News bytes

FDA approves new meningitis vaccine

WASHINGTON, D.C. (AP) — The Food and Drug Administration approved a new vaccine to protect people age 11 to 55 against bacterial meningitis, which is rare but potentially deadly and debilitating.

The French company sanofi pasteur received approval from the federal agency to manufacture the vaccine Menactra to protect against the A, C, Y and W-135 strains of bacteria that cause meningococcal diseases.

The FDA granted approval on Friday. Sanofi pasteur said a single dose of Menactra showed enough power to protect students all through their college years; the current vaccine required booster shots to cover a similar period.

Nelson marketing earth-friendly fuel

DALLAS (AP) — "On the Road Again" means something new for Willie Nelson these days — a chance for truckers to fill their tanks with clean-burning biodiesel fuel.

Nelson and three business partners recently formed a company called Willie Nelson's Biodiesel that is marketing the fuel to truck stops. The product — called BioWillie — is made from vegetable oils, mainly soybeans, and can be burned without modification to diesel engines.

Nelson

It may be difficult to picture the 71-year-old, hair-braided Texas rebel as an energy company executive, but the singer's new gig is in many ways about social responsibility — and that is classic Nelson. "There is really no need going around starting wars over oil. We have it here at home. We have the necessary product; the farmers can grow it," said Nelson, who organized Farm Aid two decades ago to draw attention to the plight of American agriculture.

Vending machines to target obesity

WASHINGTON, D.C. (AP) — The vending machine industry, taking heavy criticism as kids and other Americans get fatter, is launching an anti-obesity marketing campaign to improve its image and fend off efforts to remove machines from schools.

A big part of the effort: Color-coded stickers on vending machines to separate healthful items from those that hungry snackers should, in the industry's words, "choose rarely."

The National Automatic Merchandising Association's effort, "Balanced for Life," includes computer software available to schools for $100 that was developed by a hospital to rate food by color codes.

Images of Titan surprise scientists

DARMSTADT, Germany (AP) — Pictures snapped by the Titan probe and a low, whooshing sound picked up by an on-board microphone drew gasps and applause from scientists, as the mission to Saturn's moon continued its breathtaking revelations from more than 900 million miles across the solar system.

Data beamed back Saturday from Titan, one of Saturn's moons, sketched a picture of a pale orange landscape with a spongy surface topped by a thin crust.

Scientists at the European Space Agency were clearly excited about the success of the mission, which had confirmed some long-held theories and produced startling surprises.

"I have to say I was blown away by what I saw," lead scientist David Southwood said at the agency's headquarters in Darmstadt.

Swift snaps first stellar images

By Greg Prince
COLLEGIAN STAFF WRITER | gmp147@psu.edu

The Swift satellite's X-ray telescope (XRT) has captured some spectacular images in the three weeks that it has been active, including its first gamma-ray burst afterglow.

Swift will use the XRT and two other telescopes working in conjunction to study these explosions, which are some of the most powerful in the universe.

Nine new gamma-ray bursts have been detected since Swift has come online, along with a slew of other events that have proven the effectiveness of the NASA-funded observatory, said John Nousek, professor of astronomy and astrophysics and mission director at Penn State.

Some of the images will not be released until research on the XRT is finalized and made public, Nousek said, probably within weeks.

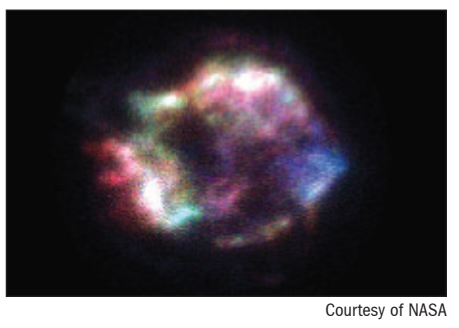
When a gamma-ray burst is detected by Swift's Burst Alert Telescope, the XRT and the Ultraviolet Optical (UVOT) telescopes — both built at Penn State — autonomously swivel to face the burst within a minute.

The UVOT is not up and running yet, Nousek said, but testing is currently being done, and it could possibly be ready by Friday.

"Adjustments are being made to the safety circuitry," Nousek said, because currently the UVOT could damage itself by focusing on an object that is too bright.

The data that is taken in by Swift is sent through relay stations before arriv-

See **SWIFT**, *Page 16.*



Courtesy of NASA

The Cassiopeia A supernova remnant is one of the first images captured by Swift.

In heat

Collegian File Photo

The West Campus Steam Plant, near College Avenue and Burrowes Street, helps produce up to 350,000 pounds of steam an hour.

