondary-school educators, and citizens about the work of the nation's community colleges.

"There still isn't a good understanding sometimes in the general public about what we do," she said in an interview after her speech to a joint meeting of the American Association of Community Colleges and the Association of Community College Trustees.

Ms. Stanley, a former president of Frederick Community College, in Maryland, said she would also focus on raising community colleges' profile within the Education Department and developing an online portfolio of best practices and key data for those institutions.

Ms. Stanley took office in December, when the Education Department's then-vacant position of community-college liaison was elevated to a senior-level post.

<http://chronicle.com> Volume 53, Issue 25, Page A17 Detroit Free Press 3-1- 2007

-submitted by Harry Benson

Lawrence Tech plans new cell biology degree

Lawrence Technological University (in Oakland County) is starting a bachelor of science degree in molecular and cell biology in time for the fall term.

It will be the first undergraduate degree program in that area of biology in Michigan, according to a news release from the university.

For information, call 248-204-3603 from 7 a.m. to 6 p.m. weekdays or go to www.ltu.edu/arts_sciences/molecular_cell_biology/index.asp

-submitted by Pete Clason

Cool Websites:

Here are some very cool websites for you to check out (in addition to www.mccb1.com, of course!):

1. Tree of Life website: <http://www.tolweb.org/tree/>

The Tree of Life Web Project is a collaborative effort of biologists from around the world. On more than 5000 World Wide Web pages, the project provides information about the diversity of organisms on Earth, their evolutionary history (phylogeny), and characteristics. Each page contains information about a particular group of organisms.

2. <http://www.nlm.nih.gov/medlineplus/tutorials/>

This website is managed by the National Institutes of Health (your tax dollars at work ... and doing something positive!). It contains dozens of tutorials about diseases, disorders and conditions of humans that are written in accessible language that students can use for basic research.

3. <http://ublib.buffalo.edu/libraries/projects/cases/ubcase.htm>

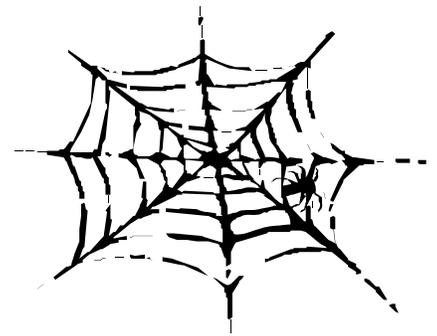
The National Center for Case Study Teaching in Science, managed by the University of Buffalo. This website has hundreds of fully developed case studies in every area of science: botany, anatomy and physiology, zoology, general biology, environmental science, chemistry, and many that cross over several disciplines. It is free, although you must register to get the teaching notes.

4. http://go.ucsusa.org/cgi-bin/RES/state_standards_search.pl?template=main

The Union of Concerned Scientists website for calculating your energy usage, for figuring out if you could install alternatives (solar, wind) at your location, and, if so, how long it would take to pay back your investment.

5. http://site.educatorstravel.com/home/et1/how_it_works_main.html

Educators Bed and Breakfast Travel Network: if you join, you can book Bed & Breakfast rooms for \$40/night double occupancy. What a deal! Membership is open to all current, former and retired educators.



Biology Class Visits Costa Rica

Biology 2602: Biodiversity in the Tropics was offered at Oakland Community College for the first time during the Winter 2007 term. This course offered students the opportunity to study tropical biology and visit the rainforests of Costa Rica during the semester break. The group consisted of two biology faculty and fifteen students.

Course objectives centered on the structure and function of the rainforest ecosystem with an emphasis on interspecific interactions, and the distinguishing characteristics of the microclimates we were intending to visit: wetlands, lowland tropical wet forests, cloud and premontane rainforests. Additional lecture topics included Costa Rican culture, history, economics, agriculture, and conservation efforts.

The trip itinerary consisted of a visit to the Monteverde Cloud Forest, hikes and lectures at San Luis Ecological and the La Selva Research Station, a tour of a coffee plantation, a view of the Arenal Volcano, La Paz Waterfall, and a boat tour through the Caño Negro Wildlife Refuge. The species diversity was spectacular. Memorable sightings included: bromeliads, orchids, sloths, howler monkeys, coatis, caimans, blue-jeans frogs, herons, toucans, hummingbirds, leaf cutter ants, and an eyelash viper. Student assignments included a field journal and a poster presentation involving an in-depth study of a related biological topic of their choice.

We would like to thank Ralph Gorton of Lansing Community College. His Costa Rica course was our inspiration and we appreciated how generously he shared his resources with us. It was a fabulous experience!

