Infoteca's E-Journal

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Thawing Permafrost Likely To Boost Global Warming, New Assessment Concludes

Hudson Bay, Canada. The thawing of permafrost in northern latitudes, which greatly increases microbial decomposition of carbon compounds in soil, will dominate other effects of warming in the region and could become a major force promoting the release of carbon dioxide and thus further warming, according to a new assessment. (Credit: iStockphoto/Dawn Nichols)

ScienceDaily (Sep. 2, 2008) — A new assessment more than doubles previous estimates of the amount of carbon stored in permafrost, and indicates that carbon dioxide emissions from microbial decomposition of organic carbon in thawing permafrost could amount to roughly half those resulting from global land-use change during this century.

The thawing of permafrost in northern latitudes, which greatly increases microbial decomposition of carbon compounds in soil, will dominate other effects of warming in the region and could become a major force promoting the release of carbon dioxide and thus further warming, according to a new assessment.

The study, by Edward A. G. Schuur of the University of Florida and an international team of coauthors, more than doubles previous estimates of the amount of carbon stored in the permafrost: the new figure is equivalent to twice the total amount of atmospheric carbon dioxide. The authors conclude that releases of the gas from melting permafrost could amount to roughly half those resulting from global land-use change during this century.

Schuur and his colleagues refine earlier assessments by considering complex processes that mix soil from different depths during melting and freezing of permafrost, which occur to some degree every year. They judge that over millennia, soil processes have buried and frozen over a trillion metric tons of organic compounds in the world's vast permafrost regions. The relatively rapid warming now under way is bringing the organic material back into the ecosystem, in part by turning over soil. Some effects of permafrost thawing can be seen in Alaska and Siberia as dramatic subsidence features called thermokarsts.

Schuur and his colleagues acknowledge many difficulties in estimating carbon dioxide emissions from permafrost regions, which hold more carbon in the Arctic and boreal regions of the Northern Hemisphere than in the Southern Hemisphere. Data are limited, and emissions are influenced by the amount of surface water, topography, wildfires, snow cover, and other factors. Thawing, although believed to be critical, is hard to model accurately.

Some warming-related trends in Arctic regions, such as the encroachment of trees into tundra, may cause absorption of carbon dioxide and thus partly counter the effects of thawing permafrost. But Schuur and colleagues' new assessment indicates that thawing is likely to dominate known countervailing trends.

Journal reference:

1. Edward A. G. Schuur et al. **Vulnerability of Permafrost Carbon to Climate Change: Implications for the Global Carbon Cycle**. *BioScience*, September 2008 / Vol. 58 No. 8

Adapted from materials provided by American Institute of Biological Sciences.

http://www.sciencedaily.com/releases/2008/09/080901084854.htm

Museum 'cocoon' prepares to open

By James Morgan
Science reporter, BBC News

The spectacular new wing of London's Natural History Museum has been unveiled.

The Darwin Centre Phase Two is designed around an iconic eight-storey "Cocoon", encased within a glass atrium.

The temperature-controlled Cocoon will house 20 million of the museum's 34 million plant and insect specimens, and laboratories for up to 200 researchers.

Visitors will watch these scientists in action cataloguing rare specimens, when the centre opens in September 2009.

Dr Michael Dixon, director of the Natural History Museum, said: "The Darwin Centre Phase Two will be a landmark new building that will allow visitors to explore the natural world in an exciting and innovative way - truly putting our science on view for the first time.

"It is the only place in the UK where visitors can interact daily with natural science experts, seeing how the collections are helping us to address issues such as the quality of our air, the causes of disease and the maintenance of delicate ecosystems around the world."

Safe from attack

The second phase of the Darwin Centre is the most significant development to the Natural History Museum since it moved to South Kensington in 1881.

The £78m building, designed by C F Moller Architects, and built by HBG Construction, links the historic Waterhouse building with the existing Darwin Centre Phase One and the museum's gardens.

Phase One, which opened in September 2002, houses the museum's collection of 22 million specimens stored in spirit, including the famous giant squid, affectionately known as Archie.

Phase Two is designed to safeguard the museum's dry collections - some 28 million insects and six million plant specimens - of which 20 million will be moved in over the next 12 months.

The 30cm-thick cocoon wrapped in silk lines not only looks stunning, it also has a practical purpose - to protect the museum's delicate collections from attack by pests.

The threat of infestation comes from so-called "museum beetles", commonly known as carpet beetles, which are capable of munching through insect body armour.

"If you are an organism who likes to eat dead insects, then the Darwin Centre is the finest restaurant in the world," said Paul Bowers, the museum's public offer project director.

To guard against invaders, the temperature within the "silk bubble" will be restricted to 17 Celsius, while the walls and ceilings will be kept bare, to prevent any hidden infestations.

The humidity will be a constant 45% to ensure the longevity of historic specimens, such as the original cocoa plant brought from Jamaica by Dr Hans Sloane in 1689, which inspired the first recipe for drinking chocolate.

Buried within more than 3km of cabinets are rare gems collected by Charles Darwin on the voyage of the Beagle, and by Sir Joseph Banks, who accompanied Captain James Cook on his first great expedition.

Science in action

The new centre is a working research facility for about 200 scientific staff at any one time, including visiting researchers from some of the 70 countries around the world with whom the museum has affiliations.

Through special glass screens, visitors to the museum will be able to view these scientists in action, creating specimen slides, and classifying species, by a technique known as "DNA barcoding".

Understanding the unique physiology of these species will help scientists to tackle urgent ecological problems, such as how climate change is affecting biodiversity.

Mosquito species studied within the museum are helping scientists to develop better controls for malaria, while the forensic identification of crop pests will help to secure global food supplies.

Neil Greenwood, programme director, Darwin Centre Phase Two, said: "The museum's botany and entomology specimens are vital for research into disease, climate change and threats to the Earth's biodiversity.

"The controlled conditions within Darwin Centre Phase Two will keep the collections safe for future generations of scientists and visitors."

Nature-lovers will be encouraged to examine botanical specimens "hands-on", with interactive exhibits regularly updated to reflect the changing research that is taking place within the laboratories.

Guests will also be invited to take part in audience debates about issues facing the natural world, in a new live communications space called the David Attenborough Studio.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7594295.stm

Published: 2008/09/02 22:25:40 GMT

'Ibuprofen best' for child fevers

Most symptoms of a fever in young children can be managed at home

Ibuprofen is better at alleviating childhood fever than paracetamol and should be the drug of first choice, say UK researchers.

The Bristol-based trial involving 156 children aged between six months and six years showed ibuprofen reduced temperature faster than paracetamol.

The British Medical Journal work also says alternating the two drugs could help, which some GPs already recommend.

But experts advised against this, in line with official guidance.

The concern is the relative ease with which children could receive an overdose.

Fever is very common in young children, affecting seven in every 10 preschool children each year.

It can be miserable for the child and cause anxiety for parents. Most fevers will settle by themselves but a few are caused by serious infections such as pneumonia.

Guidelines published last year by the National Institute for Health and Clinical Excellence (NICE) say either ibuprofen or paracetamol can be used for children unwell or distressed with fever.

But they say that, due to the lack of evidence, the two drugs should not be given together or alternated.

The researchers from the University of Bristol and the University of the West of England, recruited children who had a temperature between 37.8 and 41 degrees centigrade, due to an illness that could be managed at home.

Alternating drugs

Children were randomised to receive either paracetamol plus ibuprofen, just paracetamol, or just ibuprofen.

The medicines were given over a 48-hour period, with the group of children on both paracetamol and ibuprofen receiving them as separate doses.

This group received one dose of paracetamol every four to six hours (maximum of four doses in 24 hours) and then one dose of ibuprofen every six to eight hours (maximum of three doses in 24 hours).

The children's condition was followed up at 24 hours, 48 hours and at day five.
The researchers found that in the first four hours children given both medicines spent 55 minutes less time with fever compared to those given paracetamol alone.
But giving two medicines was not markedly better than just giving ibuprofen.
However, over a 24 hour period, children given both medicines experienced 4.4 hours less time with fever than those given just paracetamol, and 2.5 hours less time with fever than those just given ibuprofen.

Safety issues

Dr Alastair Hay, consultant senior lecturer in primary health care at the University of Bristol, who led the study, said: "Doctors, nurses, pharmacists and parents wanting to use medicines to treat young, unwell children with fever should be advised to use ibuprofen first.
"If more sustained symptom control over a 24-hour period is wanted, giving both medicines alternately is better than giving one on its own.
"However, parents should keep a careful record of when doses are given to avoid accidentally giving too much."

He said he thought it would be appropriate for NICE to review its guidance in light of the new study, saying the current guidance was too cautious.
In an accompanying editorial in the BMJ, Dr Anthony Harnden from the University of Oxford, warned of the relative ease with which children could receive an overdose.
He said that a "more complicated alternating regimen of paracetamol and ibuprofen may be less safe than using either drug alone".
A spokeswoman for NICE said the 2007 guidance recommended that more research should be conducted on the effectiveness and safety of alternating doses of paracetamol and ibuprofen in reducing fever in children who remain febrile after the first fever-reducing medicine.
She said: "Any newly published research will need to be thoroughly assessed by independent experts as part of the process of updating clinical guidelines.
"This is essential to ensure that any new evidence is of the highest standards before any potential updates can be made to existing guidance."
Professor Steve Fields, chairman of the Royal College of General Practitioners, advised parents and carers of children with fever to follow the NICE guidance.
"We believe parents should keep it simple. We do not see at this moment any need to change the advice.
"However, this paper does demonstrate that using ibuprofen initially is more effective at reducing temperature and may demonstrate that using both ibuprofen and paracetamol together could have a positive effect."

http://news.bbc.co.uk/2/hi/health/7592585.stm

Outdoor classes start in schools

The foundation scheme encourages learning through play

The first generation of children to follow "ground-breaking" play-based learning in Wales is starting school.
The foundation phase includes classes outdoors and experience of the environment. It starts with three and four year olds and extends up to the age of seven.
Education Minister Jane Hutt said it was a "radical new way of learning".
But a teaching union said staff were under "enormous pressure" to deliver, without the promised level of funding.
The foundation phase emphasises the importance of learning through play for children aged three to seven and requires a teacher pupil ratio of one to eight.

"We believe that the pay-off of this radical new way of learning will be long-term and its impact will be felt for many years to come"

Jane Hutt AM, Education Minister
Ms Hutt, who was officially started the scheme on a visit to Brynnau Primary School near Llanharan in Rhondda Cynon Taf on Tuesday morning, said: "The foundation phase takes a different approach to learning and a key feature is using the outdoors to encourage children to learn about conservation and the environment.
"In Wales we are lucky to have a fantastic outdoors and children will discover their environment, the seasons and the weather by exploring fields, woodlands and the outdoors looking for bugs and wildlife," she added.
Ms Hutt said they had drawn on experiences in Denmark, New Zealand and Italy and believed the "radical new way of learning" would have a long-term impact.
The school's head teacher Vanessa McCarthy said she welcomed the changes.

"I think that the principles of the foundation phase are to be applauded and the potential benefits will be significant."
"It's active learning, it's learning through first hand experience and it's much more meaningful to children," she said.
But Iwan Guy, the acting director of the headteachers' union NAHT Cymru said a lack of funding meant Wales was in danger of having a "mix and match system".
"We thoroughly endorse the foundation phase but it has to be implemented with the full resources we were promised."
"There's an expectation that schools will deliver a Rolls-Royce system but they're only prepared to fund us for a small family saloon."
"Frankly it's not good enough for the children of Wales."
"I give credit to Jane Hutt. She has been listening. We do not hold Jane Hutt responsible for the situation we are in," he added.
The shadow education minister Andrew Davies AM said the Welsh Conservatives were "fully supportive" of the scheme but warned the assembly government not to be complacent.

“They are far far more relaxed and happy and I think the staff would say they are as well.”

Alison Matthias, Ysgol Emmanuel
"The full roll-out of the foundation phase has been delayed because the assembly government got its sums wrong," he said.
"This has caused a great deal of uncertainty and disruption for parents, pupils and teachers."
The new early years curriculum has already been trialled at over 80 schools, nurseries and playgroups around Wales.
Nursery and reception pupils at Ysgol Emmanuel in Rhyl have been following the new scheme since last September.
The school's deputy head teacher, Alison Matthias, said she was pleased with the children's progress.
"They are far far more relaxed and happy and I think the staff would say they are as well."
"You've got to realise, as with everything else, you have to be prepared for the tears as well as the smiles."
But she added it was important to make sure that children learned all the required skills.
"I was very vocal in saying if our standards go down we are stopping this, but in fact our standards didn't go down, they went up," she added.

http://news.bbc.co.uk/2/hi/uk_news/wales/7592406.stm

New giant clam species discovered

By Elizabeth Mitchell
Science reporter, BBC News

The new giant clam species has a deeply folded shell outline

A new species of giant clam has been discovered in the Red Sea.

Fossils suggest that, about 125,000 years ago, the species *Tridacna costata* accounted for more than 80% of the area's giant clams.

The species may now be critically endangered, researchers report in Current Biology journal.

The scientists believe their findings may represent one of the earliest examples of the over-exploitation of marine organisms by humans.

T. costata has "very peculiar characteristics" that set it apart from two other species of giant clam that are also found in the area.

The Latin word *costatus* means "ribbed" and *T. costata* has a disitinctive, zig-zag outline to its shell.

"The new species are mid-sized clams - up to 40cm long and a couple of kilograms heavy," explained co-author Dr Claudio Richter, from the Alfred-Wegener Institute for Polar and Marine Research, Germany.

The new species has a distant relative, *T. gigas*, which can grow up to 1.4m long.

Live specimens of *T. costata* appear to be restricted to very shallow waters. Other species were also found in deeper reef zones.

The clam has an earlier and shorter breeding season that coincides with the seasonal plankton bloom.

Genetic analysis confirmed the status of the new species.

'Time travel'

"One of the great features of the desert-enclosed Red Sea is that you can literally time-travel from the present, several hundred thousand years into the past," said Dr Richter.

The research team uncovered well-preserved fossil evidence that suggested stocks of these giant clams plummeted some 125,000 years ago - during an interval between Ice Ages.

They believe this period coincides with the appearance of modern humans in the Red Sea area.

Giant clams were abundant, large in size and easily accessible - making them an attractive food source for hunter-gatherers.

In "pre-human times", *T. costata* may have been up to 60cm long. Since then, shell size has also decreased dramatically.

"The overall decline in giant clam stocks - with the striking loss of large specimens - is a smoking gun indicating over-harvesting," said Dr Richter.

The scientists were not expecting to find a new species in an area as well studied as the Red Sea.

The research highlights how little is known about marine biodiversity in general, the scientists said.

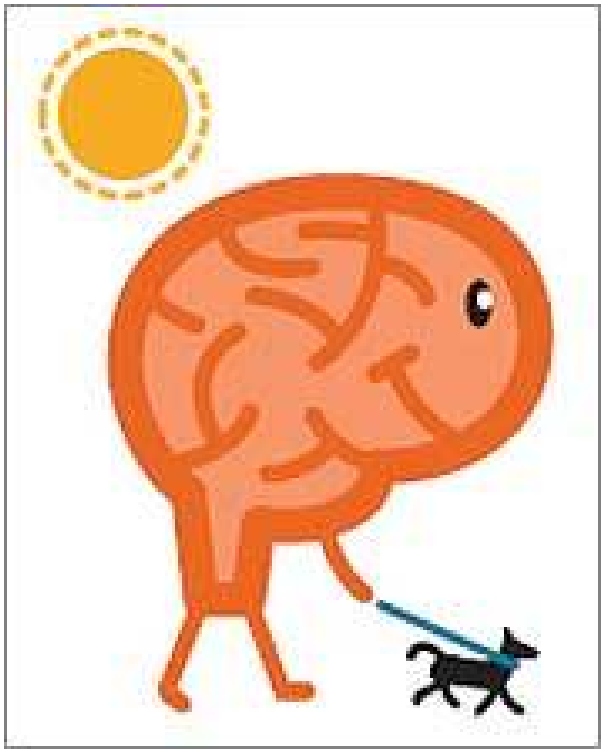
"The coral reefs in particular... may still harbour very large surprises," said Dr Richter.

http://news.bbc.co.uk/2/hi/science/nature/7588857.stm

Daydream achiever

A wandering mind can do important work, scientists are learning - and may even be essential

By Jonah Lehrer | August 31, 2008



ON A SUNDAY morning in 1974, Arthur Fry sat in the front pews of a Presbyterian church in north St. Paul, Minn. An engineer at 3M, Fry was also a singer in the church choir. He had gotten into the habit of inserting little scraps of paper into his choir book, so that he could quickly find the right hymns during the service. The problem, however, was that the papers would often fall out, causing Fry to lose his place.

But then, while listening to the Sunday sermon, Fry started to daydream. Instead of focusing on the pastor's words, he began to mull over his bookmark problem. "It was during the sermon," Fry remembers, "that I first thought, 'What I really need is a little bookmark that will stick to the paper but will not tear the paper when I remove it.' " That errant thought - the byproduct of a wandering mind - would later become the yellow Post-it note, one of the most successful office products of all time.

Although there are many anecdotal stories of breakthroughs resulting from daydreams - Einstein, for instance, was notorious for his wandering mind - daydreaming itself is usually cast in a negative light. Children in school are encouraged to stop daydreaming and "focus," and wandering minds are often cited as a leading cause of traffic accidents. In a culture obsessed with efficiency, daydreaming is derided as a lazy habit or a lack of discipline, the kind of thinking we rely on when we don't really want to think. It's a sign of procrastination, not productivity, something to be put away with your flip-flops and hammock as summer draws to a close.

In recent years, however, scientists have begun to see the act of daydreaming very differently. They've demonstrated that daydreaming is a fundamental feature of the human mind - so fundamental, in fact, that it's often referred to as our "default" mode of thought. Many scientists argue that daydreaming is a crucial tool for creativity, a thought process that allows the brain to make new associations and connections. Instead of focusing on our immediate surroundings - such as the message of a church sermon - the daydreaming mind is free to engage in abstract thought and imaginative ramblings. As a result, we're able to imagine things that don't actually exist, like sticky yellow bookmarks.

"If your mind didn't wander, then you'd be largely shackled to whatever you are doing right now," says Jonathan Schooler, a psychologist at the University of California, Santa Barbara. "But instead you can engage in mental time travel and other kinds of simulation. During a daydream, your thoughts are really unbounded."

The ability to think abstractly that flourishes during daydreams also has important social benefits. Mostly, what we daydream about is each other, as the mind retrieves memories, contemplates "what if" scenarios, and thinks about how it should behave in the future. In this sense, the content of daydreams often

resembles a soap opera, with people reflecting on social interactions both real and make-believe. We can leave behind the world as it is and start imagining the world as it might be, if only we hadn't lost our temper, or had superpowers, or were sipping a daiquiri on a Caribbean beach. It is this ability to tune out the present moment and contemplate the make-believe that separates the human mind from every other.

"Daydreaming builds on this fundamental capacity people have for being able to project themselves into imaginary situations, like the future," Malia Mason, a neuroscientist at Columbia, says. "Without that skill, we'd be pretty limited creatures."

Teresa Belton, a research associate at East Anglia University in England, first got interested in daydreaming while reading a collection of stories written by children in elementary school. Although Belton encouraged the students to write about whatever they wanted, she was startled by just how uninspired most of the stories were.

"The tales tended to be very tedious and unimaginative," Belton says, "as if the children were stuck with this very restricted way of thinking. Even when they were encouraged to think creatively, they didn't really know how."

After monitoring the daily schedule of the children for several months, Belton came to the conclusion that their lack of imagination was, at least in part, caused by the absence of "empty time," or periods without any activity or sensory stimulation. She noticed that as soon as these children got even a little bit bored, they simply turned on the television: the moving images kept their minds occupied. "It was a very automatic reaction," she says. "Television was what they did when they didn't know what else to do."

The problem with this habit, Belton says, is that it kept the kids from daydreaming. Because the children were rarely bored - at least, when a television was nearby - they never learned how to use their own imagination as a form of entertainment. "The capacity to daydream enables a person to fill empty time with an enjoyable activity that can be carried on anywhere," Belton says. "But that's a skill that requires real practice. Too many kids never get the practice."

While much of the evidence linking daydreaming and creativity remains anecdotal, rooted in the testimony of people like Fry and Einstein, scientists are beginning to find experimental proof of the relationship. In a forthcoming paper, Schooler's lab has shown that people who engage in more daydreaming score higher on experimental measures of creativity, which require people to make a set of unusual connections.

"Daydreams involve a more relaxed style of thinking, with people more willing to contemplate ideas that seem silly or far-fetched," says Belton. While such imaginative thoughts aren't always practical, they are often the wellspring of creative insights, as Schooler's research shows.

However, not all daydreams seem to inspire creativity. In his experiments, Schooler distinguishes between two types of daydreaming. The first type consists of people who notice they are daydreaming only when asked by the researcher. Even though they are told to press a button as soon as they realize their mind has started to wander, these people fail to press the button. The second type, in contrast, occurs when subjects catch themselves daydreaming during the experiment, without needing to be questioned. Schooler and colleagues found that individuals who are unaware of their own daydreaming while it's happening don't seem to exhibit increased creativity.

"The point is that it's not enough to just daydream," Schooler says. "Letting your mind drift off is the easy part. The hard part is maintaining enough awareness so that even when you start to daydream you can interrupt yourself and notice a creative insight."

In other words, the reason Fry is such a good inventor - he has more than twenty patents to his name, in addition to Post-it notes - isn't simply because he's a prolific daydreamer. It's because he's able to pay attention to his daydreams, and to detect those moments when his daydreams lead to a useful idea.

Every time we slip effortlessly into a daydream, a distinct pattern of brain areas is activated, which is known as the default network. Studies show that this network is most engaged when people are performing tasks that require little conscious attention, such as routine driving on the highway or reading a tedious text. Although such mental trances are often seen as a sign of lethargy - we are staring haplessly into space - the cortex is actually very active during this default state, as numerous brain regions interact. Instead of responding to the outside world, the brain starts to contemplate its internal landscape. This is when new and creative connections are made between seemingly unrelated ideas.

"When you don't use a muscle, that muscle really isn't doing much of anything," says Dr. Marcus Raichle, a neurologist and radiologist at Washington University who was one of the first scientists to locate the default network in the brain. "But when your brain is supposedly doing nothing and daydreaming, it's really doing a tremendous amount. We call it the 'resting state,' but the brain isn't resting at all."

Recent research has confirmed the importance of the default network by studying what happens when the network is disrupted. For instance, there is suggestive evidence that people with autism engage in less daydreaming than normal, with a default network that exhibits significantly reduced activity during idle moments. In addition, more abnormal default networks in autistic subjects correlated with the most severe social deficits. One leading theory is that atypical default activity interferes with the sort of meandering memories and social simulations that typically characterize daydreams, causing people with autism to instead fixate on things in their environment.

The exact opposite phenomenon seems to occur in patients with schizophrenia, who exhibit overactive default networks. This might explain the inability of schizophrenics to differentiate properly between reality and the ideas generated by the imagination.

Problems with daydreaming also seem to afflict the aging brain: Harvard researchers recently discovered that one of the main symptoms of getting older is reduced coordination in the default network, as brain areas that normally operate in sync start to fire at different times. Scientists speculate that this deficit contributes to the inability of many elderly subjects to control the duration and timing of their daydreams.

"It's very important to use the default network at the right time," says Jessica Andrews-Hanna, a researcher at Harvard who has studied the network in older subjects. "When you need to focus" - such as during stop-and-go traffic, or when engaged in a conversation - "you don't want to let your mind wander off."

What these studies all demonstrate is that proper daydreaming - the kind of thinking that occurs when the mind is thinking to itself - is a crucial feature of the healthy human brain. It might seem as though our mind is empty, but the mind is never empty: it's always bubbling over with ideas and connections.