Steam plants keep Penn State warm

By Kelly Sitch
COLLEGIAN STAFF WRITER | kls416@psu.edu

SOMETHING IS traveling around campus beneath your feet. At any given time, up to 350,000 pounds of steam per hour is moving underneath the sidewalks and other parts of campus, said Bill Serencsits, an Office of Physical Plant (OPP) utility systems engineer.

Paul Moser, OPP superintendent of steam services, said the West and East Campus Steam Plants provide steam for heating all campus buildings, for hot water and for sanitation in laboratories.

The steam is also used to generate 6 to 7 percent of the university's total electricity and is ready to be used as emergency power for the entire campus if needed, he said.

These plants are powered by coal-fired boilers — four at the West Campus Steam Plant (WCSP), between Burrowes and Atherton streets on the southwest corner of campus, and two at the East Campus Steam Plant (ECSP), south of Beaver Stadium.

Combined, they burn about 7,500 tons of coal per year (depending on the weather) at about 2,600 degrees Fahrenheit, Moser explained.

The boilers produce super-heated steam near 540 degrees Fahrenheit, which is then depressurized and cooled before it is delivered to campus, he said.

The steam generated from this process is then sent throughout University Park in steam pipes, some of which are located in steam tunnels that run underneath the campus and are big enough to walk through, Serencsits said.

Moser said coal is delivered every day to the WCSP from Clarion County and is loaded into a hopper, a type of conveyor belt, which carries the coal to the top of the building where it is placed in a 900-ton-capacity bunker to be distributed into the boilers.

Each boiler, towering 35 to 40 feet high and 15 feet wide, is programmed to shake periodically, causing the coal inside to slide slowly down a grating in the boiler as it burns in the furnace, which heats water located in drums in the boiler into steam.

This combustion process super-heats the steam and pressurizes it to about 250 pounds per square inch (psi), Moser said.

The high-pressured steam is sent through turbines to generate electricity, which lowers the pressure of the steam. At this point, the steam is delivered to campus, and excess water is recycled back into the plant to be reused, he explained.

Serencsits said the steam is then carried through a 2.5-mile loop of steam pipes throughout University Park at both low and high pressures.

Many of these pipes are in tunnels directly under campus sidewalks, he said. The vents commonly seen on the sidewalks serve to keep the tunnels from overheating and to keep the tunnels ventilated for workers.

Paul Ruskin, OPP spokesman, explained that heated sidewalks are a benefit of this system.

"Our primary purpose was not to heat the sidewalks," Ruskin said. He added that underneath the sidewalks "was just a convenient place to put the tunnels, and the heated sidewalks are just a by-product of our operation."

Moser said steam tunnels are inspected monthly, and the boilers are inspected during the summer months, when only two of the four boilers need to be operating at the WCSP.

Operations of the steam plants are conducted in such a way to be as earth-

See **HEAT**, *Page 16.*

BPL offers faster Web connection

By Josh Bosack
COLLEGIAN STAFF WRITER
jmb5032@psu.edu

Margo Brown (sophomore-advertising and English) said she feels spoiled because she has high-speed Internet in her dorm.

That's because Brown is from Dushore, a rural area about an hour west of Scranton, and she has to use dial-up to connect to the Internet at home, she said.

"When I go home, I can't be online for long and download music," she said. "It's a pain."

For those students like Brown who don't have access to high-speed Internet at home, a new technology using existing power lines that is currently being researched by Penn State engineers could change that.

Mohsen Kavehrad, W.L. Weiss professor of electrical engineering and director for the Center for Information and Communications Technology Research, and Pouyan Amirshahi (graduate-electrical engineering) have created a model for broadband over power line (BPL).

BPL is an alternative to high-speed Internet connections such as Digital Subscriber Lines (DSL) and cable, Amirshahi said.

In theory, their research based on computer simulations shows it is possible to get a gigabit per second on a medium-voltage power line using BPL, Kavehrad said.

This compares with about 1.5 megabits per second (Mbps) on DSL connections and two to three Mbps on cable connections, although speeds can vary with each line, according to Verizon's and Adelphia's Web sites. There are 1,000 megabits in one gigabit.

Amirshahi said his cable Internet service in State College connects around one Mbps.

"BPL can deliver at least four to five Mbps to an individual house," he said.

The group's research is not finished yet, Kavehrad said. AT&T, which funded their initial study, has given them power lines and modems to conduct actual measurements, which will begin soon, he said.

Kavehrad said he thinks BPL will have an impact in rural areas where high-speed Internet technology is not available.