Julie Seiter
Dawn Edford

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dmedford@oaklandcc.edu



Dawn,
Julie and
their
students
hike along
a raised
pathway
in the
rainforest
canopy in
Costa Rica

Wine at the Spring conference

Dr. Gerald Goldstein the Chair of the Department of Botany & Microbiology at Ohio Wesleyan University in Delaware, Ohio presented to us on the topic of Enology: The Microbiology of Wine. He gave us a bit of the history of wine, and a very thorough overview of the actual processes involved in wine making, including the differences between making white wines and red wines, and what gives a wine its color. We learned about different grapes, how many wine makers grow their own grapes, but not all of them. I had thought that pretty much all wines that are named for a grape type (like Zinfandel, or Cabernet) were made of just that grapes juice, but learned that only a majority of the juice must be from that grape and that other grapes may be included in these wines. We learned about storing wines and grapes, too. He even discussed the various materials to seal wine containers, from crocks in the ancient world to the high tech artificial corks of today. I was surprised to learn the screw tops were not necessarily the sign of cheap (undesirable) wine! We also tasted 4 Michigan wines, 2 white and 2 red, for dinner.

After dinner and the talk by Dr. Goldstein, Mark Robertson (Delta) gave a demonstration of the equipment and processes involved in beer making to a small but highly interested subset of the members present.

Inspired by the information presented by Dr. Goldstein, Lynnda Skidmore (Wayne CCCD) developed the following Wine Quiz :

1. The art and science of making wine is called
 - a) enology
 - b) wine science
 - c) fermentation
 - d) weinstube
2. Why are most wines around 12% alcohol?
3. Port wine has 18% alcohol because _____ is added to the wine.
 - a) brandy
 - b) vodka
 - c) whiskey
 - d) rum
4. In 1861 Louis Pasteur was hired by the French Wineries to do what?
 - a) increase alcohol content in wines
 - b) improve the flavor of red wines
 - c) remove bacteria by high heat
 - d) develop higher quality of yeast cells
5. In the Paris Wine Tasting Competition of 1976 what happened?
 - a) French wines took the top 5 places
 - b) California produced the winning entry
 - c) Italy surpassed France for the first time in the number of top honors
 - d) the majority of judge tasters were American
6. How is tannin related to wines?



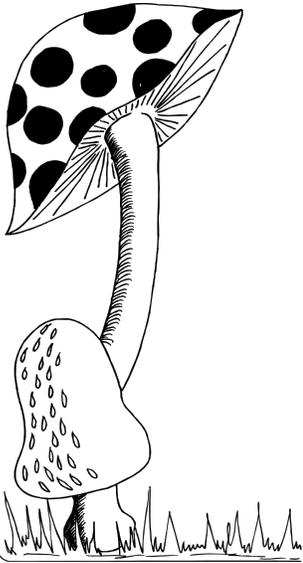
Answers:

1. a ; 2. higher alcohol content kills the yeast ; 3. a ; 4. c, (pasteurization 30 yrs before milk process; 1857 discovered yeast ferments and produces alcohol) ; 5. b. (Cal had 6 of 10 top entries, 8 of 9 judge tasters were French) ; 6. released from oak of oak barrels and provides flavor to wine, now in Cal. use large metal vats, but put oak chips in to provide tannins

Mushroom Boom: Hobby records show climate-change boost

Susan Milius (Science News Online, Week of April 7, 2007; Vol. 171, No. 14)

Mushrooms in England are both popping up earlier and staying around longer than they used to, according to 50 years of amateur naturalists' records. Some species have changed their habits so drastically that they're reproducing twice in the same year. "This is the first time anybody has bothered to look at how fungi are responding [to warming]," says Alan C. Gange of Royal Holloway, University of London. "The trends are dramatic." He says that the inspiration for the study came from his father, Edward Gange, who for decades had kept detailed records of local mushrooms. After retiring from stone masonry, the elder Gange bought a computer, learned how to use a spreadsheet program, and entered his sightings, along with those of other fungi enthusiasts in southern England. He ended up with 52,000 observations. "I suddenly realized, here was an enormous resource," says Alan Gange. A researcher in microbial ecology, he worked through the records with his father and two colleagues. Many climate-change studies focus on spring events such as advances in blooming or bird nesting. The mushroom analysis, however, focused on 315 species that normally fruit in the fall. The team checked the history of each species to see how its fruiting dates related to changes in regional temperature and rainfall.



In the 1950s, the average fruiting season for the mushrooms in the sample lasted 33 days. In this decade, the season has more than doubled, to almost 75 days. Eighty-five of the species have started fruiting earlier, advancing almost 9 days per decade, while 105 species have been hanging around about a week longer. Several species have advanced dramatically. The common fairy-ring mushroom used to send up its rings of beige caps in lawns and fields in September. "Now, it's July," says Alan Gange. Sulfur tuft mushrooms, which once fruited only in the fall, often send up clumps of little caps early in the spring as well. Gange and his colleagues report their findings in the April 6 *Science*. Compared with other creatures shown to be affected by climate change, "fungi are especially sensitive," says Gange. Would he expect such changes elsewhere? "In North America—certainly," he says. "I was surprised at the study," says mycologist David Hibbett of Clark University in Worcester, Mass. The work shows unusually big shifts in species' habits, but "I buy it," he says.