One of the simplest ways to foster creativity, then, may be to take daydreams more seriously. Even the mundane daydreams that occur hundreds of times a day are helping us plan for the future, interact with others, and solidify our own sense of self. And when we are stuck on a particularly difficult problem, a good daydream isn't just an escape - it may be the most productive thing we can do.

Jonah Lehrer is an editor at large at Seed magazine and the author of "Proust Was a Neuroscientist." He is a regular contributor to Ideas. ■

http://www.boston.com/bostonglobe/ideas/articles/2008/08/31/daydream_achiever/

Rich Man's Burden

By DALTON CONLEY

FOR many American professionals, the Labor Day holiday yesterday probably wasn't as relaxing as they had hoped. They didn't go into the office, but they were still working. As much as they may truly have wanted to focus on time with their children, their spouses or their friends, they were unable to turn off their BlackBerrys, their laptops and their work-oriented brains.

Americans working on holidays is not a new phenomenon: we have long been an industrious folk. A hundred years ago the German sociologist Max Weber described what he called the Protestant ethic. This was a religious imperative to work hard, spend little and find a calling in order to achieve spiritual assurance that one is among the saved.

Weber claimed that this ethic could be found in its most highly evolved form in the United States, where it was embodied by aphorisms like Ben Franklin's "Industry gives comfort and plenty and respect." The Protestant ethic is so deeply engrained in our culture you don't need to be Protestant to embody it. You don't even need to be religious.

But what's different from Weber's era is that it is now the rich who are the most stressed out and the most likely to be working the most. Perhaps for the first time since we've kept track of such things, higher-income folks work more hours than lower-wage earners do. Since 1980, the number of men in the bottom

fifth of the income ladder who work long hours (over 49 hours per week) has dropped by half, according to a study by the economists Peter Kuhn and Fernando Lozano. But among the top fifth of earners, long weeks have increased by 80 percent.

This is a stunning moment in economic history: At one time we worked hard so that someday we (or our children) wouldn't have to. Today, the more we earn, the more we work, since the opportunity cost of not working is all the greater (and since the higher we go, the more relatively deprived we feel).

In other words, when we get a raise, instead of using that hard-won money to buy "the good life," we feel even more pressure to work since the shadow costs of not working are all the greater.

One result is that even with the same work hours and household duties, women with higher incomes report feeling more stressed than women with lower incomes, according to a recent study by the economists Daniel Hamermesh and Jungmin Lee. In other words, not only does more money not solve our problems at home, it may even make things worse.

It would be easy to simply lay the blame for this state of affairs on the laptops and mobile phones that litter the lives of upper-income professionals. But the truth is that technology both creates and reflects economic realities. Instead, less visible forces have given birth to this state of affairs.

One of these forces is America's income inequality, which has steadily increased since 1969. We typically think of this process as one in which the rich get richer and the poor get poorer. Surely, that should, if anything, make upper income earners able to relax.

But it turns out that the growing disparity is really between the middle and the top. If we divided the American population in half, we would find that those in the lower half have been pretty stable over the last few decades in terms of their incomes relative to one another. However, the top half has been stretching out like taffy. In fact, as we move up the ladder the rungs get spaced farther and farther apart.

The result of this high and rising inequality is what I call an "economic red shift." Like the shift in the light spectrum caused by the galaxies rushing away, those Americans who are in the top half of the income distribution experience a sensation that, while they may be pulling away from the bottom half, they are also being left further and further behind by those just above them.

And since inequality rises exponentially the higher you climb the economic ladder, the better off you are in absolute terms, the more relatively deprived you may feel. In fact, a poll of New Yorkers found that those who earned more than $200,000 a year were the most likely of any income group to agree that "seeing other people with money" makes them feel poor.

Because these forces drive each other, they trap us in a vicious cycle: Rising inequality causes us to work more to keep up in an economy increasingly dominated by status goods. That further widens income differences.

The BlackBerrys and other wireless devices that make up our portable offices facilitate this socio-economic madness, but don't cause it. So, if you are someone who is pretty well off but couldn't stop working yesterday nonetheless, don't blame your iPhone or laptop. Blame a new wrinkle in something much more antiquated: inequality.

Dalton Conley, the chairman of New York University's sociology department, is the author of the forthcoming "Elsewhere, U.S.A."

http://www.nytimes.com/2008/09/02/opinion/02conley.html?_r=1&oref=slogin

Away Down South, 2 Museums Grapple With the Civil War Story

By EDWARD ROTHSTEIN

RICHMOND, Va. — For Northerners, the history of the Civil War seems pretty much settled. We know that from the nation's founding, economic and cultural differences — particularly those surrounding slavery — created tensions between the North and the South; that the elimination of slavery only fitfully became a Union goal during the war; and that it ultimately took a century for black Americans to glimpse the equality guaranteed by the nation's ideals.

But for all its bloodshed, we see the Civil War as necessary and Abraham Lincoln as its visionary hero; it was a preamble to the United States' becoming what it always should have been.

Things are interpreted more ambiguously here in what once was the capital of the Confederate States of America. Forty-three battles took place within 30 miles of the "White House of the Confederacy": the pillared mansion where this self-declared nation housed its only president, Jefferson Davis, from 1861 to 1865. And while history may be typically written by the victors, here it seems to shape a looking-glass world in which perspectives are shifted and emphases altered, jarring emotions and assumptions.

In many ways the Civil War still seems to rage. In 2003, when a statue of Lincoln was donated for display outside the Civil War Visitor Center of the National Park Service, in downtown Richmond, immediate protests erupted — not over its maudlin character, but over the very idea of honoring an oppressor. The dedication ceremony was buzzed by a plane trailing a banner proclaiming, "Sic semper tyrannis," which is not only Virginia's motto (meaning "Thus, always, to tyrants"), but also what John Wilkes Booth is said to have called out while assassinating Lincoln.

Is such ugliness, then, what is meant by the "other side" of Civil War history? At times, surely, but institutions here — the Museum of the Confederacy and the American Civil War Center — argue that the war should be seen, at least in part, from the perspective of the losing side, and that such understanding need not be completely derailed by the moral outrage of slavery.

The Museum of the Confederacy may be facing the limitations of that position. Annual attendance, from a 1991 peak of 91,000, has been dropping, to about 48,000 in the last year. Its 1976 building, like the adjacent White House, is also hemmed in by a growing hospital complex. So the institution has put together an ambitious $15 million plan to create a system of four museums in historic Virginia areas, increasing display space for its extensive collection.

The American Civil War Center, which raised $13.6 million before opening in 2006 to much praise, has fewer apparent problems, though attendance is still low (about 25,000 in the past year). It creates a broader panorama, offering not one perspective but three: those of the Union, the Confederacy and the African-Americans.

Such retellings are proliferating, perhaps in anticipation of the 150th anniversary of the war's start, in 2011. A new visitor center recently opened next to the Gettysburg battlefield in Pennsylvania, and this fall the New-York Historical Society presents an exhibition about Ulysses S. Grant and Robert E. Lee that it is modifying from a show first mounted by the Virginia Historical Society, shifting the Southern perspective northward.

An empathetic exposition of the Confederate perspective poses some knotty problems. Confederate symbols are more than mere artifacts. The flag was the badge of segregationists in the civil rights era; it retains that resonance. Sensitivities to such allusions are high: a controversy erupted recently over the

American Civil War Center's acceptance of a statue of Davis donated by the Sons of Confederate Veterans.

The Museum of the Confederacy, then, has a daunting task. It was founded in the 1890s by the daughters of Lee and Davis and other women, who solicited memorabilia from Confederate families to create a nostalgic shrine to what was then called the Lost Cause. During the last two decades the museum has been delicately redefining itself. It has an extraordinary collection of 15,000 artifacts and 100,000 manuscripts. It has become a scholarly resource and has published valuable books like "Before Freedom Came: African-American Life in the Antebellum South."

But whiffs of the Old South still emerge here and there, particularly in its main exhibition, "The Confederate Years." For example, in describing the war's opening battle at Fort Sumter in Charleston, S.C., the wall text oddly states that because Lincoln was determined not to begin the war against the seceding South, he "succeeded in maneuvering the Confederacy into firing the first shot of the war."

There is also little discussion of slavery before or during the Confederacy. Instead there is a short display titled "Confederate Preparation for War: Mobilizing the African-American Population." This mobilization called up "tens of thousands of African-American laborers" described as both "enslaved and free." This is so peculiar a reference to a society in which, in 1860, one-third of the South's population — 3,950,511 souls — was enslaved, that it seems deluded or obfuscatory. The exhibition's refusal to illuminate fully the lives of the Confederacy's black inhabitants (during the war more than a half-million fled to freedom in the North) suggests that an embrace of the Lost Cause has not been fully relinquished.

The other flaw is the museum's almost exclusive attention to the war and the lives of soldiers. But an exhibition on Virginia and the Confederacy on the museum's lower level is far more frank about slavery and demonstrates how powerful a truly complete portrait of Confederate society might one day be, perhaps even showing the strains on the very institutions — plantations and slavery —that secession was meant to protect.

Despite such limitations, the museum sheds light on a dark time. The Confederacy fully believed it was fighting a second American Revolution. Davis spoke of "the holy cause of constitutional liberty." Slavery and associated attitudes were so commonplace that they were taken for granted. But some similarities appear between the Union and the Confederacy: each saw itself as heir to the nation's founders; each saw the other as tyrannical.

For the South, the cost of these convictions was particularly high. The museum's chronological accounts of battles; its displays of uniforms with faded blood spots, of Lee's battlefield tent, of a blood-stained letter written by a dying soldier to his father — all this reveals something touchingly human. The only problem is that you never come to grasp precisely why these men were sacrificing their lives.

For greater understanding you must go to the American Civil War Center, housed in the historic Tredegar Iron Works that once supplied the Confederacy with much weaponry. A scrupulous timeline, along with artifacts (some lent by the Museum of the Confederacy), chronicles the economic impact of slavery, debates about secession, westward expansion, the North's mixed motives, the Emancipation Proclamation, General Sherman's onslaught, the flawed Reconstruction, the evolving modern nation.

There are times when the tell-all-sides pose becomes intrusive, particularly since competing ideological positions are strangely called Union, Home and Freedom. Their initials — U, H and F — confusedly dot maps of battles. There are times, too, when the narrative strains to reassure the advocates of Home (the South): in one film an actor irrelevantly points out that although the North lacked slavery, it did have children working inhumanly long hours in factories, so no side had a "monopoly on virtue."

But you do get a valuable sense of how differing perspectives intertwine. The evolution of Lincoln's pragmatic stance toward emancipation, for example, is subtly illuminated.

If anything, the museum's tale is too sweepingly abstract; it is so preoccupied with multiple perspectives that it does not provide a strong sense of the people who embodied them. And while the framework of multiple poses is intended to reassure local constituencies, the museum works not because it offers different historical narratives but because it creates out of many, one.

Both institutions also inadvertently provide lessons on the limits of relativism. Yes, the Confederacy is a part of American history that needs to be better understood, and slavery and race should not be the only windows through which it is viewed. But another kind of judgment is also needed here. Much depends on whether we view the Civil War as the apocalyptic end of a roseate past or the bloody beginning of a promising future. And that is what contemporary controversies over the Civil War are all about.

The Museum of the Confederacy is at 1201 East Clay Street, Richmond, Va.; (804) 649-1861 or moc.org. The American Civil War Center is at 500 Tredegar Street, Richmond; (804) 780-1865 or tredegar.org.

http://www.nytimes.com/2008/09/03/arts/design/03civi.html?ref=arts

Germany leads 'clean coal' pilot

By Roger Harrabin
Environment analyst, BBC News, Germany

Beneath the gargantuan grey boiler towers of Schwarze Pumpe power station which pierce the skies of northern Germany, a Lilliputian puzzle of metal boxes and shining canisters is about to mark a moment of industrial history.

This mini power plant is a pilot project for carbon capture and storage (CCS) - the first coal-fired plant in the world ready to capture and store its own CO2 emissions.

Next week the pilot - an oxyfuel boiler - will be formally commissioned.

A cloud of pure oxygen will be breathed into the boiler. The flame will be lit. Then a cloud of powdered lignite will be injected.

The outcome will be heat, water vapour, impurities, nine tonnes of CO2 an hour, and a landmark in clean technology.

Because the CO2 will then be separated, squashed to one 500th of its original volume and squeezed into a cylinder ready to be transported to a gas field and forced 1,000m below the surface into porous rock where it should stay until long after mankind has stopped worrying about climate change.

This is the technology once lavishly described by the former UK Chief Scientist Sir David King as "the only hope for mankind".

The plant operators, Vattenfall, have worked furiously for two years to get the pilot running.

"We are very proud - we think this is the future for coal," says Vattenfall's Hubertus Altmann.

They funded the 70m-euro project themselves because they wanted to lead a technology they believe solves the conundrum of providing energy security through plentiful coal supplies whilst avoiding the CO2 emissions officially blamed for climate change.

'Too expensive, too late'

Green-carpeted marquees are currently being furnished for the guests who will swell the applause at the grand inauguration.

But big questions hang over this technology overall, particularly over where the CO2 will be stored and who will pay the high costs of building and running the CCS plants.

Greenpeace is among the environmental groups expressing reservations.

ACCESS ALL AREAS

"Our concern is that this technology is used to justify the construction of more coal power plants," says Tobias Munchmeyer.

"It's too expensive, it will come too late and it will divert money from the real solutions, renewable energies and energy efficiency."

The EU wants to see 10-12 full-scale power plants demonstrating CO2 capture within the next few years.

But although a number of other firms will soon join the race with pilot projects, no full-scale CCS coal plant has yet been commissioned.

The British government has promised a decision in October on how it will fund a full-scale CCS in the UK.

It hopes to avoid landing the taxpayer with the bill, but questions over CCS funding in Europe are as yet unresolved by the European Commission and the European Parliament.

The main options are:

- New rules mandating that all coal power plants must be fitted with CCS - ie industry and the consumer will pay
- Direct funding from the EU or member states (but member states do not want to pay)
- A feed-in tariff so generators get a premium for the amount of CO2 they sequester. Monitoring may be difficult
- Creating a new fund within the EU's Emission Trading Scheme (EUETS), which would give firms valuable carbon credits for every stored tonne of CO2. This would cost nothing but might undermine the CO2 market
- Setting a CO2 emission limit for all new power stations of, say, 350g of CO2 per kilowatt hour of electricity. This would make it impossible to build a coal plant which did not capture at least some of its CO2. This option is being pushed hard by UK Conservatives

Taking cash from EUETS auctioning. The permits for big firms to emit CO2 will be auctioned from 2013 (at the moment, they are given away). This will raise many billions - some of which could be diverted to fund CCS projects.

All the options would benefit from the sort of certainty over future carbon prices that would be provided by the successor to the Kyoto Protocol - but that is facing severe difficulties. And, meanwhile, industry is crying out for politicians to make an early decision so it can invest the billions that are needed.

"We need CSS urgently because the world is building a whole new generation of coal power plants and unless we find out whether this technology operates at scale and we can make these plants zero-carbon in the future, those will be a liability," says Nick Mabey of the think-tank e3g.

"The UK has talked a good game on this, it has said it wants to build a demonstration, but it's yet to show where the money is going to come from for the plants it wants built in Europe and worldwide."

Part of the problem is that the exact cost of large-scale CCS is unknown. This has left green groups uncertain and divided on the topic.

The latest estimates suggest CCS power will cost roughly the same as wind power - maybe 50% more than it does at the moment.

The firms providing the technology are doing their best to re-assure national treasuries that they can do it at a price which leaves coal competitive.

Philippe Joubert, of Alstom, who built the oxyfuel boiler at Schwarze Pumpe, said: "We will have a very good indication one or two years from now where we will have the first result of the bigger size demonstration plant.

"Currently we are at 5 MW; it's not enough to set a price. In our business, the size is a real issue, and if you start to have a real market, probably the price will drop."

The real test of CCS, though, is not in Europe.

The global CO2 savings many scientists believe are needed to control global warming are only likely to happen if politicians in rich nations are ready to ignore high energy prices, put up the price of their cheapest fuel through CCS - and then help developing countries to do the same.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7584151.stm

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Warming boosts strongest storms

By Richard Black
Environment correspondent, BBC News website

The strongest tropical storms are becoming even stronger as the world's oceans warm, scientists have confirmed.

Analysis of satellite data shows that in the last 25 years, strong cyclones, hurricanes and typhoons have become more frequent in most of the tropics.

Writing in the journal Nature, they say the number of weaker storms has not noticeably altered.

The idea that climate change might be linked to tropical storms has been highly controversial.

A few years ago, it was claimed that hurricanes would become more frequent as well as more common in a warming world.

The swirling winds pick up energy from a warm ocean.

But recent research has suggested they would occur less frequently, though likely to pack a more powerful punch each time.

James Elsner from Florida State University in Tallahassee, US and colleagues believed the link might become clearer if they analysed data according to the strength of storms.

HOW TROPICAL STORMS FORM
Sea surface temperatures above 26.5C (79.7F)
A pre-existing weather disturbance
Moisture in the atmosphere
Favourable conditions, such as light winds or weak wind shear

"We're seeing a signal, and it's telling us that the strongest effect (of rising ocean temperatures) is on the strongest storms," he told BBC News.

"At average or median wind speeds, about 40m/s, we don't see a trend; but when we get up to 50 or 60m/s we do see a trend."

A hurricane featuring winds of 40m/s (89mph) is a Category One storm according to the often-used Saffir-Simpson scale.

At about 60m/s (134mph) it enters Category Four, the strength at which Hurricane Gustav recently hit Cuba before weakening to Category One over the US coast.

Tropical trends

Hurricanes, typhoons and cyclones are different terms used in different regions of the world for the same phenomenon.

However, the bulk of the scientific work on possible links to climate change has featured North Atlantic hurricanes, largely because of the relatively good historical records contained in the US.

The new analysis, using satellite data acquired by US, European and Japanese programmes, shows up different trends across the tropics.

The increase in strong storms shows up most markedly in the North Atlantic and Indian oceans, and is absent in the South Pacific.

"We're looking at different ocean basins, and some are already pretty warm," said Professor Elsner.

"So there, an increase in temperature isn't going to produce as strong an increase as in basins where the the temperatures are only marginally supportive of cyclones."

The researchers believe weaker storms are not affected so much because the factors that prevent them developing to their full potential, notably wind shear - abrupt changes in wind speed and direction that prevent the cyclone fuelling itself with ocean heat - are not related to ocean temperatures.

Globally, a rise of 1C in sea surface temperature would increase the occurrence of strong storms by about one third, the researchers calculate.

Apart from human-induced climate change, the incidence of tropical storms is determined by natural cycles such as El Nino that affect surface temperatures in various parts of the oceans.

The damage they do is affected far less by their strength than by where they hit land, and by how able a society is to withstand the winds and rain.

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Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7596643.stm

Published: 2008/09/03 18:25:27 GMT

Natural birth 'may aid baby bond'

Mothers who give birth naturally are more responsive to the cry of their baby than those who choose to have a Caesarean, American research suggests.

Brain scans on 12 new mothers soon after birth found more activity in areas linked to motivation and emotions in those who had a vaginal delivery.

The Yale University team says differences in the hormones generated by birth could be the key.

The women in this study were those who elected to have a Caesarean.

> **There is no doubt that many women who have a caesarean turn out to be wonderful mothers.**
> Professor James Walker
> Royal College of Obstetricians and Gynaecologists

The contractions which are an essential part of a natural birth trigger the release of the hormone oxytocin, which is thought to play a key role in shaping maternal behaviour.

However, undergoing a Caesarean does not trigger the same release of hormones.

The procedure has been linked to an increased risk of post-natal depression.

The Yale team carried out brain scans on 12 women two to four weeks after they had given birth - known as the early postpartum period.

Half had a Caesarean, the other half gave birth naturally.

The differences in brain activity were found in regions that not only appeared to influence a mother's response to her child, but also to regulate her mood.

Lead researcher Dr James Swain said the study, reported in the Journal of Child Psychology and Psychiatry, might help provide a better understanding of the chemistry underpinning the attachment between a mother and her baby.

"Our results support the theory that variations in delivery conditions such as with caesarean section, which alters the neurohormonal experiences of childbirth, might decrease the responsiveness of the human maternal brain in the early postpartum."

Personality factors

Professor James Walker, a spokesman for the Royal College of Obstetricians and Gynaecologists, said: "We have long recognised that people who have a caesarean section do sometimes have some problems bonding with their baby."

> **Women who have a Caesarean section should be encouraged to cuddle their newborn against their skin straight after birth**
> Belinda Phipps
> National Childbirth Trust

However, Professor Walker said the reason for this was unclear. In some instances, it might be related to clinical difficulties which made a caesarean necessary in the first place.

The latest study selected only women who opted for an elective Caesarean alongside the six who gave birth naturally, but Professor Walker said there might be specific personality characteristics within the former group which made maternal bonding more difficult.

He said it was also possible that women who had a Caesarean were slightly disengaged from the birth process in comparison to those who went through a natural delivery.

Professor Walker said there were no long-term studies assessing whether mothers who had a Caesarean had longer-term problems bonding their baby.

"There is no doubt that many women who have a Caesarean turn out to be wonderful mothers," he said.

Contact

Belinda Phipps, of the National Childbirth Trust, said: "Bonding between a mother and baby is highly important and responding to a new baby's cry is a key part of maternal attachment.

"Women who have a Caesarean section should be encouraged to cuddle their newborn against their skin straight after birth and be offered practical support to help them fed and care for their baby."

Between 10% and 20% of all births in the UK are now delivered by Caesarean.

There is concern that too many women opt for an elective Caesarean, a major surgical procedure, with a risk of side effects.

Are you a mother who has had a Caesarean section? What is your reaction to this story? Send us your comments using the form below.

Name
Your E-mail address
Town & Country
Phone number (optional):
Comments
Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7594282.stm

Published: 2008/09/03 23:02:25 GMT

Test predicts vessel op response

Technology to reveal dangerous changes in blood pressure during delicate brain surgery is under development.

The British project could make complex operations safer, New Scientist magazine reports.

It relies on a combination of scans and massive computing power to predict how the brain's blood vessels will respond to surgery.

The University College London team said the simulation could one day spot those at highest risk of a fatal aneurysm.

> **What we are trying to do is work out is a way to minimise problems**
> Dr Stefan Brew
> University College London Hospital

The brain is supplied by a complex tangle of tiny blood vessels, and a surgeon who wants to deal with an abnormality must navigate through these.

If the wrong vessel is damaged, the result can be a stroke, or even death.

Advanced techniques, such as rotational 3D angiography, are used to create a three-dimensional "map" of these vessels.

However, the latest technique tries to predict in advance what will happen to the blood pressure and flow in other parts of the network if the surgeon has to block off certain blood vessels to complete the operation.

A handful of pressure readings taken from a catheter in a main blood vessel are fed into the computer modelling software, which then makes up to a trillion calculations per second to calculate blood flow changes in the rest of the brain.

This requires vast computing power, and the project, run jointly between UCL and Manchester and Edinburgh Universities, will need access to a network of 20 supercomputers in the US and UK.

Dr Stefan Brew, one of the researchers, said: "What we are trying to do is work out is a way to minimise problems.

"At the moment we tend to not have an accurate picture of what will happen if we interfere with the blood supply."

Aneurysm hope

He said that in future, the system might have wider applications, such as predicting the danger posed by brain aneurysms, bulges in blood vessels caused by a weakening of their structure.

One in hundred people have one, but only 1% of these will rupture, will devastating consequences.

Brain surgery to correct aneurysm can also cause rupture, so the technology could in theory be used to predict which aneurysms pose the greatest threat, so only those at risk receive operations, said Dr Brew.

"If we could achieve that, it would be a major breakthrough," he added.

Dr Andrew Clifton, a consultant neuroradiologist from St George's Hospital in London, said that while neurosurgeons did have techniques to minimise the risk to patients, the research was "potentially useful".

He said: "It seems like 'work in progress' at present, and so I would not expect to see it in operating theatres within the next few years."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7595701.stm

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It's Not Easy Being Green

How environmentally friendly is your college or university? Well, it all depends on whom you ask.