For instance, people who wish to use DSL connections must live within a certain distance from the origin of the phone line.

"The best way to build up the economy is to build rural areas with technology," he said.

Amirshahi said he believes BPL would be great for poor countries because they already have power lines, but DSL and cable lines are too expensive to set up.

The main drawback with BPL is that the power lines can more easily broadcast interference, Kavehrad said.

BPL could interfere with signals such as those that ham radio operators use, Amirshahi said.

However, both are confident that with more research a solution to the interference problem can be found.

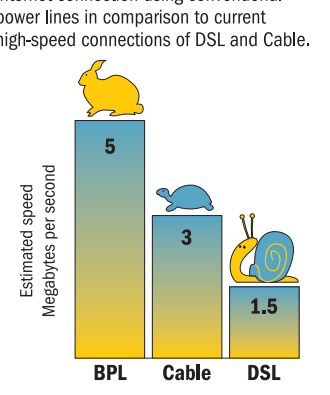
BPL trials have been underway in Manassas, Va., Menlo Park, Calif., and Cincinnati, Kavehrad said.

Current Communications offers BPL to a few neighborhoods in Cincinnati, Amirshahi said.

According to the company's Web site, **www.current.net**, consumers can purchase varying speeds from one Mbps up to three Mbps.

High-speed Internet

Estimated speed of a new type of Internet connection using conventional power lines in comparison to current high-speed connections of DSL and Cable.



Source: Verizon, Adelphia, Pouyan Amirshahi

Jeremy Drey/Collegian

BPL uses a modem that the user plugs into an electrical outlet that connects to the computer using an Ethernet cable, Amirshahi said.

Earlier this month the researchers presented their research results at the IEEE Consumer Communications and Networking Conference in Las Vegas, he said.

During that conference, their paper was accepted for presentation at the International Symposium on PowerLine Communications, which will take place in April in Vancouver, Amirshahi added.

Experts debate safety of Splenda

By Karen Karaszkiewicz
COLLEGIAN STAFF WRITER | kmk304@psu.edu

Sarahrose Greco (freshman-division of undergraduate studies) said she has been using the artificial sweetener Splenda in coffee, tea, and baking products for about two years.

"Apparently, it's better than most substitutes because it is basically made from sugar, but it just has no calories," Greco said. "It tastes just like sugar — I can't tell the difference."

Artificial sweeteners have long been used to sweeten foods without adding calories, but the sugar substitute Splenda has become increasingly popular since it was introduced in 2000.

However, its safeness and side effects recently have raised some controversy among nutrition experts.

While many health professionals agree it is safe, some say Splenda is not a good alternative to sugar.

Monica Montag, a certified nutritionist and holistic health practitioner at Be Well Associates, 669 Berkshire Drive, said Splenda reinforces people's desire for sweets, which is the "exact opposite of what you want."

"It works against weight-loss because you're never satisfied and you keep wanting more sweets," she said. "There have been no studies that show a connection between using artificial sweeteners and weight-loss."

Splenda, the brand name under which the artificial sweetener sucralose is sold, has been so commercially successful that the company that produces it, Tate & Lyle, won't accept any new customers in the United States until 2006, according to a December article by the Associated Press.

Montag said she thinks the low-carb craze may have contributed to Splenda's popularity.

"Splenda has no calories and therefore no grams of carbohydrates," Montag said. "Sweets are high in carbohydrates, and the more people are watching their carbs, the less refined sugar they'll want to eat."

Splenda is non-caloric because the enzymes in the body cannot digest the molecule, said Donald Thompson, professor of food science.

To create Splenda, the three hydroxide groups, which are a basic part of the simple sugar sucrose, are replaced with three chlorine atoms, "with a bit of modification," Thompson said.

"It interacts with the taste receptors on the tongue more efficiently than sucrose to generate sweetness," he said.

Splenda is about 600 times sweeter than sugar, he added.

Thompson said that some high-intensity sweeteners actually are caloric, but they are so intensely sweet that the calories are insignificant. Splenda, however, truly is calorie-free, he said.

Lynn Parker Klees, a registered dietitian and certified diabetes educator at the Centre Medical and Surgical Associates, 1850 E. Park Ave., said the fact that the body doesn't absorb Splenda is part of the reason for the sweetener's success.

"We've had artificially sweetened foods and beverages all along, but this one is theoretically healthier in a lot of people's minds because it doesn't get absorbed by the body," Klees said. "People who would shy away from NutraSweet are a little more open to using Splenda."

Danielle Hack, registered dietitian and the assistant manager of

See **SPLENDA**, *Page 16.*