



Views You Can Use

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Global Trends

China's Investment in Australia Looms Large

China recently announced that it would buy stakes in Australia's mining industry. Totaling \$22 billion, the surpasses China's entire investment there in the last three years. Australian residents and some politicians have voiced their disapproval, expressing fear that their livelihoods are about to be altered as China gobbles up land containing iron ore, copper, coal, and nickel — natural resources that have been the bedrock of Australia's prosperity.

Although China's purchases in Australia are still dwarfed by the cumulative investments of the Americans and the British, they are growing much faster. China has become Australia's biggest trading partner, one of its biggest tourism customers, the largest single buyer of its government debt, and a major buyer of farmland and real estate. More than 120,000 Chinese students attend Australian schools and universities.

Source:

www.nytimes.com/2009/06/03/world/asia/03australia.html?_r=1&th=&emc=th&pagewanted=print

Biotechnology Trends

Finding Early Signs of Brain Disease in People and Animals

A team of scientists has discovered proteins that are activated by a set of genes which malfunction in mice infected with a form of bovine spongiform encephalopathy (BSE), the brain-wasting disease in cattle also known as mad-cow disease. The team discovered that some of these proteins could be found in the blood of infected mice 8 -10 weeks before they started showing any symptoms. The results of the study could lead to commercial early-warning tests for the disease in farm animals, based on the blood biomarkers that have been uncovered. The methods used for the study also are being applied to other neurological diseases, such as Alzheimer's, and could lead to early-diagnostic tests for those diseases as well.

The human form of BSE, a fatal degenerative neurological disorder called Creutzfeldt-Jakob disease, can be contracted by eating meat contaminated with infectious agents called prions, proteins that cause other proteins to "misfold," particularly in the brain and other neural tissue. To illuminate these abnormal processes, the researchers infected mice with prions and followed

changes in the expression of every single gene in their brains throughout the course of the disease. They found about 300 genes are directly involved in prion abnormalities.

Source: www.technologyreview.com/biomedicine/22331/

Technology Trends

Running on Air: Latest Green Technology for Cars Kicks into Gear

Indian car giant Tata has signed a contract with French auto engineer Guy Negre, who developed the world's first car engine powered by compressed air. The car company will license the technology in Asia for use in the inexpensive Nano car.

Negre's company, MDI Enterprises, already has developed a number of air-powered vehicles that range from three-wheeled buggies to a four-wheeled family sedan. The cars, which are being used at a French airport in a pilot project, are made of fiberglass. The compressed air is stored at high pressure in shatter-proof thermoplastic tanks surrounded by a carbon-fiber shell. (The same tanks are used to contain the fuel in gas-powered buses.) The air is released through pistons in the engine, which move the wheels. Unlike conventional internal combustion engines, air-powered engines run cold, and thick ice quickly forms on the engine. Each car has an onboard pump that can refill the tank overnight. Negre also has developed a high-pressure air pump, which looks like a heavy-duty tire pump, and can fill the tanks in less than one minute.

Sources: <http://blogs.edmunds.com/greencaradvisor/2009/02/tata-motors-says-electric-and-air-powered-nano-models-coming.html>
www.guardian.co.uk/environment/2009/may/14/air-powered-car-hybrid-france

Want to Make Carbon Dioxide Disappear? Turn It into Stone

Engineers in Iceland will use their country's volcanic landscape to bury carbon dioxide (CO₂) and turn it into rock as a way to curb global warming. The project, called Carb-fix, will take CO₂ produced by an Icelandic geothermal energy plant and dissolve it in water under high pressure. It will then pump the solution into layers of basalt, a type of volcanic rock, about 400-700 meters (one-fourth to a halfmile) underground. Laboratory experiments suggest the dissolved CO₂ will react with calcium in the basalt to form solid calcium carbonate.

The project, expected to begin in August, is a form of carbon capture and storage. The technique, which is being utilized in only a handful of projects worldwide, typically involves pumping the green gas into deep saltwater reservoirs, where the high pressure is expected to keep the gas dissolved and trapped underground. Mineral storage offers a safer bet, the Iceland engineers say, because there is less chance of leakage. They say they will know whether the gas is converting to minerals as expected in about a year.

Source: www.guardian.co.uk/environment/2009/apr/16/carbon-dioxide-storage-rock

Adaptive Lighting to Improve Efficiency

California's Silicon Valley city of San Jose is conducting a pilot test using adaptive lighting technology in new street lamps in hopes of cutting down on energy use and cost. The technology uses LEDs, or light-emitting diodes, which are electronic lights based on

semiconductor technology that use less energy and last longer than the sodium vapor-powered lights typically used in urban street lighting. Unlike regular streetlamps, LED lights can be programmed to respond to specific commands. For example, a city could dim the lighting on commercial strips after business hours or turn up the lights after bars close, says Jim Helmer, director of San Jose's transportation department. Streets around Little League baseball diamonds could be made brighter as people walk to their cars and then turned down afterward.

Many cities have LED traffic signals, but because of the high cost of producing white LED (as opposed to green, red, yellow, and other colors), local governments have been reluctant to install them in streetlights. In the long run, the 125 adaptive streetlights could save the city from 10% to 60% on energy use, depending on their brightness. The lights will be controlled under a system developed by energy-software company Echelon Corp. of San Jose.

Source: <http://online.wsj.com/article/SB124035903357241327.html.html>

Education Trends

Recession Is Changing Students' College Plans

A recent survey found that the recession is forcing more than 70% of prospective college students to alter their plans for the upcoming school year. For example, when asked how their college plans might change, 53% of students said they are considering attending a less expensive college, and 47% said they are planning to work at least during their first year as freshmen. Many incoming freshmen are also likely to rely more heavily on financial aid counseling and to borrow more.

More than 22 public and private institutions from across the country participated in the *Economic Impact on College Enrollment* survey, conducted by Longmire & Company education consulting firm in Kansas City, Mo. Both large and small colleges were represented, and only families of students already expressing an interest in college attendance were surveyed. The students represented all 50 states and a wide range of socioeconomic classes. More statistics are included in the "By the Numbers" section

Sources: www.longmire-co.com/education/economicimpactcollegereport.pdf
www.usnews.com/blogs/on-education/2009/04/08/how-the-recession-is-changing-students-college-plans.html

By the Numbers

Here are additional statistics from the Economic Impact on College Enrollment survey, which found that in-coming college students and their families are considering big changes in their continuing education plans in light of the difficult economic climate.

- Only 28% of the respondents said the recession has no influence on their college enrollment plans.
- Of incoming freshmen, 43% are likely to rely more on financial aid counseling; 38% said they plan to borrow more heavily.

- Only 17% of surveyed parents said that they are "extremely familiar" with aid available to them.
- While cost has not become the "overriding factor" in choosing a college, 16% of families in the study said it will most likely dictate their decision this year, compared with past years' average of 12%.
- New England has the largest proportion of students (64%) who are considering attending a less expensive college; the West has the largest share of students (14%) who said they will probably forgo attending a four-year college and instead enroll in a community college, where tuition is typically lower.
- Nationwide, 24% of surveyed students who were considering enrolling in a private college say they are now likely to attend a public one. They also plan to save money by attending a college that's close to home (38%) or by living at home while attending college (21%).