As higher education has become more conscious of issues such as sustainability, a number of independent assessments have arisen from both nonprofit and for-profit sources. For better or for worse, they all have different methods of evaluation and serve disparate audiences — and many of these assessments rely on self-reporting. As these green ratings have proliferated, many college officials have said they would prefer a national standard. And some experts think a new environmental rating being created may become one.

The myriad of assessments evaluating college environmental performance and sustainability can be separated into two broad categories. There are those ratings, generally compiled by nonprofit organizations, that strive to be substantial assessments of an institution's commitment to environmental thought and practice. Data are typically self-reported by colleges and rely upon their participation for their inclusion in the study. Some critics argue this self-selection strategy allows under-performing institutions to fly under the radar. Still, there are some studies that attempt to do their own independent research in an effort to ensure greater participation and accuracy by including institutions that do not voluntarily provide data.

In contrast, there are those rankings and listings, usually published by for-profit college guides and magazines, aimed at informing prospective students and their parents of institutions that put environmental concerns at the fore of their mission. These rankings are often less scientific and more anecdotal than their non-profit counterparts, attempting to provide their readers with an easily digestible critique of select institutions. Some critics argue this method has the potential to mislead readers and arbitrarily publicize the efforts of some institutions over others. Nevertheless, even some of these critics contend that these listings generate valuable awareness of environmental issues on college campuses and may drive some readers to seek out more detailed analyses of their institutions of choice.

Striving for Completeness

The Campus Ecology program of the National Wildlife Federation published what it and most others in the field of assessment consider the first study of environmental performance and sustainability in higher education in 2001. Julian Keniry, the NWF's director of campus and community leadership, said the initial report was difficult to compile as there were no existing standards.

The NWF's 2008 report card surveyed 1,068 institutions; Keniry said that all institutions in the country were asked to provide data. This rate of participation constitutes a modest 5 percent growth from that of the initial study, making it what the organization claims is the largest study of its kind. The report card does not grade or rank individual institutions. Rather, it grades all participating colleges collectively on a number of criteria from A to D. Those conservation issues assessed include energy, water, transportation, landscaping, waste reduction and environmental literacy. The survey, Keniry said, was meant to take institutions a relatively short amount of time to complete: between 20 and 30 minutes per component of the survey, which judged management, academics and operations. She added that as the survey is self-reported, it is mean to show activity and not to judge performance.

"There is no reason to believe the respondents would be over or under reporting," Keniry said. "So many campuses were willing to admit to having no program in place for certain areas. You would think, if you were going to exaggerate your program, you would say that you have a lot going on in all areas."

In addition to collectively judging higher education on its commitment to sustainability, the report card also specifically identified more than 240 institutions as having "exemplary programs." These are defined by a rigorous set of criteria, and an institution must meet the minimum criteria in at least one area in order to be named. For example, an "exemplary program" in operations must receive more than 80 percent of off-campus energy from a renewable resource. This type of information is also self-reported by the institutions.

"In the listing of exemplary schools, if a school is not on the list it doesn't mean that they don't have a particular program, it just might not have been the criteria," Keniry said, noting that she had received some complaints from institutions who were upset about not being on the list. "It was meant to be more celebrative than punitive. This was just our attempt, based on self-reporting, to recognize these programs as models. Campuses are proud of programs in certain areas. Why not highlight those?"

Another report card is that of the Sustainable Endowments Institute. Following the success of the initial NWF report in 2001, SEI published its first report card in 2007 after publishing an aggregate study similar to that of the NWF in 2006. Mark Orlowski, SEI founder and director, said the first report card was created in response to the numerous requests he received for information on how specific institutions fared in the study. This year, the report card surveyed the institutions with the largest 200 endowments in the United States and Canada. The project included independent research to assess institutions that did not complete surveys. Orlowski argued that, by using institutions with larger endowments, the study is not skewed toward wealthy colleges and universities."It is not accurate to say an institution is wealthy by looking at their overall endowment," Orlowski said. "You have to look at wealthy institutions by looking at the per-student endowment. We're using overall endowments to create a filter. It's a way to look at schools that are geographically spread throughout the country. There are public and private schools, although it is skewed a bit to the privates. There is also a nice mix of large and small and in rural and urban areas."

The report card assess administration, climate change and energy, food and recycling, green building, transportation, endowment transparency, investment priorities and shareholder engagement. Regarding its scoring for institutional investments, the report card states that "points were given to schools that investigated, or currently invest in, renewable energy funds or similar investment vehicles." Institutions are graded in these different sections individually and then given an overall grade. While the scoring criteria and calculation of the overall grade are transparent and explained by the report card, the methodology behind the individual section grades are kept a secret. Its rating standard is based on "current best practice," according to its methodology. The average grade for all institutions in 2008 was a C+, up from a C last year. Orlowski says the report's direct approach to grading and independent assessment of institutions makes it unique.

"We don't have a profit motive," Orlowski said. "We're not trying to sell more of our report cards. This is becoming a top-tier issue right up there with the academic quality of an institution. This has started thousands of conversation on sustainability at these schools. It's opening eyes as to where a school is and where other schools are. Before this, there wasn't an approach to compare with peer schools."He added that a number of faculty and students at schools earning poor grades from the SEI report card have contacted him to thank the organization for bringing awareness to environmental issues at their institutions. Orlowski said he has seen a number of institutions make constructive changes after receiving poor grades on the report card.

The University of Southern California, for example, earned a D on the 2007 report card. The university, according to the 2008 report card, established a sustainability task force and began two building projects using Leadership in Energy and Environmental Design (LEED) certification. As a result, the college earned a C+. SEI also added another category, in which the university was already excelling, to the report card, said James Grant, USC spokesman. He pointed out that although the addition of a "transportation" category clearly helped the institution's overall score, "eco-friendly approaches to transportation as ridesharing, incentives for metro passes for students, faculty, and staff; and alternative fuel vehicle use have been in place for several years already." USC is one of five colleges on this year's report card that saw an improvement of at least a grade and half.

Orlowksi said that about two-thirds of the institutions in the 2008 report card improved their grades from last year. A number of these grade shifts are the result of institutions providing their investors with more explicit opportunities to invest in funds that consider environmental or sustainable factors.

Jumping On The Bandwagon

Given the impact of the report cards by both the NFA and SEI, a number of other less substantial or duplicative rankings of campus environmental sustainability debuted this year. The Princeton Review and Kaplan dedicated sections of their 2009 college guide books to recognize "green" institutions. Also, magazines from *Forbes* to *Sierra*, the official publication of the Sierra Club, published environmental rankings of colleges and universities. The lists by *Forbes* and Kaplan, however, made use of SEI data, said Orlowski. Still, others did come up with their own methodology.

In its recent editions of *The Best 368 Colleges*, *The Best Northeast Colleges* and *The Complete Book of Colleges*, the Princeton Review included new "green ratings" for institutions on its review pages so that readers could "find out if they're environmentally friendly." The 534 institutions rated are judged on a scale from 60 to 99 based on institutional responses on a self-reported survey. The methodology behind this rating, however, was not made available to the institutions before the survey was conducted, said David Soto, the Princeton Review's college ratings director. He added that the survey consisted of 30 questions from which the Princeton Review selected the 10 it found to be most important to determine the rating after having given the survey. This information was self-reported by the institutions. ecoAmerica, a non-profit environmental marketing agency, helped the Princeton Review determine the criteria for this rating."Especially with a rating of this nature, it will play a role in a student's college selection," Soto said, though there is no data to suggest that prospective students' college decisions hinge on the issue of sustainability. "We were considering students. They are reacting to, want and need this information. Students are savvy shoppers these days."

Instead of seeking hard data like the NWF and SEI surveys, the Princeton Review asked colleges questions about their efforts to provide what it calls "an environmentally beneficial student experience." For example, one of the questions among those that counted asks, "Does the school offer programs including free bus passes, universal access transit passes, bike sharing/renting, car sharing, carpool parking, vanpooling or guaranteed rides home to encourage alternatives to single-passenger automobile use for students?" As a result, the exact methodology in calculating the ratings is not transparent to the public. Only the 10 questions used by the Princeton Review to calculate the grades have been released, and its scale for judging institutional responses has not been released. The institutions' responses to these questions are not made public either. Only a rating between 60 and 99 is provided in each college's profile. Those institutions that did not provide answers to a "sufficient number" of questions were awarded the lowest score of 60 with an asterisk. Though Soto said the Princeton Review did its best to ensure full reporting from the institutions it surveyed, he noted that colleges and universities can improve their "green rating" each year when a new guide is published.Joining its competitors on bookstore shelves this fall is Kaplan's *College Guide 2009*, which also includes a list of 25 "environmentally responsible colleges." Instead of ranking the institutions or assessing them in some quantifiable way, Kaplan presents a two-page spread detailing the green aspects of 25 institutions listed in alphabetical order. The list was not compiled in a scientific manner, said Jason Palmer, Kaplan contributing editor, adding that it instead focuses on institutions with a well-documented and long-term commitment to environmental sustainability. The guide entries detail green attitudes and activities "inside the classroom," "around campus" and in "student life."

"Our book is geared towards students," Palmer said. "We shy away from rankings. We were not trying to find the greenest college. Still, we wouldn't consider it definitive. Realistically, college number 26 could have just as easily been included as college 25."

U.S. News and World Report, known for making waves with its annual list of *America's Best Colleges*, does not currently publish "green" rankings of colleges and universities. It is, however, already making plans to join that crowded playing field.

"We think measuring and assessing the differences in campus environmental sustainability is very important and is something that *U.S. News* wants to begin doing as soon as possible," Robert Morse, the magazine's director of data research, stated in an e-mail. "*U.S. News* is looking for an environmental organization with expertise who would like to work with *U.S. News* in order to produce such rankings. We think teaming up with such a known environmental organization would be the best way to produce the most credible green rankings rather than trying to create such rankings on our own."

The Gold Standard?

Even before this recent influx in the number of campus environmental rankings and assessments, some college leaders have been calling for an objective standard by which all colleges and universities could be judged. In 2006, the Higher Education Associations Sustainability Consortium, a network of associations including groups like the Society for College and University Planning, commissioned the Association for the Advancement of Sustainability in Higher Education (AASHE) to create just such a system. Now, the organization has 90 colleges and universities testing a pilot version of its new Sustainability Tracking, Assessment and Rating System (STARS). Julian Dautremont-Smith, associate director of AASHE, said the goal is to have STARS reach the same accepted standard that LEED certification has achieved in evaluating buildings.

"There was a perception that there was no good way to show how sustainable a campus was and its progress over time," said Dautremont-Smith of the time period before STARS was introduced. "There needed to be a system like that of LEED but for entire campuses. There have been all these attempts to assess a system, but there is a need for a standardized method because many haven't been satisfied with the rigor of the others."

Dautremont-Smith identified a number of key distinctions that set STARS apart from the other assessments on the market. He noted the system's complete transparency from start to finish. Unlike some of the other assessments, colleges and universities know from the beginning what they must do to garner certain ratings. Additionally, data and documentation are also publicly available. Dautremont-Smith said this adds to the credibility of the system, as institutions can understand what is expected of them in the survey process. For example, each point awarded by the system has a number of qualifications. In one of the initial questions, one point is given if "between 0.0 and 0.1 percent of the institution's courses are sustainability focused" and six points are given if "4 percent or more of the institution's courses are sustainability focused." Specific percentages between these two qualifications warrant different point amounts.

The process of STARS evaluation, however, is meant to be lengthy, he said. Though all data is reported by the institution, the system maintains an objective scoring rubric with solid requirements for gaining points. Though the final rating levels have yet to be determined by AASHE, Dautremont-Smith said it will be a tiered grading system similar to that of LEED certification, in which buildings can earn bronze, silver or gold recognition. After being certified, the STARS rating for a college or university will be valid for three years.

The STARS pilot program ends at the end of the year, at which point AASHE will synthesize the feedback in order to develop the first full-fledged version of the assessment system. Dautremont-Smith said STARS 1.0 will launch in the fall of 2009 and will be the first version of the assessment to offer official certification to institutions.

Some, however, worry that STARS may be too detailed and complicated for all colleges that want to participate to be able to do so. Additional, there will also be a fee for the certification process. Dautremont-Smith dismissed these concerns by stating that only institutions who wish to be assessed by the program need apply.

"We've been working to make the process as easy as possible without watering down its comprehensiveness," Dautremont-Smith said of the certification. "These things do take some amount of time. We hope other systems will start to use the data from STARS, as more folks are starting to use it as the standard. We think it'll have a pretty big impact over the long term."

— David Moltz

The original story and user comments can be viewed online at
http://insidehighered.com/news/2008/09/04/green.

The Little Engine That Can

It's the kind of assignment that on first glance sounds like a student's dream come true: Rather than a lengthy term paper, produce several short, three-paragraph modules on a historical topic using primary sources.

But not so fast. "It certainly strikes me that it's harder than writing a 20-page paper in which you can kind of take your time and develop things and all this," said Edward L. Ayers, a noted historian of the American South and president of the University of Richmond. "Here ... it's not quite haiku, but [it's] very efficient in how you define the question, the point of the story," a skill he defined as requiring "concision, clarity, density of information."

For several years, students at the University of Virginia, where Ayers was previously dean of arts and sciences, and a handful of other colleges have followed just this kind of directive, discovering not only that it isn't as easy as it sounds, but that it's a potentially invigorating new way to introduce newcomers to the tools and methods of real historians. The hub of all this innovation exists online, at a Web site relaunching today from its new home at the University of Richmond and dubbed the History Engine.

The site is the product of several years of development and successive iterations. The core idea is to create a resource for students to search and browse written tidbits — what historians behind the project call "episodes" — and to contribute their own entries to a growing online ecosystem that is connected via semantic links, time stamps and geographic tags (with mapping functionality on the way). This "moderated wiki," as Ayers describes it, provides a basis for classroom learning, while its public nature — a particularly direct form of peer review, perhaps — energizes students in their research.

For example, a search for "railroad" yields, among other items, a blurb on the president of the Pennsylvania Railroad Company and his role during the Civil War, gleaned from sources like an 1873 *New York Times* article. Such an episode might be entered into the database after it was written for a class assignment according to a professor's discretion. All the episodes are freely available and can be shared within and between classrooms and institutions.

The History Engine began in 2004 as an idea hatched at the Detroit airport as Ayers and Andrew Torget, now director of Richmond's Digital Scholarship Lab, awaited their flight on the way home from a conference at which they'd presented on Ayers' groundbreaking Valley of the Shadow project, an online archive that follows the history of a Northern town and a Southern town during the Civil War period through primary documents such as letters and census records. Their students write such "amazing stuff," Torget recalled thinking, yet it's discarded at the end of each semester.

"The original idea was, How can we put students into collaboration with one another? How can we open it up so they can see each other's work ... a place where they can accumulate over time?" Torget said.

Ayers was preparing his class on the rise and fall of the slave South, for which Torget had served as a teaching assistant as a graduate student in the past, and they came to the realization that their idea would require a digital approach to the discipline. From there, Torget said, the question became: "What would a writing assignment look like in the digital age, and how would it [differ from] a normal essay or a paper?"

The result, a combination of Web 2.0 features, gives students the opportunity not only to experience the work of a historian but to read and critique each other's research, much as scholars do. Even as students' use of Wikipedia for class assignments continues to confound many professors, others have found it to be useful in specific applications, especially when combined with some form of oversight. The History Engine project continues the tradition of adapting emerging technologies for use in non-technical fields, where for the past 10 to 15 years the digital humanities approach has grown in prominence among a younger generation of researchers.

Torget, for example, was project director at the Virginia Center for Digital History, which Ayers co-founded and where the Valley of the Shadow project originated, along with the History Engine's

precursor, the Southern History Database. Since then, with help from a National Institute for Technology and Liberal Education grant, the database has expanded to encompass all of American history (from the 1790s to about 2000, with nearly 5,000 episodes) and, with today's launch, it's becoming a national project in which any class may participate. Torget, the History Engine and an emphasis on digital humanities followed Ayers to the University of Richmond last year, where last month another online project, Voting America, was released to showcase a graphical interface combining historical timelines with geographic data.

Before the History Engine relocated to Richmond, five other colleges were participating in the project along with the University of Virginia. Professors at those institutions were able to put their students in touch with peers across the country and encourage collaboration without confining them to the classroom itself. "It's built to be adaptable to different classrooms, depending on what the needs of the teachers are," Torget explained.

Once the episodes are completed, professors can decide to use them in any way they want, whether as the final grade or as building blocks for (alas) a larger paper. "We don't impose how they're going to use that for assignments in the class, so much," Torget continued. "The only thing we impose is, 'Here's the pedagogy.'"

Lloyd Benson, a professor of history at Furman University, used an earlier version of the History Engine, as well as an embryonic, "home-brew" version he helped develop himself, for his 19th-century history classes. Next semester, he's planning on adopting it for an urban history class, focusing students' episodes on New Orleans.

The approach, he said, highlights "little flashes of the lived human experience, a kind of vignette or snapshot that speaks to life at the personal level as people experienced it or recorded it or built it.... How do we put that together in a way that is more generalizable?"

— Andy Guess

The original story and user comments can be viewed online at http://insidehighered.com/news/2008/09/04/engine.

On Alcohol, Leaders Wanted

LIZ MEDCALF/FROSTBURG STATE UNIVERSITY
Outside the Classroom's Brandon Busteed, Frostburg State's Jonathan Gibralter and the Gordie Foundation's Michael Lanahan.

Frostburg, Md., has absentee landlords like any other college town, and some students rent houses where people party but no one lives. Jonathan C. Gibralter, Frostburg State University's president, recently passed by one of those shells. "They were literally raking the beer cans out of the living room."

Gibralter told the tale Wednesday in accepting an inaugural, first-annual Presidential Leadership Award, which honors presidents for "success in promoting a vibrant intellectual and social climate that deemphasizes the role of alcohol." The award presentation at the American Council on Education's Washington headquarters Wednesday came as the Amethyst Initiative, an official call by many college presidents "to rethink the drinking age," has attracted significant national attention. So far, 129 college presidents have signed the Amethyst Initiative — and Gibralter is not one of them. Nor are any of the other 17 presidents who were nominated for the leadership award among the signatories (a retrospective coincidence — the nomination process predated the Amethyst Initiative's July launch).

There was just a bit of tension in the air when Amethyst came up, as it did, many times, in Wednesday's ceremony. In the audience for the presentation was the chief executive of Mothers Against Drunk Driving — which has criticized Amethyst's supporters for "shirking" their responsibilities regarding underage drinking and recently responded to Amethyst's message with a coordinated e-mail (or, depending whom you're asking, spam) campaign.

At the same time, there were overtures Wednesday toward a common purpose for college presidents, whatever their stance on the legal drinking age. Brandon Busteed, founder and CEO of Outside the Classroom, a Boston-based company behind the online alcohol prevention program AlcoholEdu, said that the Amethyst Initiative has primed the public for the bigger debate he wants to be having. And it's put the pressure on college presidents to step up and face a problem on which, historically, he said, their leadership has been lacking.

"What it does now, it puts presidents, whether they've signed this or not, into the limelight about what they're doing on this issue," said Busteed, whose company funded half the $50,000 award given Wednesday to Frostburg State's foundation. The Gordie Foundation, which focuses on young people and alcohol and hazing, funded the other half. Other higher education-oriented organizations behind the award are ACE, the American College Personnel Association, the Association of Governing Boards of Universities and Colleges, NASPA: Student Affairs Administrators in Higher Education, and the insurance company United Educators.

"The best thing any of us can do right now is seek and showcase presidential leadership on this issue. We've got everyone's attention," Busteed said. "It would be a shame if the debate ended with the drinking age."

At Frostburg

Thomas L. Bowling, vice president for student and educational services at Frostburg State, in rural Maryland, nominated Gibralter for the honor. "He's been passionate about communicating to the students that he's concerned for their safety and welfare," Bowling said. "He's also invested and redirected resources to assist those of us in student affairs' work on this issue. It has not just been public pronouncements, but he has followed those up with resources."

At Frostburg, like at almost any campus, "Some students drink, sometimes to excess, sometimes with tragic consequences," said Gibralter. "We refuse to throw our hands up in exasperation."

Soon after stepping into Frostburg State's presidency in 2006, and responding to an alcohol-fueled act of violence, Gibralter published a letter in the student newspaper to announce a "zero tolerance policy. Students under the influence and abusing the university's alcohol and other drug policies, both on and off campus, will be dealt with through the university's judicial process with no leniency." He also announced the formation of a university-wide Alcohol Task Force. It now meets twice a semester and offers recommendations in four areas: Campus and Community, Policy and Procedures, Alternative Programming and Today's Student.

On campus, the AlcoholEdu course is mandatory for students, Gibralter said, and optional for parents. Off campus, the university has actively built up relationships in its surrounding city, including by increasing the sharing of information with local law enforcement officials (and vice versa). As for the bars and liquor stores that derive much of their livelihood from university students, Gibralter said they're discussing an incentive program to reward local bars that check I.D.'s carefully and refrain from hosting events that would encourage binge drinking. He said he imagined a small ceremony, with a plaque and a newspaper reporter present. "When do bar owners ever get public recognition for their efforts?" he asked.

Meanwhile, Gibralter hoped to dedicate "a significant portion" of the $50,000 Presidential Leadership Award to fund a grant program that would support students' ideas on battling alcohol issues. His nomination packet included a letter from a Frostburg student who first proposed a "SafeRide" program there. Gibralter acknowledged he was originally reluctant, wondering whether such an initiative would endorse drinking. But he ultimately supported the student's plan, including by making university vans available. In his April letter, David Tiscione wrote of Frostburg SafeRide's first semester in place, "We have had nearly 2,000 riders and this could not have happened without Dr. Gibralter's support."

"I want to believe that all this is going to make a difference. And I do believe it's going to make a difference, but it's still not going to help me sleep better at night," said Gibralter. "I do not ever want to call a parent and say, 'Your son or daughter died because of binge drinking.' "

He continued, "I declined to sign the Amethyst Initiative and I won't sign it. I won't sign it because I don't believe the drinking age should be lowered."

Later on, when pressed, Gibralter likened the Initiative to a "head fake," a move in one direction meant to ultimately take college leaders in another. He wants this conversation to be happening, he said, within the confines of current law.

On Amethyst

"It is not a head fake," insisted John M. McCardell Jr., president emeritus of Middlebury College. "It's saying you cannot discuss the alcohol culture on college campuses but place the drinking age out of bounds. You can't do that, because everything you do on a college campus is really shaped by what this law says." McCardell is a drafter of the Amethyst Initiative and founder of Choose Responsibility, which promotes considering different policies for alcohol use among 18- to 20-year-olds.

"What I think every signatory president will tell you is under the law they are limited to the abstinence-only message. A president can't get up and say, 'Drink moderately, drink responsibly, drink occasionally.' The only message, the only weapon, the only tool that you have is abstinence, and that is so clearly not working," McCardell said in a phone interview.

He did agree that the initiative has brought to the surface "a welter of different views about the alcohol culture on our campuses and what might be responsible for shaping that culture. We can agree or disagree that the drinking age is at the core of that or at the periphery of that or somewhere in between. But I think it's very safe to say that the American public is not of a single mind on that question, and the dialogue that the presidents' emphatic putting of that question has generated has been for the most part very, very positive."