The species in the study perform valuable services in their ecosystems, Hibbett points out. Some break down leaf litter and other debris, and many of them envelop tree roots. The fungi siphon carbon from a plant but boost its supply of nutrients such as nitrogen and phosphorus. Mycologist Rytas Vilgalys of Duke University in Durham, N.C., also welcomes the new work, though he cautions that, so far, "you can't really predict what the effect will be" of the longer fungal seasons. He and his colleagues reported last year that, in a patch of forest, enhancing the planet-warming gas carbon dioxide changes the soil-fungus community, possibly influencing nutrient flow to the trees

References:

Gange, A.C., E.G. Gange, et al. 2007. Rapid and recent changes in fungal fruiting patterns. *Science* 316(April 6):71.

Schoolcraft lands money for project

Schoolcraft College (in Livonia, Wayne County) will receive more than \$5 million in state funding for construction of a new math, science and technology building on its Livonia campus.

"Having a highly educated workforce is essential to making Michigan a magnet for the good-paying jobs of the future, state Rep. Richard LeBlanc, D-Westland, said in a written statement announcing the funding. Schoolcraft College will receive \$5,019,700 to help pay for a new 48,500-square-foot math, science and technology building. The cost of the project is \$12.7 million.

-Detroit Free Press, 4-24-2007, submitted by Pete Clason

Microbiology Break Out Session Report:

The Microbiology subset of the Michigan Community College Biologists met in a breakout session at the Spring 07 conference at Monroe Community College. The group discussed the following items:

-Laboratory safety: Carol Hurlburt reported using a safety committee to review laboratory procedures.

-Microbial pets: The stock cultures we keep and why.

-Case studies: Diane Anderson reported she uses case studies to help students practice the microbiology they have learned. The group thought it would be helpful to develop a library of case studies that have worked for instructors in an introductory level microbiology class. (Editor's note: there are LOTS of Case Studies in Microbiology at the website listed on page 3 of this newsletter)

-Use of microbial examples: We decided we would work on developing a list of microbes commonly used as examples of microbiological principles.

We plan to meet at the Fall 07 MCCB conference, either as a breakout session or more informally (lunch?) and discuss the ASM Educators Conference and Michigan Branch meeting.

Stem cell study homes in on ALS cause

By Maggie Fox, Health and Science Editor Sun Apr 15, 3:00 PM ET

Mutated nerve cells called glial cells may secrete the poisons that cause amyotrophic lateral sclerosis (ALS), also known as Lou Gehrig's disease, researchers reported on Sunday. Two reports published in the journal *Nature Neuroscience* may show new ways to treat the degenerative nerve disease, which slowly paralyzes its victims until they die. Both studies used embryonic stem cells from mice to generate batches of cells that mimicked the disease. The researchers said the studies demonstrate that embryonic stem cells can be vital for basic medical research. Such batches of cells could also be used to test new drugs to treat the incurable and almost always ALS, also known as motor neuron disease. "These findings are particularly significant for two reasons," said Dr. Kevin Eggan, a stem cell expert at Harvard University who led one of the studies. "They provide a proof of concept — if you have embryonic stem cells that carry the genes for a disease, in this case ALS, you can make limitless quantities of the cells effected by the disease (and) study the disease process," he said in a statement. "Additionally, both we and our colleagues at Columbia have demonstrated that in patients with this particular genetic form of ALS there is a toxic factor causing the cells to die." Both teams showed that the nerve cells called astrocytes, which are supposed to support and feed neurons, turn toxic when they carry a mutated gene called SOD1, which has been linked with ALS in the past. Dr. Serge Przedborski of Columbia University in New York and colleagues created mouse motor neuron cells that carried mutated versions of the human superoxide dismutase-1 or SOD1 gene. But these mutated cells did not cause the damage typically seen in ALS when grown in lab dishes of cells. Then they created astrocytes carrying the mutated human SOD1 gene. Astrocytes are one of the types of glial cells — support cells in the brain and nervous system that secrete various compounds that nourish neurons.

When SOD1 is mutated in these glial cells, Przedborski and colleagues found, one of the nourishing proteins apparently turns toxic. When they grew astrocytes with mutated SOD1, they killed the neighboring mouse motor neuron cells. "These findings indicate that astrocytes may play a role in the specific degeneration of spinal motor neurons in ALS," Przedborski's team wrote. If that particular bad protein can be identified, it might lead to a drug that could treat ALS. The use of embryonic stem cells can provide a good way to test potential treatments, both teams of researchers said.



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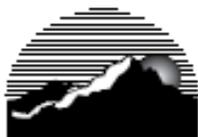
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