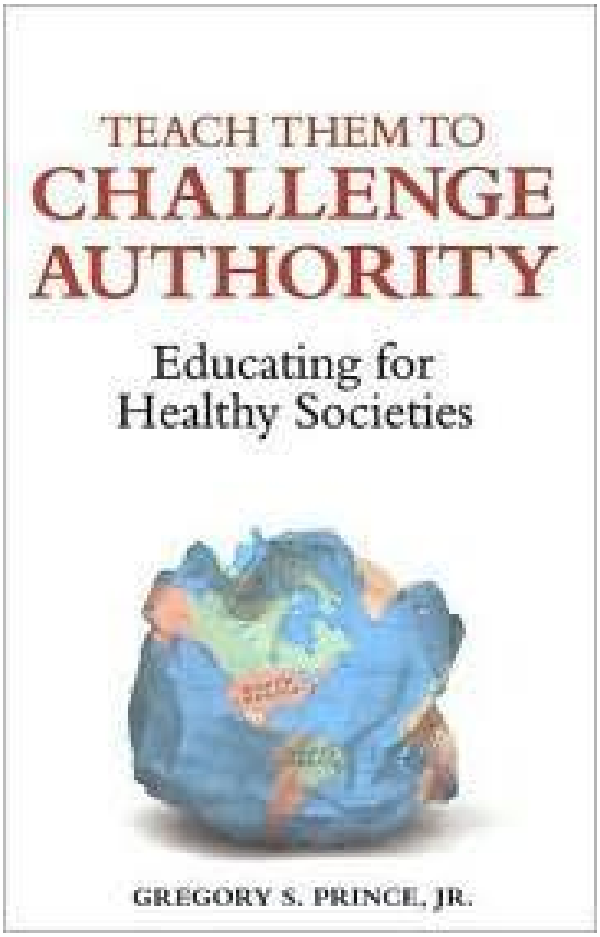
Still, he didn't think he'd be invited to the Presidential Leadership Award ceremony anytime soon.

Just before hanging up, he joked, "I probably won't see you at this award ceremony next year either, but I will talk to you hopefully before then."

— Elizabeth Redden

The original story and user comments can be viewed online at http://insidehighered.com/news/2008/09/04/drinking.

'Teach Them to Challenge Authority'



Stanley Fish may be telling academics to keep their opinions to themselves, but Gregory S. Prince Jr. thinks it is time for colleges to stop trying to make their classrooms neutral. Prince, the former president of Hampshire College, argues for professors to take all kinds of positions — as a tool for challenging their students. His new book, *Teach Them to Challenge Authority: Educating for Healthy Societies* (Continuum) outlines this view, and Prince responded via e-mail to questions about the work.

Q: What's wrong with a neutral stance in the classroom?

A: A neutral stance in the classroom is appropriate as one of many pedagogical approaches. When it becomes the only pedagogical approach, it deprives students of the chance to learn how to challenge those who have power over them — a skill that is essential in any career, that is essential for the health of any institution and that is critical in a democratic society. Higher education should have been very concerned that at a place like Enron, where almost all of its senior departmental and corporate leadership were college educated, only two at most challenged what was taking place.

Q: You note the criticism that conservatives hurl on liberal academics. Do you think academics have adequately defended themselves?

A: Academics have not adequately defended themselves. Too often they have ignored the critics or taken the position that there is no problem. As the first step in mounting an adequate defense, they

should acknowledge that the conservatives are right about the principle that students should not be ridiculed for disagreeing with their professors. They should acknowledge that students should be encouraged to disagree with the politics of their professors. They should acknowledge their responsibility to listen respectfully to opposing points of view and to guide students to sources that support such views.

What happens all too often is that they deny there is a problem rather than challenging the proposed solution to the problem. The problem always will exist because there always will be individuals who cannot or will not master the difficult art of effective teaching. In contrast, I accept that the there are undoubtedly many cases where the critics are right but that to whatever extent the problem exists, the solution that the conservatives propose — having the faculty always maintain a position of neutrality — is the wrong one. Faculty need to take positions so that students can learn how to challenge those in authority. How a faculty member takes a positions is what is critical. It is an art both to take positions and to create an atmosphere in which students will learn how to challenge those positions

Q: What advice would you give to professors who agree with your book, but who teach at institutions where students are more conservative than those at Hampshire?

A: I would give them the same advice that I would give to Hampshire faculty and to faculty in any university. Acknowledge the differences where they exist, listen well to the students, create an atmosphere where they can challenge your positions, respect the students enough to take their positions seriously and be willing to state your own positions and to engage the students in discussion and debate about those positions.

Q: How can you tell if a university is "engaged" in the way you advocate?

A: Universities that test themselves by asking constantly whether they are doing enough and then push themselves to do more are engaged in the way I advocate. What made Hampshire such an exciting place for me was its culture that made asking whether we were doing enough in the classroom, with individual students and with the community outside the college a perpetual part of the educational conversation. Often what we were doing was good, but measured against what was needed, it was rarely good enough. Students are an important part of that conversation because they so often are impatient and feel that so much more can be done. They helped fight complacency that all too often is the greatest danger to delivering a quality educational experience. As a completely different kind of example, land grant institutions, with their explicit service missions that have served this country so well, generally are and have to be, in constant conversations with their legislatures and the public whom they serve about whether "they are doing enough." Those conversations, difficult as they are sometimes, benefit the academy and the public.

Q: How can presidents protect the freedom of their professors to teach as you suggest — and encourage it?

A: The most effective way is to model in their own behavior what they expect of the faculty, to articulate and practice the principles of discourse that make it possible simultaneously to take positions and to encourage students to challenge those positions and pursue a review and reward system that supports the principles. Confront constructively and fairly and do not ignore those situations where the practices of faculty do not support the core value of the principles of discourse — that what matters is the strength and integrity of one's argument and rhetoric, not the political hue of the opinion being defended.

— Scott Jaschik

The original story and user comments can be viewed online at
http://insidehighered.com/news/2008/09/04/prince.

The Truly Interdisciplinary Search

Most faculty hiring is done department by department — a method that many scholars say contributes to the difficulties for those whose teaching and research can't be neatly placed in one departmental box. Professors have complained for years that to do interdisciplinary work, they need to get hired by one discipline (playing down out-of-field interests), and then post-hire or post-tenure, they can branch out. After all, many a search committee is more impressed by a willingness to teach survey or intro courses than a desire to work with the department across the quad.

Seeking to break that pattern, Michigan Technological University used a new system in hiring this year. As in past years, it had about 25 professors' slots open to fill existing positions on its faculty of 305. In recent years, the university has been able to replace those who leave, but hasn't added positions. This year, the university made seven hires on top of replacing the existing faculty positions — but none of these searches were managed by departments. While those hired are working with one or more departments, they applied and were evaluated universitywide, and all around a single theme: for their ability to contribute to the study of sustainability.

With the new recruits starting, the university is beginning the process of hiring up to 10 more professors for next year — again around a (new, but not finalized) single theme and hired through a universitywide process. The goal is to continue the process for a total of 10 years such that the faculty will be significantly enlarged — with the new hires all tenure track and many at the senior levels such that they will arrive with tenure. But by devoting all "growth" hires to this process, the university will eventually have up to a third of its faculty hired campuswide, not by departments. While many universities have select endowed chairs that are chosen universitywide, it is rare to move all new slots from departments and to an institution-wide process.

A typical faculty search committee at Michigan Tech would involve six to eight members. More than 90 faculty members were involved in the interdisciplinary hiring process this year.

"In traditional hiring, it's hard to break out of the pattern of replacing one's self, so to take a jump ahead of the curve, it was important for us to make departments participate as partners in deciding the best possible faculty for the university," said Lesley Lovett-Doust, the provost. The underlying question, she said, was: "How do we make every hire a strategic hire?"

Faculty members report that there was initial skepticism about the approach in some quarters, due in part to passing up the chance for growth in individual departments. But the program now appears popular among faculty members because professors made the key hiring decisions (just not in departmental mode), because the program provided a growth in the size of the faculty, and because people are impressed with the new hires.

Here's the process the university used. A committee that had representatives from every discipline and every research center on campus met to draft a broad statement on the university's interest in sustainability focused faculty members. The statement covered three endowed chairs plus the seven positions (across ranks) that were also being created. Applicants weren't asked to apply for a specific slot, but to describe how their research and teaching fit into the university's sustainability agenda.

About 230 applicants were then considered for in-depth screening. The faculty committee selected three reviewers — generally from different disciplines — for each applicant. The reviewers were instructed to judge candidates on a variety of factors, including ability to lead a research program, ability to teach undergraduates, ability to be a mentor to graduate students and so forth. While candidates were evaluated on the basis of how they could contribute to the study of sustainability, they weren't evaluated based on fit in any particular department. Candidates were ranked numerically by the various panels, and the 230 was winnowed to 80 and then to 30, then to finalists who were invited to visit the campus and then, finally, to those who eventually earned offers.

Once candidates were selected, the committee determined possible departmental homes for them. So Audrey Mayer, who is moving to Michigan Tech from the University of Helsinki and whose research focuses on indices of sustainability, will hold a joint appointment in the Department of Social Sciences and the School of Forest Resources and Environmental Science. Or Shiliang Wu, who is finishing a postdoc in atmospheric sciences at Harvard University, will hold a joint appointment in geological and mining engineering and in civil and environmental engineering. Other researchers moving to Michigan Tech in the program are coming from the Argonne and Los Alamos National Laboratories, the State University of New York at Albany and the University of Texas at San Antonio.

All those hired will be assured of evaluations (and tenure reviews for those coming in without tenure) that also involve multiple departments, with professors in appropriate areas of expertise playing roles.

Lovett-Doust acknowledged that Michigan Tech has advantages over other institutions in experimenting with such an approach. As a science and technology oriented university, it has a clear sense of mission. And as a mid-sized institution (enrollment is around 7,000), "there is more flexibility because disciplines aren't physically distant," she said. But she said she hoped the idea could be applied at larger institutions as well.

She said that the shift in thinking about hiring is notable. "At many universities, there is a long history [in hiring] of departments taking care of their own area first and not thinking about the university as a whole." This approach specifically appeals to the idea of common priorities. "This takes a certain amount of trust. It's like jumping into a mosh pit," the provost said.

Mayer, who is moving to Michigan Tech from Helsinki, conducts research on tools for detecting biodiversity patterns, models that can used to study ecological systems, and the interaction between science and the law in considering sustainability issues. She said she interviewed for positions at other institutions as well and that it can be difficult to win over a disciplinary search committee when your work extends beyond a field.

"In several of the jobs for which I was one of the top candidates, one or two of the faculty — and in one case, a member of the search committee — seemed a bit underwhelmed by all of the publications I have in non-ecological journals — even though they are well known in other fields — and the extent to which human influences and activities are incorporated into my work," she said. In contrast, her Michigan Tech interview included professors who related to different parts of her work.

She said that the hiring program at Michigan Tech was "the first opportunity for which my interdisciplinary background seemed to be an asset, instead of a potential detriment."

Mayer also noted that the approach of hiring a group of scholars around a common theme also changed the experience. In other searches, she said she never knew who else might be joining the faculty. "The hiring process was certainly different than anything I've encountered," she said. "Instead of the other candidates being a secret, during my interview at MTU I was actually told about other final candidates and how my work would mesh with theirs." She said that the professors doing the interviews "were really looking to build a community of researchers, not just hires who would work in their own little bubbles."

Generally, current professors at the university said that the key to the program winning over the faculty was that while the administration pushed the interdisciplinary approach, it did not try to take hiring in any way away from professors, and in fact ended up promoting much broader faculty involvement in hiring.

Jason Keith, an associate professor of chemical engineering, said that some professors did wonder why they couldn't just get additional lines for their departments. But he said that because the committees overseeing the project all had broad representation, "everyone had someone who understood why we were doing this, and who could explain what was going on," he said.

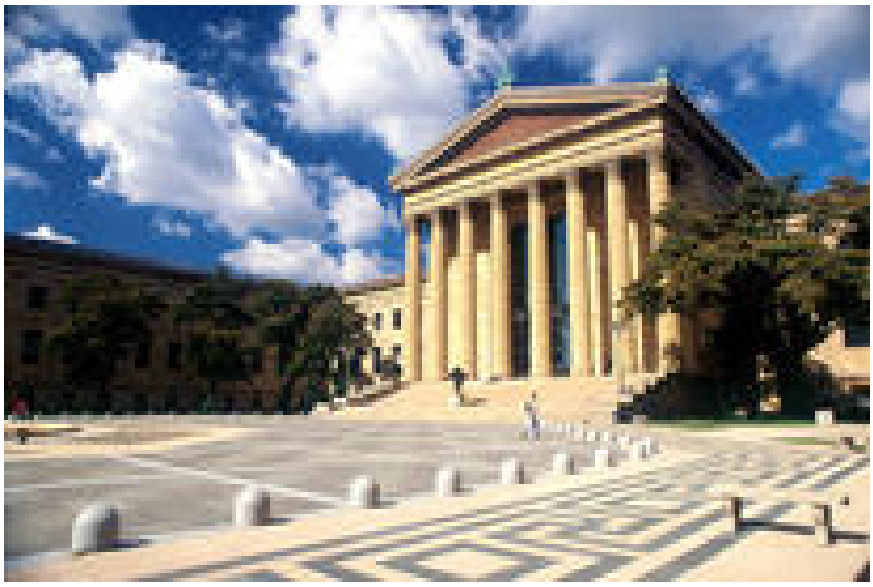
John Gierke, a professor of geological engineering, said he was a fan of the approach from the start. But he said he was pleasantly surprised by how faculty members from different fields were able to agree on candidates to move ahead in the process, and on whom to hire. "I think people were able to set aside disciplinary perspectives," he said.

Gierke said that in the various evaluations he and others did, they identified some people who didn't seem right for the interdisciplinary positions, but who might be good for other openings. One of the best signs of faculty confidence in the process, he said, was that departments replacing faculty members who had left came to him and other committee members asking about such people. People wanted to know "who was good in our search that they should consider."

— Scott Jaschik

The original story and user comments can be viewed online at http://insidehighered.com/news/2008/09/05/michtech.

General Education in the City



The story might seem familiar: A core curriculum had been in place, but, over time, its core became hard to find. Many of the classes counting toward distribution requirements also served as portals into majors (introduction to psychology, say), the "undertow" increasingly pulling core course content into disciplinary folds. "That was the way things were, I guess you could say, entropy-ing over a period of time," explains Terry Halbert, Temple University's director of general education and a professor of legal studies in the Fox School of Business.

That entropy-ing has ended, with a new general education curriculum in place at Temple this fall. The general education program, which comprises about a third of the undergraduate experience, requires students to take 11 courses in nine areas, including a four-course foundation in reading, writing, humanities and math. The curriculum is characterized in part by a focus on interdisciplinary study and a thematic approach that Halbert hopes will keep the curriculum fresh and full of what she calls "the gen ed spirit" — even as time goes by.

The curriculum includes four themes: Community Based Learning, Globalization, Sustainability, and, most notably, the "Philadelphia Experience." The final theme was developed organically: About half of the original 101 new general education courses designed and proposed by faculty included taking students into Temple's urban locale. "So we started to tout it as a theme," Halbert says. "It's actually the strongest one at this point."

Just over 10 years ago, in 1997, one in five students said they were coming to Temple "in spite of" its Philadelphia location, according to Halbert. In 2007, that statistic was down to 1 in 20, and 60 percent called the surrounding city a very important positive factor in their decision to attend the university.

"They're consciously interested in our city. They come here because of it," says Halbert. Of the "Philadelphia Experience" theme, she says, "From an educational point of view, from a purely gen ed perspective, I like it because I know that the students already find this place interesting. So it's the hook that we can use to make it more likely that they care about what they're doing."

Halbert stresses a more explicit focus on teaching in the new curriculum. "Before it was all about the content, what should the content be. And now it's at least as much about how we teach," she says.

New courses with Philadelphia-rooted components include one on "Sacred Space," where students will visit the Japanese House and Garden in Fairmount Park and the Cathedral Basilica of Saints Peter and Paul, and "Criminal Behavior," where they'll assess potential high-crime spots. There's a "Religion in Philadelphia" course, and William W. Cutler's class on higher education in American society includes fieldwork assignments at Temple and other close-by college campuses.

"It gets them on their feet and out into the world. Freshmen, for the most part, they're looking for a college experience that's not just intellectual but fun," says Cutler, a professor of history and also of educational leadership and policy studies.

"They're pretty green," he says of first-semester freshmen. "They don't understand how higher education works. They don't understand how it reflects larger themes and larger cultures. There are so many ways you can use the city and the environs to underscore the themes I'm going to teach."

Speaking more broadly of the new general education curriculum, Cutler contrasts Temple's approach with standard distribution requirements, in which students are required to take a certain number of courses in a variety of disciplines or divisions. "It's not distribution, a little bit of this and a little bit of that, that's being sought after, but rather an attempt to take those pieces and make something larger out of them," he says.

Nevertheless, the move into a more interdisciplinary realm has raised some questions. "I think there are still some faculty who are concerned about pedagogy versus content," says Karen M. Turner, the director of Temple's broadcast journalism sequence and the Faculty Senate president. Turner recently completed a three-year term on the university's general education committee.

"The intent of the executive committee that I sat on so many years was to ensure there was that proper balance. It's great to have wonderful pedagogy but you also have to have wonderful content, and to have that marriage," says Turner.

"Because I sat on the committee, I saw the hard work that we all did in trying to really take something that was hard to wrap your arms around and really develop it into something concrete. It was almost like birthing. I think that it turned out fine, but as with anything there's always tweaking that needs to be done."

To fulfill the general education curriculum, Temple students will take three courses in common: a required four-credit reading and writing course, and a two-course sequence in the humanities. With nearly $5.5 million in new support from centralized university funds, sections of the writing course will be capped at 20 students, and the humanities courses at 25, Halbert says. Students also select one of six quantitative literacy courses, the fourth and final component of what's considered to be the curriculum's foundation.

Beyond that, students take seven general education courses for "breadth." Students select two courses from the science and technology category, and one each in arts, human behavior, race and diversity, U.S. society, and world society.

— Elizabeth Redden

The original story and user comments can be viewed online at http://insidehighered.com/news/2008/09/05/temple.

Artists, Toe the Party Line

By HOLLAND COTTER

It's the morning after. The splashy fete that was the 2008 Olympics is yesterday's news. We're out of the Bird's Nest and back into history, faced with the obvious question: What comes next? Party time in Beijing may be over, but a one-party rule is still firmly in place. New China is still, in significant ways, Old China.

Under that party's auspices, a month ago, some 16,000 performers offered an awesomely dressed, drilled and illuminated paean to China's cultural brilliance, past and present, as a global audience watched the Olympics opening ceremony.

Also under its auspices, beginning nearly half a century ago, uncounted millions of Chinese died from starvation and political violence, both the direct result of a utopian social movement that was intended, among other things, to rekindle China's luster in the modern world.

And it is in light of such histories, near and far, that the important exhibition "Art and China's Revolution" at Asia Society poses its own different but perfectly timed post-Olympics question: What came before?

The show itself is not perfect. At the last minute the Chinese government blocked some promised loans. (The Cultural Revolution is a sensitive topic during this Olympic year.) And curatorial ambition is constrained by lack of space. The ideas are big, the Asia Society galleries too small.

But these are minor factors. Several major, touchstone Cultural Revolution paintings are here: Chen Yanning's "Chairman Mao Inspects the Guangdong Countryside" (1972), Chen Yifei's "Eulogy of the Yellow River" (1972), Shen Jiawei's "Standing Guard Over Our Great Motherland" (1973-74). And if their installation is uncomfortably tight, it evokes the claustrophobia-inducing social atmosphere that produced them. In short, everything needed to bring history to life is in place.

That history spans roughly the three decades following the founding of the People's Republic of China in 1949. By that date Mao Zedong, a classical poet and calligrapher steeped in Western political thinking, had long since proved himself a charismatic leader. He had participated in the guerrilla campaigns known as the Long March. He had been instrumental in forming the new radically socialist government; this was his one indisputable triumph. He was also responsible for the traumatic developments that followed — the Great Leap Forward, the Cultural Revolution — in which social ideals were catastrophically distorted by top-down partisan politics.

Art was a huge part of this history, with an influence on everyday life inconceivable today. Put at the service of politics, it promoted ideas, shaped public emotion and acted as a force of moral persuasion. The painter Chen Danqing, active as a young artist during the revolutionary era, does not exaggerate when he says in the show's catalog, "At the time I felt there was no difference between me and the Renaissance painters: they painted Jesus; I painted Mao."

Mao's image was indeed ubiquitous. And the first few years of the Cultural Revolution saw a concerted effort, led by volatile and anarchic youth groups like the Red Guard and other rebel factions, to deify him. In woodcut posters from the late 1960s his face radiates light. In a color print titled "Chairman Mao Goes to Anyuan" (1969) he is a messianic matinee idol. In another, "Chairman Mao Inspects Areas South and North of the Yangtze River" (1968), he is a god surveying the China he rules from heaven.

Both prints originated as oil paintings. The painting for the first, by Liu Chunhua, was picked from an art school show by Mao's wife and cultural minister, Jiang Qing. She ordered a print made, and hundreds of millions of copies eventually went into circulation.

The painting used for the second print was the work of three artists. A brilliant young painter named Zheng Shengtian was responsible for the cloud-strewn panoramic background, while two colleagues, Zhou Ruiwen and Xu Junxuan, did the figure of Mao. What may look like a friendly collaboration was, however, an example of political discrimination in action.

Mr. Zheng — who organized "Art and China's Revolution" with Melissa Chiu, director of Asia Society Museum — had had run-ins with government authorities. Not only did his painting style stray from prescribed models, but he had also protested the persecution of fellow artists and teachers by the Red Guard. He was briefly imprisoned in 1966 and subjected to humiliating sessions of "self-criticism." When he returned to painting, it was with restrictions. He could do the landscape in "Chairman Mao Inspects Areas South and North," but the figure of the great leader himself was entrusted to artists with sterling ideological credentials.

Yet one look at the picture reveals that the party-approved aesthetic was a hybrid affair. Earlier in the 20th century certain Western modernist art — Impressionism, Fauvism — had been widely admired in China. Its influence is present in Mr. Zheng's landscape. After the founding of the People's Republic, Russian socialist realism become the orthodox art style; it is evident in the idealized Mao figure.

And while traditional Chinese ink painting was out of favor as an elitist form, it is ever-present in art of the revolutionary era. In 1964 an ink and brush landscape by Li Keran passed muster because it includes tiny figures carrying red flags. A mural-size oil painting, "Chairman Mao Inspects Villages in Guangdong" (1971), by Chen Yanning is, thematically, an update on 17th-century imperial scrolls depicting rulers on surveillance tours of the provinces.

Only Western modernism remained under firm anathema, with a status comparable to "degenerate art" in Nazi Germany. Yet artists continued to practice it. Painters using the collective identity of No Name Group experimented with a wide variety of modernist styles but worked on an ultra-discrete scale. Almost all their paintings in the show are small enough to be carried in a backpack or hidden away in a desk drawer.

Despite restrictions and difficulties, the prospect for contemporary art in the People's Republic was not uniformly bleak. Although many older, tradition-minded artists suffered terribly, for at least some artists of a younger generation the revolutionary era was a time of heady inspiration.

The conceptual artist Xu Bing, now an international star, remembers it this way. Born in 1955, he was sent, like many other school-age urban youths in the 1970s, to the countryside for "re-education," meaning to live among peasants and laborers whom he otherwise would never have known.

In a catalog interview he recalls this time as the best years of his life, when the ideal of social harmony, on which the revolutionary movement was premised, became a reality. "It was all about interactions between human beings, and you could really feel the goodness of humanity, and people transcending politics, hierarchy and class."

His tender graphite sketches of the people he lived among confirm these sentiments. And it seems significant that recently, after years of living in the United States, he returned to China to take the position of vice director at one of the country's leading art schools, the Central Academy of Art in Beijing.

Mr. Xu is far from being the only artist to carry the live memory of the revolutionary era into China's 21st-century art. The last gallery in the exhibition — too sparsely installed, as it happens — is devoted to an artists' collective with the historically resonant name the Long March Project. Started in 2002, its goal was to retrace Mao's original, arduous trek across China, but this time in the form of a series of site-specific history-probing art events.

Although the project was supposed to last for only three years, it is still in progress in a postmodern, postindustrial, post-Olympics China that Mao himself might barely recognize.

But, then again, he might. What, after all, are Olympics — in any country, in any year — but a form of nationalist propaganda on a colossal scale? What, fundamentally, were the Beijing Olympics but a monumental exercise in social control? Like the "history" paintings of the 1960s, with their programmed uplift and operatic heroics, the Olympics pageant was a populist confection that obscured the unsavory realities of ruling party power: repression in Tibet, suppression of popular dissent, culpability for the Tiananmen massacre of 1989.

So the history — riveting, puzzling, depressing, exhilarating — of culture and politics in China goes on. The Asia Society show, with its fine catalog, gives a vivid sense of its complexities, past and present, in nutshell form. From this modest but explosive kernel, a thousand more exhibitions will surely grow.

"Art and China's Revolution" continues through Jan. 11 at Asia Society, 725 Park Avenue, at 70th Street, asiasociety.org.

http://www.nytimes.com/2008/09/05/arts/design/05revo.html?_r=1&th&emc=th&oref=slogin

Mr. Natural Goes to the Museum

By KEN JOHNSON

PHILADELPHIA — What a long, strange trip it's been. Over the course of his five-decade career the comic artist R. Crumb has gone from hero of the hippie underground to toast of the international art world. Founder of the deliriously psychedelic and ribald Zap Comix during the Haight-Ashbury wonder years, he has more recently contributed comic strips made in collaboration with his wife, Aline Kominsky Crumb, to The New Yorker. In 2004 he was included in the Carnegie International and had a career retrospective at the Ludwig Museum in Cologne, Germany.

Now the Institute of Contemporary Art here offers "R. Crumb's Underground," an excellent opportunity to ponder Mr. Crumb's incredible journey. This enthralling selection of more than 100 works from all phases of his career was organized by Todd Hignite, the publisher and editor of Comic Art magazine, for the Yerba Buena Center for the Arts in San Francisco, where it was on view in 2007.

Mr. Crumb is not the only artist to cross over from the comic-book ghetto to the fine-art museum. Gary Panter, Chris Ware and Daniel Clowes are just three of the better-known contemporary cartoonists who have helped to make the comic book a form to be taken seriously by sophisticated adults. But Mr. Crumb — a draftsman of transcendent skill, inventiveness and versatility, a fearlessly irreverent, excruciatingly funny satirist of all things modern and progressively high-minded, and an intrepid explorer of his own twisted psyche — remains the genre's gold standard.

Born in Philadelphia in 1943, Mr. Crumb (first name, Robert) never went to art school. He learned to draw under the tutelage of his older brother, Charles, also an aspiring comic artist. In the early 1960s he designed greeting cards for the American Greetings Corporation in Cleveland. In 1967 he moved to San Francisco, where he would create some of the most memorable characters in cartoon history, including the irascible guru Mr. Natural and his hapless foil Flakey Foont; the suave, shamelessly randy Fritz the Cat; the angry amazon Devil Girl; and R. Crumb himself, a figure comparable to the autobiographical alter egos of Woody Allen and Philip Roth. Since the early 1990s Mr. Crumb and his wife have lived in the South of France.

The exhibition is full of wild sex. Mr. Crumb makes no bones about his lust for big, muscular women, and his uncensored erotic fantasy life is not only entertaining but also liberating. See "How to Have Fun With a Strong Girl" (2002), a suite of 12 drawings in which the scrawny Mr. Crumb climbs like a monkey

all over a powerfully built young woman. We should all be so open to, and forgiving of, our libidinous fantasies.

But sex is not Mr. Crumb's only preoccupation. He is also a great lover of early-20th-century popular music and a fanatical collector of old 78-r.p.m. records. A section of the exhibition devoted to his musical interests includes extended narratives about the sadly foreshortened lives of the blues musicians Charlie Patton and Tommy Grady. There is a humane, deeply moving tenderness to these works.

The influence of LSD, which Mr. Crumb has called his "road to Damascus," is evident in works of funky surrealism from the '60s and '70s. The classic "Meatball" (1967), in which ordinary people from all walks of life are hit from out of the blue by consciousness-altering meatballs, is mysteriously trippy.

But what is also appealing in Mr. Crumb's work is how often it is grounded in mundane reality. "Lap o' Luxury" (1977), at 10 pages one of his longer productions, tells in detail all the events in one afternoon in the life of a little boy at home with his mom and his pesky younger brother. At one point he becomes sexually aroused by the cowboy boots on a woman who comes for a brief visit, but otherwise it is all good, clean fun.

Viewers should set aside two or three hours to take in this show. It requires a lot of reading, which brings up another of Mr. Crumb's virtues: he is a gifted writer with a great ear for vernacular speech. An argument can be made that Mr. Crumb's work is best consumed in book form. But there really is no substitute for seeing the original drawings, most of which are made with a fine black Rapidograph pen. The liveliness of his curiously old-fashioned draftsmanship comes across in print, but no reproduction can capture his subtlety of touch and alertness to the act of drawing.

Whatever the aesthetic and formal attractions of his work, Mr. Crumb's penchant for barging past the limits of good taste and political correctness into psychologically juicy and dangerously complicated territory is still the main draw. His most amazingly provocative creation is Angelfood McSpade, a young, inky black, big-breasted African woman in a palm leaf skirt who was inspired by racist caricatures of the '20s and '30s. Sweet-tempered and dimwitted, the long-suffering Angelfood is subjected to all kinds of sexual abuse in various episodes Mr. Crumb has drawn. In one hilarious strip in the exhibition she is abducted and molested by aliens in a U.F.O.

Mr. Crumb's outrageous play with the Angelfood character hinges on a theory that all people are at least unconsciously racist and that bringing racist fantasies fully to light is the best way to expose how stupid and cruel yet insidiously compelling they can be, especially when mixed with sexual fantasies. Kara Walker and Robert Colescott have toyed with racist stereotypes to similar ends.

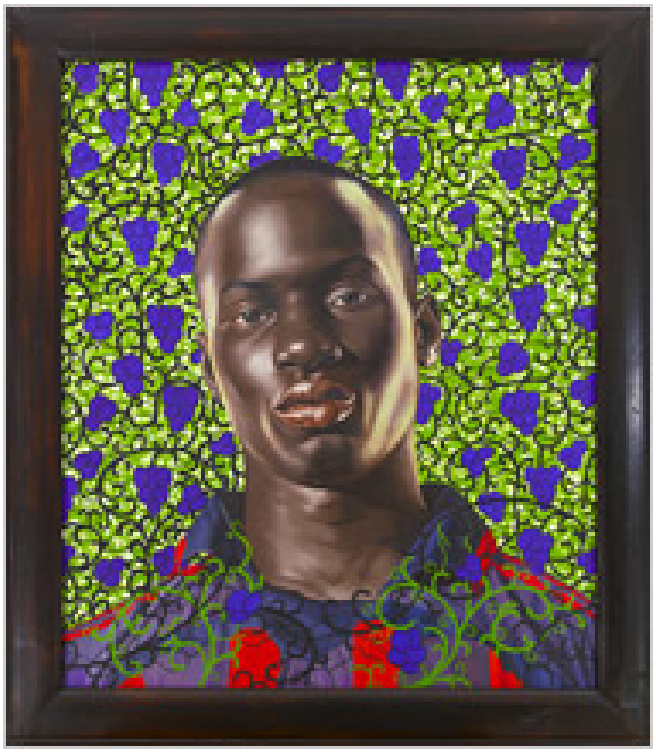
But Angelfood represents something else for Mr. Crumb too. At the end of a zanily eventful four-page narrative from 1968 we see her dancing in the forest. "She spends her time bopping around in the jungle," reads the caption, "just a simple, primitive creature! But if you dig her, go get her! If you dare!" In the final panel a man in a suit and tie hurries along a path in the opposite direction from a sign pointing to "Schmarvard Law School." The words on his suitcase say, "Darkest Africa or Bust!"

Angelfood, in other words, is a symbol of modern man's yearning for reconnection to his own misplaced instinctual life. In a sense that has been Mr. Crumb's own lifelong mission: to stay imaginatively alive to his own deepest and most urgent desires, however embarrassing, distasteful or offensive they may appear to polite society. Angelfood is R. Crumb's soul.

"R. Crumb's Underground" continues through Dec. 7 at the Institute of Contemporary Art, 118 South 36th Street, Philadelphia; (215) 898-7108, icaphila.org.
http://www.nytimes.com/2008/09/05/arts/design/05crum.html?ref=design

A Hot Conceptualist Finds the Secret of Skin

By ROBERTA SMITH



Is Kehinde Wiley a Conceptual subversive who happens to paint or yet another producer of pictorial fluff that makes him our latest Bouguereau? Do his big, flashy pictures of young African-American men recast as the kings, dandies, prophets and saints of European portraiture subvert the timeworn ruses of Western art and its hierarchies of race, class and sex? Or are they just a passing art-market fancy, with enough teasing irreverence, dollops of political correctness and decorative punch to look good for a while above the couches of pseudoliberal pseudocollectors?

The answers to all these questions may be, Try again. "Kehinde Wiley, the World Stage: Africa, Lagos-Dakar," a show of 10 of his most recent paintings at the Studio Museum in Harlem, proposes another possibility: Mr. Wiley is a young artist whose intellectual ambition and Photo Realist chops have allowed his career to get ahead of his art.

His stats include 15 solo shows in galleries and museums around the world since 2003, studios in New York and China and assistants who help him turn out scores of paintings that sell briskly. And yet at 31 Mr. Wiley is only now beginning to make paintings that don't feel mostly like campy, gaudy shams. This show — which would be more appropriate in a commercial gallery than in a museum, by the way — could mark the end of his first 15 minutes of fame and the beginning of his second, with an option to renew.

Until now the Conceptual rationale behind Mr. Wiley's paintings has tended to overpower their visual presence, which helps reduce them to illustrations. Like Norman Rockwell's paintings they look better in reproduction than in reality.

His portraits initially depicted African-American men against rich textile or wallpaper backgrounds whose patterns he has likened to abstractions of sperm. Some of the subjects were famous (rap and sports stars), others not.

Their silken running suits, carefully creased jeans and bling reflected the sartorial codes of hip-hop, but their poses and props (thrones, scepters, rearing horses, religious attributes) were lifted from the portraits of Velázquez, David and Gainsborough or Renaissance images of saints. The substitution of black for white faces and low for high culture created all kinds of mind-bending twists and turns, especially since Mr. Wiley, who is gay, often brought out the homoeroticism implicit in much European portraiture and used it to undercut the machismo bluster of his subjects.

But the paintings' slick surfaces usually felt dead and mechanical, despite having been painstakingly handmade; their compositions were often fussy and unstable, and the men's posturing, however undercut, could seem defensive, if not misogynistic. Mr. Wiley's work also seemed overly indebted to artists and photographers working with issues like identity and celebrity, including Andy Warhol, Barkley L. Hendricks, John Ahearn and Rigoberto Torres, Robert Mapplethorpe, Annie Leibowitz, Catherine Opie, Kerry James Marshall, Yinka Shonibare, Malick Sidibe, Yasumasa Morimura and Seydou Keïta.

A lot of these problems are receding in the Studio Museum show because Mr. Wiley is doing what all painters have to do: developing a surface of his own. To do so he is starting where most figurative painters have started, at least since the invention of oil paint: with the rendering of human skin. He is beginning to paint skin in ways you can't stop looking at. And other things are falling into place too. The compositions are consistently calmer, and the spatial play between the figures and their backgrounds is more tightly controlled.

Whether these differences are traceable to the fact that for the first time Mr. Wiley's subjects are African rather than African-American men is an interesting subject for discussion. The young men here are more simply dressed and often more open in their expressions. Their poses are based on precolonial tribal figures and postcolonial public sculpture, which may not invite as much vamping as the more realistic poses and personalities of Western painting. And the skin of these men is consistently darker, which may present a greater range of chromatic possibilities and challenges. In any event, the figures seem more carefully worked and less rote and filled in.

The backgrounds, based on indigenous Dutch wax-resist fabrics once produced in Africa for European export, are also used to sensational effect, especially in the red flowers and indigo patterns that embrace the stalwart young man in "Benin Mother and Child." The textiles continue their sly asides: in this painting and others here, the vinelike patterns that break free of the backgrounds and coil across torsos are dotted with x's and o's that add up to the female chromosome symbol.

The small portraits have a special emotional directness and visual power. "Ibrahima Sacko" and "Matar Mbaye," in particular, have a wonderful balance between skin as paint and as flesh. In addition, in the Mbaye portrait, the background is two distinct layers: carefully painted purple flowers over a loose green pattern that seems painted freehand. It appears to have no photographic source, which is something of a departure for Mr. Wiley.

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The shows surrounding the Wiley exhibition are especially lively. "R.S.V.P.: Senga Nengudi With a Response From Rashawn Griffin" initiates a series of project shows of only two works: one from the museum's collection and one by an invited artist inspired by it. On view in the museum's new downstairs galleries are a lively show of art from the collection and the equally lively "Eye Notes," which mixes photographs of Harlem by teenagers with vintage images by the great James VanDerZee.

On the second floor new work by the museum's most recent group of three artists in residence is on view. It maintains this program's impressive record and as usual offers insights into the nature of artistic development.

Leslie Hewitt, the best known of the three, continues to blend postminimal sculpture and photo appropriation in ways that mine different levels of black experience — public and private, emotional and intellectual. Her sculptures here emphasize a weakness: They often suffer from dryness and obscurity. But her photographs of arrangements of found photographs and books laid out on the floor continue to be hauntingly evocative.

Saya Woolfalk, who is a whiz in several mediums (starting with sewing), makes environments that veer too close to kindergarten, and her current one is no exception. Yet it contains a video, "Ethnography of No Place" (made with Rachel Lears), that could move more quickly but is otherwise a little tour de force of performance, animation, born-again Pattern and Decoration, soft sculpture and anthropological satire.

Tanea Richardson presents three bulky wall pieces made of various stuffed and bound fabrics, pieces of net and sometimes tree branches. Initially they seem overly familiar, but they gradually become extremely particular and rather sinister.

All her forms have a twisted, writhing quality, and the titles — "In Protection of Our Bodies," "The Painting Escapes" and "Untitled (Loom)" — indicate Ms. Richardson's willingness to push this in very different directions. She is the least known and perhaps the least developed artist here, but she has a basic faith in the communicative power of form that all the others — Mr. Wiley included — could learn from.

"Kehinde Wiley, the World Stage: Africa, Lagos-Dakar," "New Intuitions: Leslie Hewitt, Tanea Richardson and Saya Woolfalk," "Eye Notes" and "R.S.V.P." are at the Studio Museum in Harlem, 144 West 125th Street, (212) 864-4500, studiomuseum.org, through Oct. 26.

http://www.nytimes.com/2008/09/05/arts/design/05stud.html?ref=design

Exploiting the Ordinary to Create the Ingenious

By KAREN ROSENBERG

"It seems strange to me that we ever arrived at the idea of making statues from marble," Picasso once said. "I understand how you can see something in the root of a tree, a crevice in a wall, a corroded bit of stone, or a pebble.... But marble?"

In his inimitable way Picasso was rejecting the artistic method championed in Michelangelo's statement "I saw the angel in the marble and carved until I set him free." For Picasso, sculpture was not about liberating form from an inert block of material. It was, much like his collages, a resourceful improvisational response to found objects and fragmentary glimpses of nature.

"Picasso Sculpture," the latest exhibition in the Museum of Modern Art's collection-based "Focus" series, turns the spotlight on his assemblages and constructions. From a distance they may appear to be conventional castings or carvings. Up close, however, many reveal themselves to be ingenious combinations of common household items. Even the more traditional, modeled works are piecemeal in the Cubist sense, depicting faces and bodies with aggregations of multiple viewpoints.

The show, organized by the recently hired curator Leah Dickerman, has been beautifully installed in the airy fourth-floor Lobby Gallery overlooking the sculpture garden. The 12 works, which range from a few inches to over six feet, have room enough to breathe while maintaining a conversational proximity.

In one of the earliest sculptures on view, the 8 ½-inch-tall "Glass of Absinthe" (1914), Picasso slipped an absinthe spoon between the painted bronze forms of a sugar cube and glass. As quoted in the wall text, he said of this juxtaposition: "I was interested in the relation between the real spoon and the modeled glass. In the way they clashed with each other."

Absinthe, the bohemian staple depicted in countless Impressionist cafe scenes, would be banned in France in 1915 as a threat to public health and morality. In his early stab at assemblage, Picasso seems to be preserving the ritual through which the drink was consumed: the slow dissolution of a sugar cube in the glass.

When he wasn't introducing found objects into his sculptures, Picasso was applying the equally confrontational strategies of his Cubist paintings and collages. In his sheet-metal-and-wire wall relief "Guitar" (after 1914), one of the jewels of the Modern's collection, interior and exterior spaces are reversed. The instrument's sound hole is a cylinder that projects out from the central plane rather than an opening in a flat surface.

The same concept animates two portrait heads of women who were, at one time or another, Picasso's lovers. In the bronze "Woman's Head (Fernande)" from 1909, the nose and mouth collapse into a hollow between the cheekbones, echoing the masklike faces of "Les Demoiselles D'Avignon" (1907). And in the plaster "Head of a Woman" from 1932, the distended brow and rounded chin of Marie-Thèrèse Walter evoke the sensual asymmetry of "Le Rêve," painted the same year.

Facing "Head of a Woman" as if in dialogue is the roughly contemporaneous "Head of a Warrior" (1933). This comically exaggerated figure, with bulging tennis-ball eyes, a tumescent nose and a plumed gladiator helmet, is as coarse as "Head of a Woman" is sleek. Recent X-rays, which can be viewed on the museum's Web site, expose the foundations of the figure: a length of adjustable pipe, a vise and a crowbar.

Even the bronze casts Picasso made from his assemblages look somewhat provisional. For the bronze "Baboon and Young" (1951), perhaps the most playful of the sculptures here, he used two of his son's toy cars to form the lower half of the animal's face. "She-Goat" from 1950 has a wicker basket for a rib cage and palm fronds for a spine. Other parts, mostly ceramic and metal shards, came from a scrap yard next to Picasso's studio.

Pottery figures more prominently in the plaster-over-ceramic "Pregnant Woman" (1950). The sculpture has a layered symbolism, with potted jars and vases — historically, symbols of virginity — standing in for the breasts and belly of a fertility goddess. It derives further power from a personal anecdote: Françoise Gilot, Picasso's lover at the time, said he made "Pregnant Woman" as "a form of wish fulfillment" after she refused to have a third child.

In two later sculptures Picasso appears to be drawing with wood and wire. The arresting "Bull" (1958) is a more or less two-dimensional arrangement of nail-studded plywood and tree branches. The crisscrossed lines of the painted steel "Project for a Monument to Guillaume Apollinaire" (1962), an enlarged version of a maquette created in 1928, collapse into a stick figure when viewed from a particular angle.

By design this "Focus" is merely a teaser. But would it have been so difficult to include a few of Picasso's collages, or some reference to the African art that inspired so many of his creations? As impressive as Picasso the sculptor is, Picasso the cross-medium maverick is even better.

"Focus: Picasso Sculpture" continues through Nov. 3 at the Museum of Modern Art; (212) 708-9400, moma.org.

http://www.nytimes.com/2008/09/05/arts/design/05pica.html?ref=design

French Design, From a Hotel to the Milky Way

By MARIANNE ROHRLICH

"Beyond Style," a retrospective of the work of Andrée Putman, the French designer of things modern, opens Sept. 10 at the Cultural Services of the Embassy of France. Ms. Putman, born in 1925 and shown here in a 1989 photo, designed Morgans Hotel in New York 25 years ago and has updated the décor for a reopening this month. Other interiors include Yves Saint Laurent stores and the new Anne Fontaine boutique, on Madison Avenue at 62nd Street. One piece in the show is the Voie Lactée (French for Milky Way), a new grand piano that she designed for the French manufacturer Pleyel. Incorporating Corian and mother-of-pearl, it sells for about $290,000, in an edition of eight. Two walls at the show will be covered with another of her designs, Parrot wireless digital photo frames displaying her work. At 972 Fifth Avenue (79th Street), through Oct. 10, weekdays 1 to 5 p.m.

http://www.nytimes.com/2008/09/04/garden/04shows.html?ref=design

Sea level rise by 2100 'below 2m'

By Richard Black
Environment correspondent, BBC News website

Sea levels globally are very unlikely to rise by more than 2m (7ft) this century, scientists conclude.

Major increases would have to be fuelled by a faster flow of glaciers on the Greenland or Antarctic ice sheets.

But writing in the journal Science, a US team concludes that a rise of 2m would need glaciers to reach speeds that are "physically untenable".

However, even increases substantially less than 2m would cause major issues for many societies, they say.

"Even a sea level rise of 20cm (8in) in a century will have quite dramatic implications," said Shad O'Neel from the US Geological Survey (USGS).

Woe betide any government that thinks a 2m rise in sea level isn't something to take notice of
Dr David Vaughan
British Antarctic Survey

"This work is in no way meant to undermine the seriousness of climate change, and sea level rise is something we're going to have to deal with," he told BBC News.

Al Gore's documentary An Inconvenient Truth received some criticism for implying that a rise of 20ft (6m) was possible in the near future, although it did not give a definite timeframe.

By contrast, this latest research tallies broadly with the conclusions of other groups that have examined the question using different approaches.

Fast work

In its landmark assessment of climate change published last year, the Intergovernmental Panel on Climate Change (IPCC) concluded that sea level rise would probably fit in the range between 28 and 43cm over the century, although 59cm was a possibility.

The current rate is about 3mm per year.

But the IPCC specifically excluded the mechanism able to produce the biggest amounts of water quickly - acceleration in the flow of ice from the Greenland and Antarctic ice sheets, the world's two major ice masses that would between them raise sea levels by about 70m if they completely melted.

Most of the ice comes off in glaciers. Scientists know that many of the glaciers have accelerated in recent years - some quite spectacularly. The Jakobshavn glacier in Greenland, for example, doubled its speed in six years to about 12km per year.

But the processes involved are poorly understood, and the IPCC concluded that on that basis it would be unreasonable to draw any conclusions about how far the acceleration might go.

Individual scientists, however, have not be so coy. The team behind the current research looked at what we do know about Greenlandic and Antarctic glaciers, about the rates of flow and the factors that might prevent acceleration.

"We don't really know a speed limit for glaciers," said Dr O'Neel, "but we can look at what we have today and ask 'what would happen if they all behaved like Jakobshavn?'

"It's been going fast for several years now and hasn't gone another marked increase in speed. Helheim had a brief period at 14km per year, Columbia at nine or 10; so that kind of figure, in the region of 10km/year, seems to be about as fast as it gets."

To achieve a 2m sea level rise by 2100, by contrast, every Greenland glacier would have to increase its flow rate to at least 27km per year and remain at that velocity for the rest of the century.

'Scary' scenario

Antarctica is rather different. The West Antarctic Ice Sheet rests on rock that is mainly below sea level, meaning that warming seas could increase the rate of ice loss, though again the new analysis suggests this is also very unlikely to result in a catastrophic melt during this century.

David Vaughan from the British Antarctic Survey believes the US team has got its figures about right.

"The point is that whatever happens in this century can only start from present conditions and present rates of sea level rise, and that constrains the rise that can occur this century," he told BBC News.

"However, if you're looking further ahead than 2100 - and many governments are, including the Netherlands and the UK which are thinking about infrastructure that would last more than 100 years - then that second century still looks quite scary.

"I certainly don't disagree with them that we shouldn't be making outlandish statements about sea level rise, and some outlandish statements have been made; but the high end of the estimates here is still about 2m, and woe betide any government that thinks a 2m rise in sea level isn't something to take notice of."

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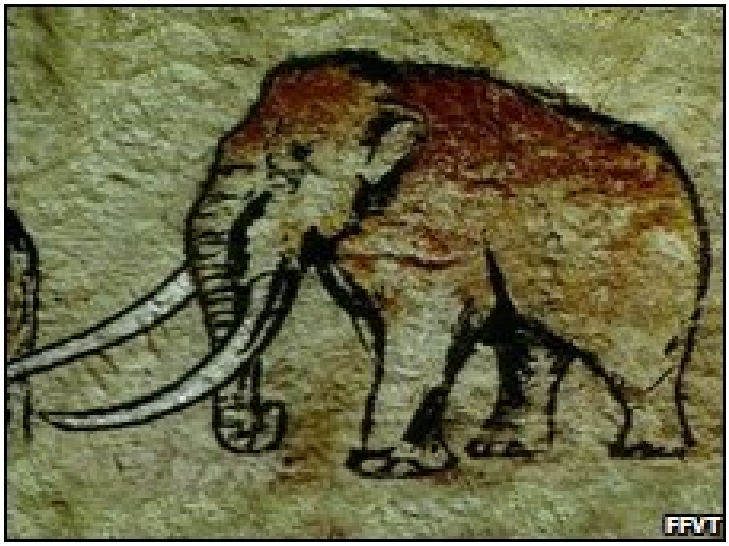
Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7598861.stm

Published: 2008/09/04 22:49:44 GMT

Mammoths moved 'out of America'

By Elizabeth Mitchell
Science reporter, BBC News



Scientists have discovered that the last Siberian woolly mammoths may have originated in North America.

Their research in the journal Current Biology represents the largest study of ancient woolly mammoth DNA.

The scientists also question the direct role of climate change in the eventual demise of these large beasts.

They believe that woolly mammoths survived through the period when the ice sheets were at their maximum, while other Ice Age mammals "crashed out".

The iconic Ice Age woolly mammoth - *Mammuthus primigenius* - roamed through mainland Eurasia and North America until about 10,000 years ago.

Previous studies had hinted that the last mammoths left in Siberia were not natives - but immigrants from North America.

However, more evidence was required to strengthen the case for this "out of America" theory.

A team of researchers led by Professor Hendrik Poinar from McMaster University in Canada collected 160 mammoth samples from across Holarctica - a region encompassing present day North America, Europe and Asia.

Well-preserved DNA material - between 4,000 and 40,000 years old - was obtained from "almost every part of the animal - even from preserved hide, skin and hair", Professor Poinar told BBC News.

They analysed DNA from mitochondria - genetic material which is passed from mother to offspring via the egg - and can be used to track the ancestry of a species back many hundreds of generations.

The genetic information confirmed that a North American mammoth population overturned those endemic to Asia.

Mammoth migration

It is hard to speculate why the North American woolly mammoths returned to Siberia.

BERING LAND BRIDGE
a vast tundra plain that connected Asia and North America
about 1,000 miles from north to south at its greatest extent
was exposed and submerged as global sea levels changed during the Pleistocene
flooded and became the Bering Strait about 11,000 years ago
may have enabled migration of humans from Asia to the Americas

"Presumably, conditions were favourable on the Bering land bridge which was more of a large filter than an open highway," suggested Professor Poinar.

The expansion of North American forests may have "pushed the mammoths along", he added.

At the same time, the native Siberian mammoths, which may have been around for much of the Middle Pleistocene, completely disappeared.

It is unclear if the Siberian mammoths experienced a "natural decline" or if they were outcompeted by the North American immigrants.

The endemic Siberian population had different molar features and a "very unique DNA signature" - that was dated to be almost 900,000 years old.

It is possible that it may not have been a true woolly mammoth - but a more primitive species.

"Many people thought that this (primitive) species had become extinct way before 38,000 years ago," said Professor Poinar.

"Palaeontologists were not so happy because these are the intricacies of DNA that are very difficult to discern based on mammoth tusks and teeth," he added.

Scientists are now beginning to understand the dynamic evolutionary history of these Ice Age mammals.

"This study adds to a growing body of evidence about just how dramatic and tumultuous the Pleistocene climate actually was," Dr Beth Shapiro, a scientist from Penn State University in the US, told BBC News.

"With ancient DNA, we can actually go back in time and look directly at these old populations.

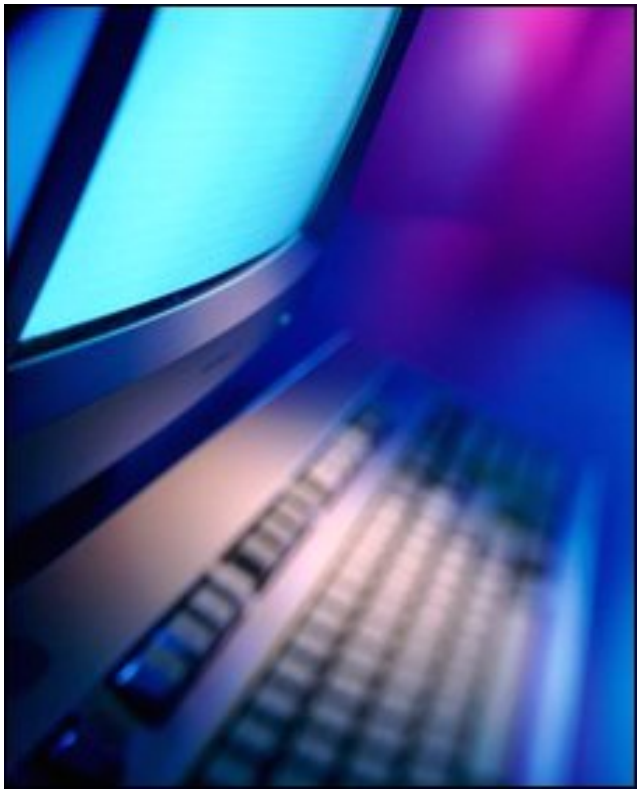
"Here we have evidence of local extinctions, replacements and long-distance dispersals," she explained.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7592668.stm

Published: 2008/09/04 16:50:25 GMT

Zombie plague sweeps the internet

The summer saw a surge in the number of hijacked home PCs or "zombies", say security experts.



The Shadowserver Foundation, which tracks zombie numbers worldwide, said it had seen at least a threefold increase in the last three months.

More than 450,000 computers are now part of zombie networks, or botnets, run by hi-tech criminals, it said.

The rise is believed to be linked to attacks that booby-trap websites to try to infect the machines of visitors.

Attack vector

Criminals are keen to recruit new machines to a botnet to create a resource that they can use or which can be hired out to other gangs.

Most spam or junk mail is routed through the hijacked machines forming a botnet. The collection of PCs are often used to launch attacks on other websites, as anonymous stores for stolen data and to help with phishing scams.

The vast majority of machines in these botnets will be PCs running a version of Microsoft Windows.

In June 2008 Shadowserver Foundation knew about more than 100,000 machines that were part of a botnet. By the end of August this figure had exceeded 450,000 machines.

The Shadowserver Foundation is a group of security professionals who volunteer their time to track and measure botnets to help law enforcement investigations.

The rise in numbers has been accompanied by a fall in the number of so-called command and control (C&C) servers tracked by the Shadowserver group suggesting that hi-tech criminals are concentrating their resources. As their name implies, the C&C servers co-ordinate the use of all the machines linked to them.

The jump in individual zombie numbers is linked to a series of wide-spread attacks that inject malicious code on to legitimate websites that tries to compromise any visiting machine.

In recent months many hi-tech criminals have turned to web attacks to recruit new victims rather than rely on sending viruses out via e-mail.

Typically, a machine is compromised via a vulnerability in one of the programs it runs. Inside this initial attack program will be code that directs it to contact a C&C server which then downloads software to put it completely under the control of a botmaster.

The machines in any individual botnet can be spread across many different nations.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/technology/7596676.stm

Published: 2008/09/04 10:51:02 GMT

Down's signs 'seen in stem cells'

Scientists have revealed the earliest developmental changes that lead to Down's syndrome.

The team from Barts and the Royal London say the changes to embryonic stem cells are caused by the presence of an extra copy of chromosome 21.

The study, in the American Journal of Human Genetics, says the extra chromosome sets off a chain of genetic changes in the developing embryo.

The Down's Syndrome Association welcomed the "excellent" research.

Down syndrome belongs to a group of conditions called "aneuploidies", which are defined by an abnormal loss or gain of genetic material, such as fragments of chromosomes or whole chromosomes.

Aneuploidies cause congenital anomalies that are a prime cause of infant death in Europe and the US, and are currently on the increase with advancing maternal age in European countries.

Around one in every 1,000 babies born in the UK will have Down's syndrome.

There are 60,000 people in the UK with the condition.

Therapeutic potential

The international team of researchers, which also included scientists from the US, Australia, Spain and Switzerland, looked at embryonic stem cells from mice which had been genetically engineered to carry a copy of human chromosome 21.

"It's not just important for the development of brain cells but for their maintenance throughout life
Professor Dean Nizetic

They discovered that the presence of the extra chromosome 21, known as trisomy 21, disturbs a key regulating gene called REST, which then disturbs the cascade of other genes that control normal development at the embryonic stem cell stage.

The scientists also found that one gene (DYRK1A) which is present on chromosome 21, acts as the trigger for this disturbance.

Dean Nizetic, professor of cellular and molecular biology at Barts and the London, said the work could one day lead to molecule-based therapies which could alleviate the effects of Down's syndrome.

"We hope that further research might lead to clues for the design of new therapeutic approaches tackling developmental delay, mental retardation, ageing and regeneration of brain cells, and Alzheimer's disease.

He said he believed the genetic effects continue throughout life.

"I suspect that it's not just important for the development of brain cells but for their maintenance throughout life; how cells age and how they can cope with stress.

"That's an area that could be approached with regard to therapies."

'Extremely positive'

Professor Nizetic suggested future research should be directed into basic molecular mechanisms that could one day develop into treatments to children with Down's syndrome in the first few years of life when the brains are "plastic" and rapidly developing.

And he said that the same areas of the human genome have been thought to play a part in Alzheimer's disease - so research could also lead to treatments for that condition.

Carol Boys, chief executive for the Down's Syndrome Association said: "Any research that helps us to understand more about some of the complex medical conditions that are commonly associated with Down's syndrome can only be a positive step forward.

"The development of therapeutic treatments for these sometimes complicated health problems that can be associated with the condition will hopefully lead to an improvement in the overall health of people of with Down's syndrome."

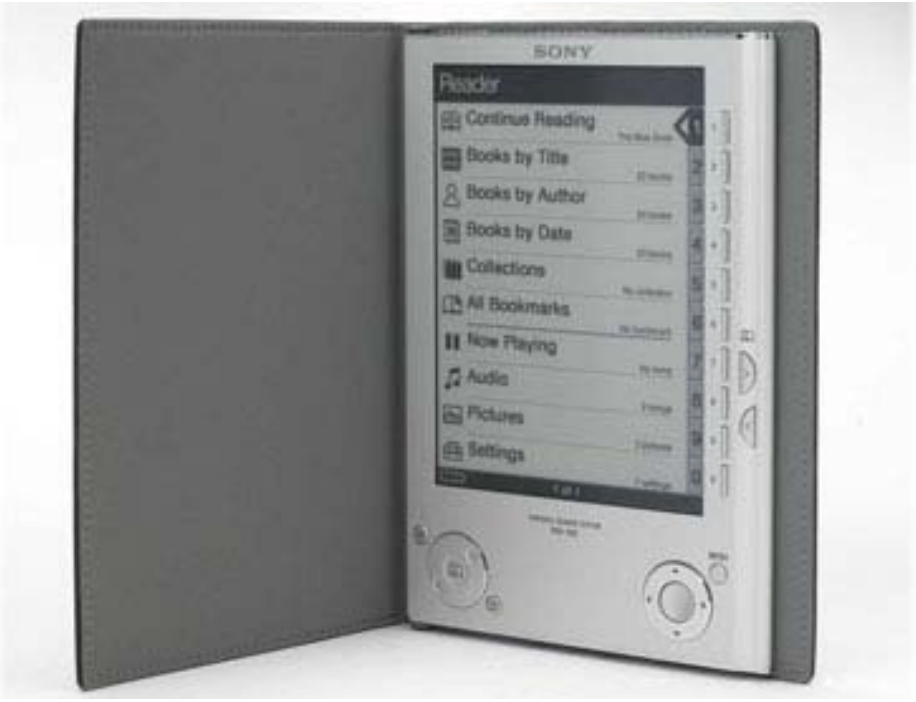
She added: "We understand that research is slow, but the initial results look extremely positive and we look forward to the continuation of the excellent work of this dedicated research team with interest."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7597761.stm

Published: 2008/09/05 01:36:01 GMT

They still haven't cracked the ebook

Sony has just released its Reader. It's slim, tan and a commuter magnet, but I want more
September 4, 2008 10:23 AM



Jostling for space on the crowded platform at Farringdon tube station last night, I was deliberating over which of my preloaded ebooks to read on my Sony Reader when the unthinkable happened - I was approached by a fellow commuter, a jovial-looking businessman.

"Is that it?" he asked. "Wow." He was planning to get one today, when it goes on sale in 205 Waterstone's branches. The £199 price tag didn't bother him - the Reader ebook would be "ever so handy" for all the travelling he has to do.

It happened again at Edgware Road, when the middle-aged woman I was sitting next to wanted to find out more about the device. Her husband has poor eyesight, and was keen to get one because you can zoom in on the text.

The Reader's slim, tan form was certainly a commuter magnet, but how would it do at keeping me occupied during my hour-long trip home? Last night, the model I tried was working at a disadvantage - the software isn't Mac-compatible, so I couldn't add any of the 100 classics that come free with the device. After this morning's launch there are thousands of ebooks available from Waterstone's website, with prices running fairly level with print equivalents: Patricia Cornwell's Blow Fly is £6.39, and Rachel Johnson's Notting Hell is £5.59 - quite expensive when you've already shelled out for the Reader itself.

As Jemima Kiss says, it's a good-looking piece of kit, about the size of a slim paperback and only slightly heavier (260g). It is fairly intuitive to use - although the buttons down the side of the screen seem a bit old-fashioned compared with the iPhone's touch-sensitive interface. You get a bit less than a page of text on each screen, but it's not backlit, so it is easy to read in direct sunlight, at funny angles, and on the tube - just like a piece of paper.

What immediately frustrates (and this is also the case with the other major e-readers Amazon's Kindle and the iRex iLiad) is the second-long flash of black that heralds a page turn. I got used to it after a while, but it does chop up the flow of a book - not that my Farringdon businessman was at all fazed when I handed it to him for a try.

I'd say that commercial fiction and easier reading would fare pretty well on the Reader, but trying to immerse yourself in Proust or Beckett might be more of a challenge. And don't try any Locke, you wouldn't get a sentence on a page.

On the plus side, you can store 160 books on the Reader (holiday packing just got a whole lot easier), its battery lasts for 6,800 page turns (enough to read War and Peace five times, boasts the Waterstone's press release), there's an audio function, and it can display PDFs, Word documents and JPEG images. Very handy. And it's pretty - definitely the most attractive of the three major e-readers out there at the moment.

Minuses: unlike Amazon's Kindle, which isn't available in the UK yet (industry gossip points to the end of this year or early next), you can't connect to the internet on the Reader, so in order to upload your new ebooks you have to plug into your computer. Plus it's all rather grey.

With pre-orders of "several thousand" units, according to Waterstone's, the launch marks a real change for ebooks: the country's largest bookseller is putting its money behind what it believes is the best device out there. Publishers have committed to it as well, digitising thousands of books in readiness for its launch. But we're not at the ebook tipping point quite yet. Most buyers will be those who are already ebookophiles, or publishers with an awful lot of manuscripts to get through (plus my two commuters).

I'm waiting for an e-reader that bundles many uses into one: music player, phone, BlackBerry, internet, ebooks. That's what will really make the market take off. Of course they won't ever replace books, but then they're not meant to. It'll be something new and different and very exciting. Just don't drop it in the bath.

http://blogs.guardian.co.uk:80/books/2008/09/ebooks.html

Small Book Publishers Offered New Technology

By JULIE BOSMAN

Hundreds of small, independent publishers will have easier access to digital book technology under a new service offered by Perseus Books Group, the result of agreements between it and more than a half-dozen technology companies, Perseus is expected to announce on Thursday.

The new service, called Constellation, will allow independent publishers to make use of electronic readers, digital book search, print-on-demand and other digital formats at rates negotiated by Perseus on their behalf. Unlike large publishers, small ones typically lack the resources to use digital technology and as a result often bypass it altogether.

David Steinberger, the president and chief executive of Perseus, said that by using Constellation independent publishers could make their books quickly available in several digital formats, allowing them to compete on the same technological level and with the same speed and flexibility as larger companies. Many publishing analysts see digital technology as one of the few major growth areas in the book industry.

Amazon and Barnesandnoble.com have features that allow consumers to read or search inside a book, and such tools are known to improve sales; digital printing technology allows publishers to produce books when they become suddenly and unexpectedly in demand.

"There's been an increasing sense of urgency about this," Mr. Steinberger said. "We kept asking ourselves, 'What does the independent publisher need to grow and succeed in the future?' And this is what kept coming up."

Perseus Books Group, one of the largest independent publishers of general-interest books, includes the imprints Basic Books, Running Press and Vanguard Press. It also provides sales, marketing and distribution services to more than 300 independent publishers.

Mr. Steinberger said he sees Constellation, which will go into effect on Thursday, as an expansion of Perseus's book distribution services. "Distribution means getting our publishers' books everywhere they need to go and everywhere they want to go," he said. "Digital is an essential part to that. We're just trying to streamline it."

The companies involved in the deal include Google, for its Google Book Search feature; Amazon, for its Kindle electronic reader; Sony, for its Sony Reader; Barnes & Noble, for its "See Inside" feature on its Web site; and Lightning Source, a print-on-demand company.

Publishers who use the new service can provide a single digital book file to Constellation and specify how they would like it to be used. As a result consumers may see more obscure, esoteric books available in digital formats, Perseus said.

Electronic books have been available since 1968, though they still make up only a small portion of the book business. Much of the growth, especially in the Amazon Kindle and the Sony Reader, has picked up in the last several years.

While corporate publishers like Random House and Simon & Schuster have devoted significant time and resources to harnessing digital technology, most small publishers have, out of necessity, kept their focus on the traditional duties of acquiring, editing and publishing books. Larger publishers also typically have more leverage when negotiating contracts.

Peter Osnos, the founder of PublicAffairs, a member of the Perseus Books Group, and the executive director of the Caravan Project, a nonprofit partnership that makes books available in different formats, said Constellation is applying the same model as Caravan.

"The biggest problem in the book world is availability — measuring how many books you think you need," Mr. Osnos said. "What you will have now is the development of this ability on behalf of publishers to produce their books any way the consumer wants them. That's why all of this matters."

http://www.nytimes.com/2008/09/04/books/04perseus.html?_r=1&ref=arts&oref=slogin

Researchers Create Animal Model Of Chronic Stress

In a study of rats as an animal model, the researchers found corticotropin releasing factor (CRF) is a key neurohormone involved in stress response. (Credit: iStockphoto/Oleg Kozlov)

ScienceDaily (Sep. 4, 2008) — In an effort to better understand how chronic stress affects the human body, researchers at the Yerkes National Primate Research Center and the Department of Psychiatry and Behavioral Sciences, Emory University, have created an animal model that shows how chronic stress affects behavior, physiology and reproduction.

Developing the animal model better positions the researchers to understand the neurohormonal causes of such stress and the body reaction in order to develop more effective treatment options for humans. The study is available in the current online edition of Molecular Psychiatry.

According to lead researcher Mark Wilson, PhD, chief of the Division of Psychobiology at Yerkes, "Chronic stress can lead to a number of behavioral changes and physical health problems, including anxiety, depression and infertility."

Via the animal model, the researchers found corticotropin releasing factor (CRF) is a key neurohormone involved in stress response. Wilson explains, "CRF is located in several different brain regions, serving different functions. Its release is important for our ability to adapt to every day stressors and to maintain our physical and emotional health."

In response to stress, CRF levels rise; CRF levels decrease when the stressor no longer is present. Chronic stress, however, increases the length and volume of expression of CRF in areas of the brain associated with fear and emotion, including the amygdala. Such chronic stress changes the body's response, and the

resulting increased expression of CRF is thought to be the cause of such health-related stress problems including anxiety, depression and infertility.

To study the importance of CRF, the research team used a viral vector to increase the production of CRF in the amygdala of female rats.

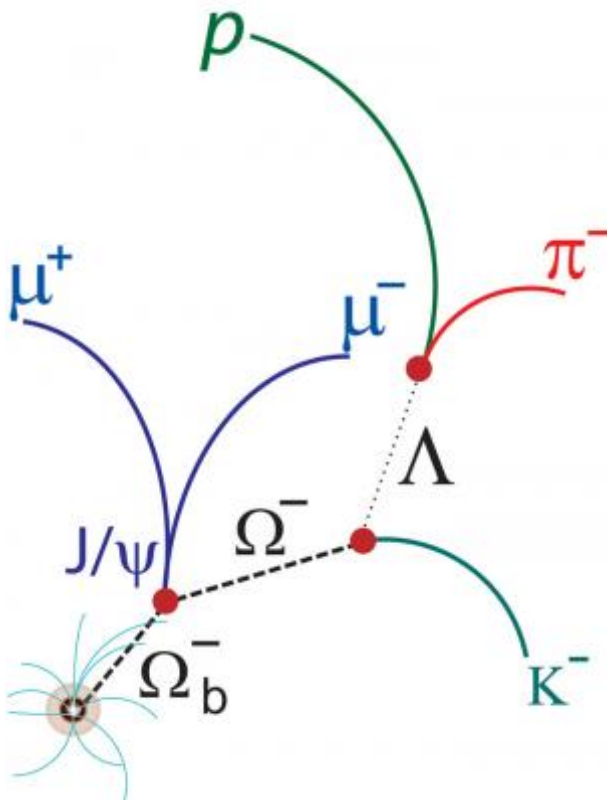
"In our study, rats that continuously were exposed to CRF from this area of the brain experienced anxious and depressive behavior, decreased libido and disrupted ovarian cycles suggesting that persistent release of CRF such as occurs in chronic stress clearly affects multiple body systems," says Wilson. "These behavioral changes are similar to what we see in human females who are exposed to stressors on a daily basis."

Dr. Wilson and his research team next will attempt to learn more about the negative effects of increased CRF by examining actual molecular and cellular changes in specific brain areas targeted by the neurohormone. Knowing how CRF affects the brain positions the researchers to develop better treatment options.

Adapted from materials provided by Emory University.

http://www.sciencedaily.com/releases/2008/09/080903172156.htm

Physicists Discover 'Doubly Strange' Particle



Once produced, the decay of the Omega-sub-b (Ωb) proceeds like fireworks. The particle travels about a millimeter before it disintegrates into two intermediate particles called J/Psi (J/ψ) and Omega-minus (Ω-). The J/Psi then promptly decays into a pair of muons. The Omega-minus baryon, on the other hand, can travel several centimeters before decaying into yet another unstable particle called a Lambda (Λ) baryon along with a long-lived particle called kaon (K). The Lambda baryon, which has no electric charge, also can travel several centimeters prior to decaying into a proton (p) and a pion (π). (Credit: DZero collaboration)

ScienceDaily (Sep. 4, 2008) — Physicists of the DZero experiment at the U.S. Department of Energy's Fermi National Accelerator Laboratory have discovered a new particle made of three quarks, the Omega-sub-b (Ωb).

The particle contains two strange quarks and a bottom quark (s-s-b). It is an exotic relative of the much more common proton and weighs about six times the proton mass.

The discovery of the doubly strange particle brings scientists a step closer to understanding exactly how quarks form matter and to completing the "periodic table of baryons." Baryons (derived from the Greek word "barys," meaning "heavy") are particles that contain three quarks, the basic building blocks of matter. The proton comprises two up quarks and a down quark (u-u-d).

Combing through almost 100 trillion collision events produced by the Tevatron particle collider at Fermilab, the DZero collaboration found 18 incidents in which the particles emerging from a proton-antiproton collision revealed the distinctive signature of the Omega-sub-b. Once produced, the Omega-sub-b travels about a millimeter before it disintegrates into lighter particles. Its decay, mediated by the weak force, occurs in about a trillionth of a second.

Theorists predicted the mass of the Omega-sub-b baryon to be in the range of 5.9 to 6.1 GeV/c2. The DZero collaboration measured its mass to be 6.165 ± 0.016 GeV/c2. The particle has the same electric charge as an electron and has spin J=1/2.

The Omega-sub-b is the latest and most exotic discovery of a new type of baryon containing a bottom quark at the Tevatron particle collider at Fermilab. Its discovery follows the observation of the Cascade-b-minus baryon (Ξb-), first observed by the DZero experiment in 2007, and two types of Sigma-sub-b baryons (Σb), discovered by the CDF experiment at Fermilab in 2006.

"The observation of the doubly strange b baryon is yet another triumph of the quark model," said DZero cospokesperson Dmitri Denisov, of Fermilab. "Our measurement of its mass, production and decay properties will help to better understand the strong force that binds quarks together."

According to the quark model, invented in 1961 by theorists Murray Gell-Mann and Yuval Ne'eman as well as George Zweig, the four quarks up, down, strange and bottom can be arranged to form 20 different spin-1/2 baryons. Scientists now have observed 13 of these combinations.

"The measurement of the mass of the Omega-sub-b provides a great test of computer calculations using lattice quantum chromodynamics," said Fermilab theorist Andreas Kronfeld. "The discovery of this particle is an example of all the wonderful results pouring out of accelerator laboratories over the past few years."

The Omega-sub-b is a relative of the famous and "even stranger" Omega-minus, which is made of three strange quarks (s-s-s).

"After the discovery of the Omega-minus, people started to accept that quarks really exist," said DZero co-spokesperson Darien Wood, of Northeastern University. "Its discovery, made with a bubble chamber at Brookhaven National Laboratory in 1964, is the textbook example of the predictive power of the quark model."

Adapted from materials provided by DOE/Fermi National Accelerator Laboratory.

http://www.sciencedaily.com/releases/2008/09/080903172201.htm

How Often Do Hip And Knee Replacements Need Revision?

ScienceDaily (Sep. 4, 2008) — A comprehensive study using nationwide data on hip and knee replacements in England has found that one in seventy-five patients require a revision of their joint replacement after three years. Although this compares favourably with the rest of the world, the study reinforces concerns about the new surgical techniques of hip resurfacing and unicondylar knee replacement.Hip and knee replacements are amongst the most frequent surgical operations performed, with around 160,000 carried out in England and Wales in 2006. However, there is little evidence to compare the patient outcomes of hip and knee replacement with the many types of surgical techniques and prostheses used to replace the joint. Jan van der Meulen and colleagues from the Royal College of Surgeons used records from the National Joint Registry (NJR) for England and Wales to address this lack of evidence; the NJR being the largest national joint registry of any in the world. Since it was established in April 2003 the NJR has collected data available immediately following surgery, including patient characteristics, the type of prostheses and the surgical technique used to replace the joint, with the aim of providing patients, healthcare professionals and regulators with evidence to assess these prostheses and techniques.In order to identify the revision rates – how often the hip or knee replacement had to be re-done – the researchers linked the NJR records with another database: the Hospital Episodes Statistics (HES), which contains information on all admissions to National Health Service (NHS) hospitals in England. They considered revisions for any reason in the three years following a hip or knee replacement. They also paid particular attention to hip resurfacing and unicondylar knee replacement, two techniques that are increasingly used but about which there is little evidence of their performance. Hip resurfacing was introduced in the 1990s for younger patients or those with less severe disease. Rather than replacing the head of the femur, as happens in total hip replacement, the diseased surface of the joint is replaced with a metal component. In unicondylar knee replacement only the damaged part of the knee is replaced and it also results in shorter recovery time.Of the 167,076 procedures that could be linked between the two databases between April 2003 and September 2006 – about half of all such operations carried out in England in this period - one in seventy-five patients required a revision of their joint replacement, which is considered to be low. As expected the patients who had cemented prostheses - cement being used to position the metal implant in place in the original replacement surgery - had the lowest revision rates. For hip replacements the highest revision rates were experienced by women who had undergone hip resurfacing rather than total joint replacement. Of patients who had undergone knee replacement operations, those who had unicondylar prostheses had the highest revision rates. According to the study there appears to be no connection between a patient's age and revision rates for hip replacements, whereas revision rates after knee replacement decreased strongly with age.The study demonstrates what can be achieved by linking together the two databases and it shows convincing success rates of knee and hip replacement surgery, with few patients requiring a revision. However, on the basis of the data, the researchers suggest that "consideration should be given to using hip resurfacing only in male patients and unicondylar knee replacement only in elderly patients." They point out that different patterns may emerge over a longer follow-up period, so it is not possible to directly draw conclusions on the long-term efficacy of the different procedures. However, this first national study on joint replacement does provide benchmark data for the further research that is needed to evaluate the performance of different procedures and types of implant.

Journal reference:

1. Sibanda et al. **Revision Rates after Primary Hip and Knee Replacement in England between 2003 and 2006**. *PLoS Medicine*, 2008; 5 (9): e179 DOI: 10.1371/journal.pmed.0050179

Adapted from materials provided by Public Library of Science, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/09/080901205635.htm

Substance Found In Fruits And Vegetables Reduces Likelihood Of The Flu

Quercetin, a close chemical relative of resveratrol, is present in a variety of fruits and vegetables, including red onions, grapes, blueberries, tea, broccoli and red wine. It appears to protect against the flu. (Credit: iStockphoto/Jack Puccio)

ScienceDaily (Sep. 3, 2008) — Mice given quercetin, a naturally occurring substance found in fruits and vegetables, were less likely to contract the flu, according to a study published by The American Physiological Society. The study also found that stressful exercise increased the susceptibility of mice to the flu, but quercetin canceled out that negative effect.

Quercetin, a close chemical relative of resveratrol, is present in a variety of fruits and vegetables, including red onions, grapes, blueberries, tea, broccoli and red wine. It has been shown to have anti-viral properties in cell culture experiments and some animal studies, but none of these studies has looked specifically at the flu.

The new study was conducted using mice, but if quercetin provides a similar benefit for humans, it could help endurance athletes, soldiers and others undergoing difficult training regimens, as well as people under psychological stress, according to Davis.

Study builds on previous research

"Quercetin was used because of its documented widespread health benefits, which include antiviral activity, abundance in the diet and reported lack of side effects when used as a dietary supplement or food additive," Davis said.

Earlier mouse studies have found that stressful exercise can increase susceptibility to upper respiratory infections, although it is not yet clear if the same is true for humans. There was also preliminary information that mice may be more susceptible to the flu when they exercise to fatigue. The researchers in

the current study hypothesized that exercise would increase the chance of the mice getting the flu but that quercetin would counteract the increased risk.

Davis and his colleagues examined four groups of mice. Two groups performed three consecutive days of running to fatigue on a treadmill to mimic a short period of stressful exercise. One group of runners received quercetin, the other did not.

The remaining two groups did not exercise. One non-exercise group received quercetin while the other did not. All four groups were then exposed to a common flu virus, H1N1.

The researchers found that:

- Stressful exercise increased susceptibility to the flu. The mice that exercised to fatigue for three days were more likely to develop the flu than the mice that did not exercise (91% versus 63%).
- The mice that exercised developed the flu much sooner than those that did not (6.9 days versus 12.4 days).
- Mice that exercised and took quercetin had nearly the same rate of illness as those that did not exercise. In other words, quercetin canceled out the negative effect of stressful exercise.
- The severity of the symptoms among those mice that either did not exercise or those that exercised but took the quercetin was about the same.
- Quercetin had protective effects for the mice that did not exercise.

Although this study was done with mice, a recent human study found that people who took quercetin suffered fewer illnesses following three days of exhaustive exercise compared to those who did not. Unlike the mouse study, the humans were not inoculated with a virus.

"This is the first controlled experimental study to show a benefit of short-term quercetin feedings on susceptibility to respiratory infection following exercise stress," said Davis. "Quercetin feeding was an effective preventive strategy to offset the increase in susceptibility to infection that was associated with stressful exercise."

Funding: The Defense Advanced Research Projects Agency (DARPA).

Journal reference:

1. Davis et al. **Quercetin reduces susceptibility to influenza infection following stressful exercise**. *AJP Regulatory Integrative and Comparative Physiology*, 2008; 295 (2): R505 DOI: 10.1152/ajpregu.90319.2008

Adapted from materials provided by American Physiological Society, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/09/080903080858.htm

Biological Invasions Increasing Due To Freshwater Impoundments, Says Study

Parker Dam above Lake Havasu in Arizona is a good example of dams encroaching on waterways and enhancing the spread of invasive species, according to a new study led by the University of Colorado at Boulder. (Credit: Pieter Johnson, University of Colorado)

ScienceDaily (Sep. 3, 2008) — The growing number of dams and other impoundments is increasing the number of invasive species and the speed at which they spread, putting natural lakes at risk, says a study led by the University of Colorado at Boulder.

The research team combined data on water chemistry, the distribution of five "nuisance invaders" and boating activity from the Great Lakes region. The results showed the increasing occurrence of such species in impoundments creates "stepping-stone habitats" for them into natural lakes, ponds and waterways in the region, said CU-Boulder Assistant Professor Pieter Johnson, co-lead author of the study.

The researchers looked at invaders like the Eurasian zebra mussel, the Eurasian water plant known as watermilfoil, the Eurasian spiny water flea, the rusty crayfish and the rainbow smelt. Such freshwater invaders often have direct negative effects on lake ecosystems, including reduced fishing success, changes in water clarity and fouling of fishing gear and water-pumping equipment, Johnson said.

The study appears as the cover story in the September issue of Frontiers in Ecology and the Environment, a publication of the Ecological Society of America. Co-authors on the study include Julian Olden of the University of Washington in Seattle and Jake Vander Zanden of the University of Wisconsin-Madison.

Zebra mussels recently jumped to reservoirs in the West, including Colorado, said Johnson, leading to mandatory boat inspections at some landings. The other invaders are either already in Colorado - the

rainbow smelt and water milfoil - or have a high probability of being introduced, like the spiny water flea and rusty crayfish, he said.

"We believe impoundments may be functioning as 'hubs' for freshwater invaders, aiding their spread and establishment into natural water bodies," said Johnson of CU-Boulder's ecology and evolutionary biology department. The researchers wrote in the study that "reservoir construction and the conversion of free-flowing rivers to standing waters may ultimately facilitate the spread of invasive species across the landscape."The team looked at data from 4,200 lakes and more than 1,000 impoundments across Wisconsin and the Upper Peninsula of Michigan. The study showed non-indigenous species are up to 300 times more likely to occur in impoundments than in natural lakes, increasing the invasion risks for natural lakes.

"Collectively, these results suggest the benefits of building more reservoirs should be carefully balanced against the potential negative consequences, including increased biological invasions," Johnson said.

The study was funded in part by the National Science Foundation.The study showed impoundments significantly reduced the average distance between "uninvaded" lakes and lakes inhabited by zebra mussels, increasing the number of natural lakes considered vulnerable to zebra mussel invasion by 50 percent.

The zebra mussel, first introduced into the Great Lakes in 1987 and which affects plankton abundance, nutrients and water clarity, also has caused declines in native mollusks and fouled industrial pipes. Another invader, the Eurasian watermilfoil, was introduced in the United States in 1944 through the aquarium plant trade and is now in 44 of the 48 contiguous states, causing changes in both vertebrate and invertebrate communities, said the team.Other invaders posing threats include the Eurasian spiny water flea -- which colonized the Great Lakes region in the 1980s and which affects lake diversity and fouls commercial equipment -- and rusty crayfish, native to the Ohio river drainage and which has been shown to upset the balance of natural ecosystems, Johnson said.

A fifth, the rainbow smelt -- indigenous to marine environments -- has spread through the Great Lakes region and into the Mississippi and Hudson Bay watersheds, impacting local fish populations through predation and competition. Johnson said.

Climate-induced changes to water availability and increasing demand for water and flood control are expected to drive the construction of new reservoirs to increase water supplies in many regions of the United States, including the Midwest, said the authors. Dam construction and biological invasions are major contributors to the biodiversity crisis in freshwater ecosystems, which exhibit higher rates of extinction and a greater proportion of threatened and endangered species than in terrestrial or marine environments, said Johnson.

There are more than 80,000 large dams and an additional 2.5 million smaller impoundments across the United States, said Johnson.

For more information on Johnson's research, visit the Web at:
http://www.colorado.edu/eeb/facultysites/pieter/index.htm.

Adapted from materials provided by University of Colorado at Boulder, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/09/080902143245.htm

Teen Suicide Spike Was No Fluke

ScienceDaily (Sep. 3, 2008) — A troubling new study raises new concerns about kids committing suicide in the U.S.

After a one year spike in the number of suicides, doctors were hoping to see more normal numbers in the latest study, but they didn't. The number of kids committing suicide in the U.S. remains higher than expected, and that has doctors and parents looking for answers.

A sudden and dramatic increase in pediatric suicides may reflect an emerging trend rather than a single-year anomaly. That's the conclusion of new suicide research, conducted at The Research Institute at Nationwide Children's Hospital, which looked at pediatric suicide trends over a 10-year period.

Following a decade of steady decline, the suicide rate among U.S. youth younger than 20 years of age increased by 18 percent from 2003-2004 – the largest single-year change in the pediatric suicide rate over the past 15 years. Although worrisome, the one-year spike observed in 2003-2004 does not necessarily reflect a changing trend. Therefore, researchers examined national data on youth suicide from 1996-2005 in order to determine whether the increase persisted from 2004-2005, the latest year for which data are available.

Researchers estimated the trend in suicide rates from 1996-2003 using log-linear regression. Using that trend line, they estimated the expected suicide rates in 2004 and 2005 and compared the expected number of deaths to the actual observed number of deaths. Researchers found that although the overall observed rate of suicide among 10 to 19 year olds decreased by about 5 percent between 2004 and 2005 (the year following the spike) both the 2004 and 2005 rates were still significantly greater than the expected rates, based on the 1996-2003 trend.

"The fact that this significant increase in pediatric suicides continued into 2005 implies that the alarming spike witnessed from 2003-2004 was more than just a single-year anomaly," said Jeff Bridge, PhD, lead author and a principal investigator in The Research Institute at Nationwide Children's Hospital. "We now need to consider the possibility that the increase is an indicator of an emerging public health crisis."

In order to understand the possible causes behind the increase in youth suicides between 2003 and 2005, researchers say additional studies must be conducted.

"Identifying the risk factors associated with pediatric suicide is an important next step," said Joel Greenhouse, PhD, Professor of Statistics at Carnegie Mellon University and a co-author of the study.

Several factors that should be considered as possible contributors to the increase in youth suicides include the influence of internet social networks, increases in suicide among U.S. troops and higher rates of untreated depression in the wake of recent "black box" warnings on antidepressants – a possible unintended consequence of the medication warnings required by the Federal Drug Administration in 2004. Researchers stress that, whatever the explanation, effective interventions to reduce pediatric suicides must be addressed nationally.

For more than a decade the suicide rate among kids in this country had steadily and consistently declined, but that trend ended abruptly.

Personal story

That's disturbing news to Rick Baumann. After his son, Gabe, first attempted suicide as a teenager, Rick devoted his life to suicide prevention and educating others. Like many parents, Rick knew little about warning signs.

"He just withdrew, wasn't answering phone calls to his friends and all of that, but I have four other children and he was a teenager, and I just assumed it was teenage behavior," says Rick.

But often it's much more than that, and now that researchers have identified what may be an emerging crisis, the next step is to figure out what's causing it. One answer may lie in the prescription of antidepressant medication. Because of concerns over side effects, the number of kids prescribed anti-depressants has dropped by as much as 20 percent* and that may be having a dire impact.

"The vast majority of young people who complete suicide have some sort of psychiatric disorder. Most commonly depression or some mood disorder," says John Campo, MD, Nationwide Children's Hospital.

So the kids who need the medicine most may not be getting it. Campo says there is no proven link between the drop in prescriptions and the rise in suicides, but the fact that they happened at the same time is worth looking into. Experts say they also want to look into the Internet and how that may be playing a role in the number of kids committing suicide.

* John Campo, MD, Chief of Child & Adolescent Psychiatry, Nationwide Children's Hospital - interviewed August, 2008

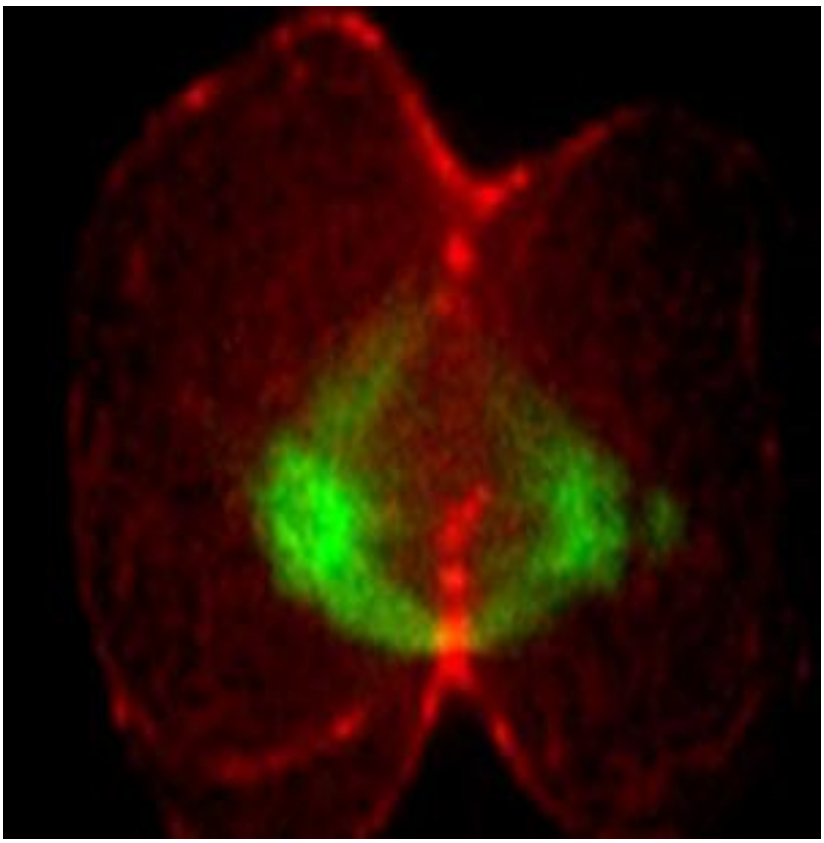
Journal reference:

1. . **Suicide Trends Among Youths Aged 10 to 19 Years in the United States, 1996-2005**. *Journal of the American Medical Association*, Volume 300, No. 9, September 3, 2008

Adapted from materials provided by Nationwide Children's Hospital, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/09/080902171054.htm

Cell Division Study Resolves 50-year-old Debate, May Aid Cancer Research



A cell dividing. (Credit: Image courtesy of Oregon State University)

ScienceDaily (Sep. 3, 2008) — A new study at Oregon State University has finally resolved a controversy that cellular biologists have been arguing over for nearly 50 years, with findings that may aid research on everything from birth defects and genetic diseases to the most classic "cell division" issue of them all – cancer.

The exact mechanism that controls how chromosomes in a cell replicate and then divide into two cells, a process fundamental to life, has never been completely pinned down, researchers say. You can find the basics in any high school biology textbook, but the devil is in the details.

"Researchers have been debating cell cleavage ever since the cell was discovered, with two basic models proposed around 1960 of how a contractile ring pulls together and allows a single cell to split into two," said Dahong Zhang, an OSU associate professor of zoology. "Part of the problem is that until now there was no decisive way to manipulate the cytoskeleton, such as the microtubules and filaments that are involved, and see what was happening as it occurred."

To address that, Zhang developed some new instrumentation that uses "microneedles" and state-of-the-art imaging techniques which allow direct manipulation of the cytoskeleton, while capturing the results of contractile ring formation. The system has not only solved this decades-old riddle, but "the technology is a very powerful new approach," Zhang said, that should find applications in other cell biology research issues.

It has been known for some time, scientists say, that a "contractile ring," which is composed of some of the same fibers used in muscle contraction, move into the correct position, pull and split a cell in two after

its chromosomes have been separated. This is distribution of genetic materials at its most basic level, and it has to be done at exactly the right place and time. When the process breaks down, cancer and other serious medical or genetic issues can be a result.

But if you think of the cell as a sphere, what was less clear was whether the "equator" contracted or the "poles" relaxed to allow this contraction and division. Two distinct theories were formed, called polar relaxation and equatorial stimulation, to explain this aspect of cell division – and some scientists have spent much of their careers arguing for one side or the other.

Turns out, Zhang said, that both sides were correct. Nature and evolution have actually created a basic way for a cell to divide with a backup system that can work if the other approach fails.

"Accurate cell division is one of the most critical of all life functions, and there clearly is an evolutionary value to having redundancy, a system able to do it two different ways," Zhang said. "It makes perfect sense when you think about it. The findings speak plainly for themselves, and there should no longer be a question over which model is right."

By labeling cells and moving microtubules around while still being able to see them and their impact on microfilaments, OSU researchers were able to selectively inhibit one mechanism of cell division or the other. They discovered that in the same cell type, it could divide either by polar relaxation or equatorial stimulation – the two mechanisms are not mutually exclusive.

The findings, Zhang said, add significantly to the basic understanding of cell biology, and should be of special interest to cancer researchers. Cancer is essentially the loss of normal control over cell division and migration. In fact, a compound used in Zhang's laboratory to inhibit cell division while they studied it was taxol – a commonly used cancer drug.

Accurate and effective cell division, researchers say, is also key to the understanding of some genetic diseases, miscarriages, birth defects and other issues.

The results are being published in PLoS Biology. The studies were supported by the National Science Foundation and the American Heart Association.

Adapted from materials provided by Oregon State University, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/09/080902221728.htm

'Autonomous' Helicopters Teach Themselves To Fly

Computer Science Professor Andrew Ng (center) and his graduate students Pieter Abbeel (left) and Adam Coates have developed an artificial intelligence system that enables these helicopters to perform difficult aerobatic stunts on the their own. The "autonomous" helicopters teach themselves to fly by watching the maneuvers of a radio control helicopter flown by a human pilot. (Credit: Image courtesy of Stanford University)

ScienceDaily (Sep. 3, 2008) — Stanford computer scientists have developed an artificial intelligence system that enables robotic helicopters to teach themselves to fly difficult stunts by watching other helicopters perform the same maneuvers.

The result is an autonomous helicopter than can perform a complete airshow of complex tricks on its own.

The stunts are "by far the most difficult aerobatic maneuvers flown by any computer controlled helicopter," said Andrew Ng, the professor directing the research of graduate students Pieter Abbeel, Adam Coates, Timothy Hunter and Morgan Quigley.

The dazzling airshow is an important demonstration of "apprenticeship learning," in which robots learn by observing an expert, rather than by having software engineers peck away at their keyboards in an attempt to write instructions from scratch.

Stanford's artificial intelligence system learned how to fly by "watching" the four-foot-long helicopters flown by expert radio control pilot Garett Oku. "Garett can pick up any helicopter, even ones he's never seen, and go fly amazing aerobatics. So the question for us is always, why can't computers do things like this?" Coates said.

Computers can, it turns out. On a recent morning in an empty field at the edge of campus, Abbeel and Coates sent up one of their helicopters to demonstrate autonomous flight. The aircraft, brightly painted Stanford red, is an off-the-shelf radio control helicopter, with instrumentation added by the researchers.

For five minutes, the chopper, on its own, ran through a dizzying series of stunts beyond the capabilities of a full-scale piloted helicopter and other autonomous remote control helicopters. The artificial-intelligence helicopter performed a smorgasbord of difficult maneuvers: traveling flips, rolls, loops with pirouettes, stall-turns with pirouettes, a knife-edge, an Immelmann, a slapper, an inverted tail slide and a hurricane, described as a "fast backward funnel."

The pièce de résistance may have been the "tic toc," in which the helicopter, while pointed straight up, hovers with a side-to-side motion as if it were the pendulum of an upside down clock.

"I think the range of maneuvers they can do is by far the largest" in the autonomous helicopter field, said Eric Feron, a Georgia Tech aeronautics and astronautics professor who worked on autonomous helicopters while at MIT. "But what's more impressive is the technology that underlies this work. In a way, the machine teaches itself how to do this by watching an expert pilot fly. This is amazing."

Writing software for robotic helicopters is a daunting task, in part because the craft itself, unlike an airplane, is inherently unstable. "The helicopter doesn't want to fly. It always wants to just tip over and crash," said Oku, the pilot.

To scientists, a helicopter in flight is an "unstable system" that comes unglued without constant input. Abbeel compares flying a helicopter to balancing a long pole in the palm of your hand: "If you don't provide feedback, it will crash."

Early on in their research, Abbeel and Coates attempted to write computer code that would specify the commands for the desired trajectory of a helicopter flying a specific maneuver. While this hand-coded approach succeeded with novice-level flips and rolls, it flopped with the complex tic-toc."

It might seem that an autonomous helicopter could fly stunts by simply replaying the exact finger movements of an expert pilot using the joy sticks on the helicopter's remote controller. That approach, however, is doomed to failure because of uncontrollable variables such as gusting winds.

When the Stanford researchers decided their autonomous helicopter should be capable of flying airshow stunts, they realized that even defining their goal was difficult. What's the formal specification for "flying well?" The answer, it turned out, was that "flying well" is whatever an expert radio control pilot does at an airshow.

So the researchers had Oku and other pilots fly entire airshow routines while every movement of the helicopter was recorded. As Oku repeated a maneuver several times, the trajectory of the helicopter inevitably varied slightly with each flight. But the learning algorithms created by Ng's team were able to discern the ideal trajectory the pilot was seeking. Thus the autonomous helicopter learned to fly the routine better—and more consistently—than Oku himself.

During a flight, some of the necessary instrumentation is mounted on the helicopter, some on the ground. Together, they continuously monitor the position, direction, orientation, velocity, acceleration and spin of the helicopter in several dimensions. A ground-based computer crunches the data, makes quick calculations and beams new flight directions to the helicopter via radio 20 times per second.

The helicopter carries accelerometers, gyroscopes and magnetometers, the latter of which use the Earth's magnetic field to figure out which way the helicopter is pointed. The exact location of the craft is tracked

either by a GPS receiver on the helicopter or by cameras on the ground. (With a larger helicopter, the entire navigation package could be airborne.)

There is interest in using autonomous helicopters to search for land mines in war-torn areas or to map out the hot spots of California wildfires in real time, allowing firefighters to quickly move toward or away from them. Firefighters now must often act on information that is several hours old, Abbeel said.

"In order for us to trust helicopters in these sort of mission-critical applications, it's important that we have very robust, very reliable helicopter controllers that can fly maybe as well as the best human pilots in the world can," Ng said. Stanford's autonomous helicopters have taken a large step in that direction, he said.

Adapted from materials provided by Stanford University.

http://www.sciencedaily.com/releases/2008/09/080902171117.htm

Heavy Trucks: Safety Research Identifies Factors That Lead To Loss Of Control, Accidents

Truck that drove off the road and just caught fire. Negotiating a bend is the main cause of loss of control of trucks. (Credit: iStockphoto/Franc Podgorek)

ScienceDaily (Sep. 3, 2008) — Research carried out in Sweden suggests that there are three critical manoeuvres that lead to loss of control of heavy trucks and subsequent accidents. Writing in the International Journal of Vehicle Safety, the researchers explain that negotiating a bend is the main cause of loss of control, closely followed by avoidance manoeuvres, and road-edge recovery.

Sogol Kharrazi and Robert Thomson of the Department of Applied Mechanics, at Chalmers University of Technology, Gothenburg, Sweden have analysed data from the Large Truck Crash Causation Study database and looked at what caused the drivers to lose control of their vehicles. They considered accident type, what kind of manoeuvres preceded the accident, the class of vehicles involved in the accident, driving conditions and road characteristics.

By identifying common critical manoeuvres the team hopes, not only to educate the trucking industry but also to inform those involved in truck design and manufacture and road building about the factors that lead to the most accidents involving heavy trucks. Their study did not take into consideration accidents

involving trucks in which the truck was not the cause or where driver fatigue, inattention or vehicle failure was involved.

Overall, they explain, loss of control was associated with almost a fifth of trucks involved in accidents. Turnover was a more common type of loss of control than yaw instability, skidding or jack-knifing, with more than half of trucks that underwent loss of control rolling whereas less than a third involved simply severe deviation from the intended path due to under-steer, over-steer, or trailer swing. About 14% experienced both yaw instability and turnover. Most (84%) of loss of control accidents involved a single vehicle.

Negotiating a bend in the road was the main critical manoeuvre leading to loss of control, with almost two-thirds of incidents taking place on a curve, the researchers say. Avoidance manoeuvres accounted for more than one in ten of loss of control accidents and similar numbers where the driver was attempting to regain position on the road after veering off into a verge.

Intriguingly, wet conditions were not a common factor in loss of control accidents. Dry road conditions were present for three quarters of all trucks which underwent loss of control, the researchers report. However, wet road conditions were associated with more than half of trucks that jack-knifed or otherwise underwent yaw instability.

Turning at intersection, lane change, heavy braking on straight roads, collisions with pedestrians or animals, or speeding on low-friction straight roads also accounted for a small percentage of loss of control accidents, the researchers add. For the heavy braking accidents, trucks involved often had no Antilock Braking System installed.

Adapted from materials provided by Inderscience, via AlphaGalileo.

http://www.sciencedaily.com/releases/2008/09/080901085724.htm

First Direct Proof Of How Osteoarthritis Destroys Cartilage

ScienceDaily (Sep. 3, 2008) — A team of orthopaedic researchers has found definitive, genetic proof of how the most common form of arthritis destroys joint cartilage in nearly 21 million aging Americans, according to a study published online Sept. 2 in the Journal of Bone and Mineral Research. The findings serve as an important foundation for the design of new treatments for osteoarthritis (OA), researchers said.

OA gradually destroys all cartilage in joints while forming scar tissue and painful bony growths. Advanced cases bring deformity and severe pain as patients loose the protective cushion between bones in weight-bearing joints like knees and hips. Until the late 1980s, OA was regarded as part of growing old. Since then, studies have revealed that biochemical changes contribute to the disease that might be reversed by drugs. Current medications, NSAIDs and Cox 2 inhibitors, are used to reduce symptoms in patients with mild cases, and joint replacement surgery for severe cases. Few options exist for those in between.Going into the current study, little was known about the cellular and molecular events that cause cartilage to break down in osteoarthritic joints. Past studies had suggested that higher levels of a key signaling protein, beta-catenin, were connected to osteoarthritis, but there was no direct evidence to confirm it, or to suggest its role. The current study provides both.

Researchers genetically engineered adult mice to have high levels of beta-catenin, and saw that they lost most of their articular cartilage, the protective layer that covers the ends of bones within joints. The mice also developed the same bony growths and microfractures seen in the joints of human OA patients. A companion experiment on human cartilage cells taken from patients with severe arthritis also confirmed that their beta-catenin levels were much higher than normal.

"We have created study the first model in a living animal that shows exactly how osteoarthritis causes damage," said Di Chen, M.D., Ph.D., associate professor in the Department of Orthopaedics at the University of Rochester Medical Center, and lead author of the study. "That of course puts us in position to interfere with the processes that contribute to the damage in a new and powerful way."

Study Details

Research teams from Oxford, and from Leiden University in The Netherlands, published the results of gene-mapping studies in 2004 and 2005 that found people with an extremely rare genetic mutation were much more likely to develop osteoarthritis. The mutation was in the frzb (Frisbee) gene, known to code for a protein called sFRP3 that normally keeps beta-catenin levels in check. This link between the frzb mutation, beta-catenin and osteoarthritis was still a hot topic last November at the annual meeting of American College of Rheumatology in Boston. When Chen heard about it from returning colleagues, he joined the race to provide the first direct, genetic evidence in a live, adult mouse that raising beta-catenin levels creates the same effects as osteoarthritis in aging human joints.

To win the race, Chen's team had to overcome a stubborn obstacle. A standard method for determining the function of a protein like beta catenin is to remove the gene that codes for that protein from the embryo of a mouse, and then to observe the biochemical consequences of that removal in the new breed. In many cases, however, the same genes that direct healthy function in adults also control the development of the animal from an embryo into a fetus. Attempts to "knock down" the action of such genes in the embryo are fatal, and long before researchers can study the effect of changes in gene expression that come with age. Maintaining precise levels of beta-catenin, for instance, is vital to the healthy development of bones and cartilage in the fetus.Chen and colleagues solved the problem by engineering and crossing lines of transgenic mice. They created a mouse with a built-in genetic system that could increase the levels of beta-catenin, but only in response to a specific drug trigger in an aging adult (versus in the womb), and only in a specific cell type (articular cartilage cells). The newly designed beta-catenin conditional activation (cAct) mice represented the first proper tool to study the effect in a live animal, and offered the first direct evidence of a pathway hinted at in the gene mapping studies.

Researchers administered tamoxifen, the chosen drug trigger, to turn up production of beta-catenin production in three- and six-month-old conditional activation mice. Researchers then examined the articular cartilage tissues two months later to look for structural and morphological changes. They found severe destruction in the articular cartilage of eight-month-old beta-catenin cAct mice. Even at the molecular level, the joints of the study mice mimicked those seen in human OA patients. Processes underway meant to heal the joint only added to disease by mistakenly forming bone where cartilage should be and by causing misguided cell growth. Control mice without high levels of beta-catenin expression experienced no damage to their cartilage.

Further analysis found that too much beta-catenin signaled for higher production of an enzyme, matrix metalloproteinase 13 (MMP-13), known to preferentially break down and destroy the type 2 collagen that makes up 90 percent of articular cartilage.Secondly, higher beta-catenin levels were found to bring about a nearly sixfold increase in expression versus controls of the gene for bone morphogenic protein 2 (BMP-2), which encourages the differentiation of cartilage into bone. In the womb, bone develops in a two-step process: stem cells become cartilage and cartilage is replaced by bone, a process tightly controlled by signaling molecules that include beta-catenin. The same process occurs when bones heal in adults. While the transition of cartilage cells into bone is natural, it is not meant to occur in joints, where cartilage is prevented from becoming bone to maintain a cushion. In addition, higher BMP-2 levels have also been associated by past studies with the formation of painful, bony growths called osteophytes in osteoarthritic joints.

While the original gene mapping studies provided clues about the causes of osteoarthritis, they created mystery as well. The frzb gene mutation found to cause a rise in beta-catenin is extremely rare, but tens of millions of people develop osteoarthritis as they age. Something beside the frzb mutation must be causing most cases. One theory has it that the mechanical force created by the weight of the body on joints over time is converted into ever stronger biochemical signals for more beta-catenin. While the force applied to joints cannot be reduced (except by weight loss), destructive signals sent in response to that force might be shut down by future drugs.

Another theory proceeds from the fact that patients with injuries to the meniscus, the sponge-like layer of cartilage that sits between the bones of the knee, are much more likely to develop osteoarthritis in the ensuing years. Could the deteriorating meniscus be signaling nearby articular cartilage to raise beta-catenin levels?

Chen's team has studies underway looking at whether meniscal injuries or biochemical reactions to mechanical force cause beta-catenin levels to rise. Other studies are already examining exactly how beta-catenin signaling changes levels of BMP-2 and MMP-13 in articular cartilage cells.

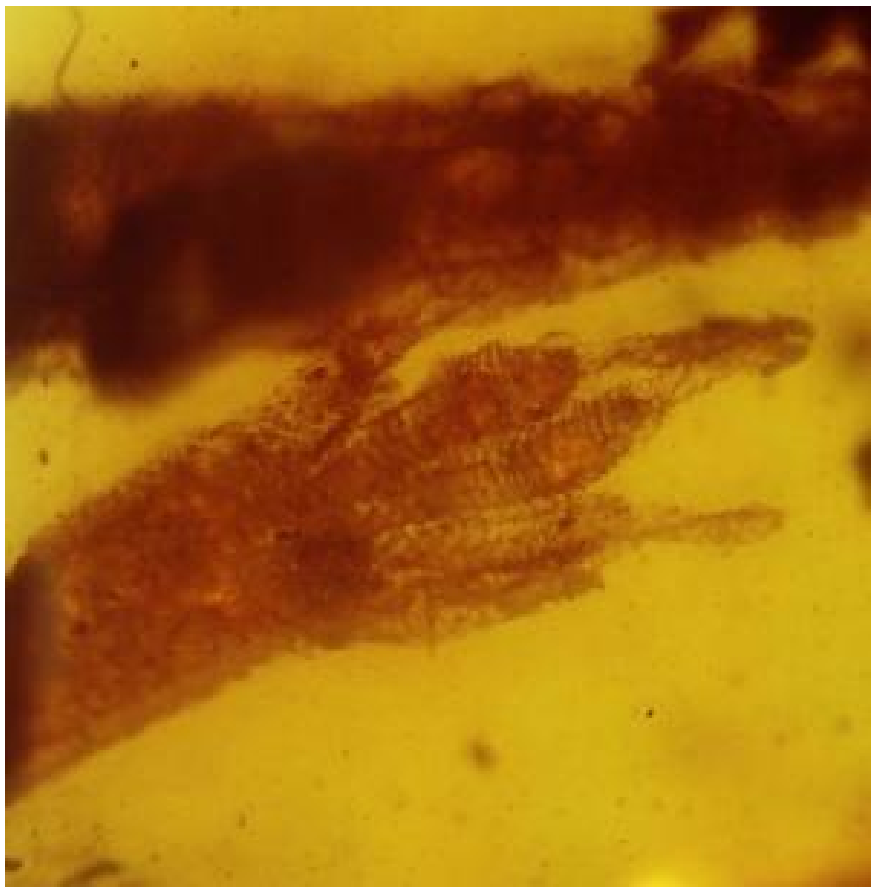
Along with Chen, Mei Zhu, Qiuqian Wu, Mo Chen, Chao Xie, Randy Rosier, Regis O'Keefe and Michael Zuscik led the work within the Department of Orthopaedics and Center within the University of Rochester School of Medicine and Dentistry. Dezhi Tang led the effort at the Spine Research Institute at Shanghai University of Traditional Chinese Medicine in Shanghai, China, as did Suyang Hao in the Department of Pathology at the University of Massachusetts Memorial Medical Center. The work was supported by the National Institutes of Health.

"The first step was to prove that beta-catenin is central to OA development, and I think we have done that," Chen said. "Now we are seeking to confirm that mechanical loading and mensical injury create higher levels of beta-catenin in osteoarthritic joints, and that this in turn causes cartilage destruction and too fast differentiation of cartilage into bone."

Adapted from materials provided by University of Rochester Medical Center.

http://www.sciencedaily.com/releases/2008/09/080902122838.htm

Oldest Gecko Fossil Ever Found, Entombed In Amber



Digital images of the amber fossil discovered by OSU researchers, containing the foot and partial tail. (Credit: Image courtesy of OSU)

ScienceDaily (Sep. 3, 2008) — Scientists from Oregon State University and the Natural History Museum in London have announced the discovery of the oldest known fossil of a gecko, with body parts that are forever preserved in life-like form after 100 million years of being entombed in amber.

Due to the remarkable preservative power of being embalmed in amber, the tiny foot of this ancient lizard still shows the tiny "lamellae," or sticky toe hairs, that to this day give modern geckos their unusual ability to cling to surfaces or run across a ceiling. Research programs around the world have tried to mimic this bizarre adhesive capability, with limited success.This gecko's running days are over, however, as only the foot, toes and part of a tail are left in the stone. The rest might have become lunch for a small dinosaur or other predator during an ancient fight in the tropical forests of Myanmar during the Lower Cretaceous Period, from 97 million to 110 million years ago.The find is at least 40 million years older than the oldest known gecko fossil, shedding additional light on the evolution and history of these ancient lizards that scampered among the feet of giant dinosaurs then and still are common in tropical or sub-tropical regions all over the world.

The findings were just published in Zootaxa, a professional journal.

"It's the unusual toe pads and clinging ability of some geckos that make them such a fascinating group of animals, so we were very fortunate to find such a well-preserved foot in this fossil specimen," said George Poinar, Jr., a courtesy professor at OSU and one of the world's leading experts on insects, plants and other life forms trapped in amber, a semi-precious stone that begins as tree sap.

"There's a gecko society, gecko clubs, just a lot of interest in these animals because of their unusual characteristics," Poinar said. "So there are a lot of people pretty excited about this."

Based on the number of lamellae found on its toe pads, this gecko was probably a very small juvenile of what would have become a comparatively large adult, possibly up to a foot long, the researchers say. Modern geckos get no more than about 16 inches long, although it's possible there were larger species millions of years ago. The juvenile gecko found in the fossiljuvenile gecko found in the fossil was less than an inch in length when it died – possibly by being eaten or attacked, since only partial remains were found.The discovery has been announced as a new genus and species of gecko, now extinct, and has been named Cretaceogekko. It had a striped pattern that probably served as camouflage.

There are more than 1,200 species of geckos in the world today , common in warm or tropical regions, including parts of the southern United States. They are frequently kept as pets, and often are welcome in the homes of some tropical residents because they help control insects. Some are very colorful. They use long tongues to lick, clean and moisturize their eyes."Geckos are territorial, and when I lived in Africa in the early 1980s we used to have them in our house," Poinar said. "They are pretty friendly and don't bother humans. Certain individuals would move into the house, we'd give them names, and they would run around the house, catch mosquitoes, help control bugs. They would crawl across the ceiling and look down at you."

The new study provides evidence that geckos were definitely in Asia by 100 million years ago, and had already evolved their bizarre foot structure at that time. The amber fossil was mined in the Hukawng Valley in Myanmar, and during its life the gecko probably lived in a moist, tropical forest with ample opportunities for climbing.The ability of geckos to walk on vertical walls or even upside down is due to the presence of thousands of "setae" on their toes, very tiny, hairlike structures that have tips which attach to surfaces by van der Walls forces. It's a type of incredibly strong, dry adhesion shared by virtually no other group of animals.

It's not known exactly how old this group of animals is, and when they evolved their adhesive toe pads. However, the new study makes it clear that this ability was in place at least 100 million years ago, in nature. Modern research programs still have not been able to completely duplicate it.

Scientists at the University of California at Berkeley reported earlier this year that they have developed a new "anti-sliding" adhesive that they said was the closest man-made material yet to mimic the ability of geckos – they think it might help a robot climb up the side of walls. A research team at the Massachusetts Institute of Technology this year created a waterproof adhesive bandage inspired by geckos, that may some day be used in surgery. And of course, geckos have become an advertising icon for the insurance company Geico.This study is just one of many in which Poinar and colleagues have used the unusual characteristics of amber to study ancient life forms and develop information on the ecology of ancient ecosystems.

As a stone that first begins to form as sap oozing from a tree, amber can trap small insects or other life forms and preserve them in near-perfect detail for observation millions of years later.

Adapted from materials provided by Oregon State University.

http://www.sciencedaily.com/releases/2008/09/080902163920.htm

Trends For Mega Cities Like Seoul

Seoul, the capital of South Korea, is a typical mega city: vast, pulsating, noisy and full of exhaust fumes. (Credit: iStockphoto/Min-Gyu Seong)

ScienceDaily (Sep. 3, 2008) — Seoul, the capital of South Korea, is a typical mega city: vast, pulsating, noisy and full of exhaust fumes. This is the setting in which Fraunhofer researchers are developing new building concepts and IT solutions that will save energy, cut pollution and make living in the city a more pleasant experience.

A Fraunhofer Representative Office will shortly be opened in Seoul to coordinate these projects.

Housing as far as the eye can see – Seoul is one of the world's mega cities. South Korea's capital city has undergone exponential growth over the past few decades: Its population has quadrupled in fifty years. Ten million people live within the city boundaries today. If the count is extended to cover the metropolitan region surrounding the city, it comes to over 20 million. The population growth has had a dramatic impact on the environment, bringing about a huge increase in traffic noise and air pollution.

Mayor Oh Se-hoon is no longer willing to stand by and watch this happen. If things go as he would like them to, Seoul will soon be a green city with clean air – a role model for other mega cities that are contending with similar problems. The city is investing in innovative technologies and building projects, and it is supported in its ambition by Fraunhofer, one of Europe's largest research and development institutions. On September 3, a Fraunhofer Representative Office will be opened in Seoul to coordinate projects between the Fraunhofer Institutes and their Korean partners. One of its core activities will be to develop technological concepts that make life in tomorrow's mega cities easier, kinder and more pleasent to the environment.

Trend 1: Using renewable energy sources

Researchers at the Fraunhofer Institute for Solar Energy Systems ISE in Freiburg are now developing an energy-efficient demonstration building on behalf of the city of Seoul. It will be designed to incorporate all the principles of modern energy-saving technology, and will be heated and cooled using sustainable energy sources.

"The building will show the population what kind of potential there is for using renewable energy. We are planning to build seminar rooms, research facilities and private dwellings that will demonstrate the technical possibilities for gaining energy from sustainable sources, but also for saving energy," explains Professor Volker Wittwer, deputy director of the ISE. "We want to demonstrate that the zero-energy house is feasible, averaged out over the year, and that it is pleasant to live in: It will be equipped with the latest building technologies and integrated in the usual national power supply networks." Construction work on the new building is to begin next year – in time for the annual convention of the mega city working group in Seoul. "Our goal is to produce an exemplary building that will provide an incentive for industry to invest in low-energy technology," adds the researcher.

In the "zero-energy house" project, his team is contributing their know-how on the utilization of alternative energy sources such as sunlight, geothermal heat, or wind.

Trend 2: Energy efficiency and comfortableness

The quality of living can be improved even in existing buildings. In the spring of 2008, scientists from the Fraunhofer Institute for Building Physics IBP in Holzkirchen signed a cooperation agreement with Samsung Engineering & Construction, one of the largest construction companies in Korea. "We are aiming to increase the comfort and energy efficiency of residential buildings," reports IBP-reseacher Dr. Andreas Holm.

Over half the population of Korea today live in high-rise apartment blocks that were built in the last few decades. By German standards, these buildings are poorly insulated. The residents require a great deal of energy to heat or cool the rooms. Overheating in summer and the growth of fungus are also a problem.

The causes are now being systematically examined. By the end of this year, the researchers from Holzkirchen will have equipped 24 apartments in Seoul with sensors that monitor temperature and humidity 24 hours a day. With the aid of these readings, the experts can simulate the indoor climate and make recommendations on how to increase energy efficiency and comfort. "Our goal is to cut the loss of energy even further by using better-insulated windows and facades, at the same time creating a pleasant indoor climate for the residents without unnecessarily pushing up the costs. We are keeping the mass market in mind," sums up institute director Professor Klaus Sedlbauer.

Trend 3: Acoustics

One highly critical research topic in Seoul is soundproofing. The traffic in the streets of the capital city produces an incessant background of noise, and the high-rise blocks are not well soundproofed. New laws are now to give the citizens more peace and quiet. A new regulation on reducing impact noise – which is incidentally far more stringent than the regulations applicable in Germany – has been in force since 2006. The acoustics experts from the Fraunhofer Institute for Building Physics IBP in Stuttgart are now cooperating with Korean engineers to devise innovative, soundproof building materials. "We have developed a novel composite-based insulation system that meets the Korean requirements and opens up new prospects of high-quality soundproofing in Germany," reports Dr. Philip Leistner, head of the acoustics department. "But when it comes to buildings, the interests of large Korean enterprises such as LG Chemicals and Samsung actually go a lot further than that. What they want to achieve are holistic, sustainable concepts for residential and working areas in buildings. This is one of the big issues for the future at Fraunhofer as well. And it applies not only to Korea and Germany, but all over the world."

Trend 4: Citizen-friendly administration

Services for citizens is another area in which the city of Seoul plans to employ state-of-the-art technology in future. The objective is to make dealings with public authorities simpler, more convenient and less complex. "The National Information Agency NIA is developing special IT services for the government which will not only provide information and reproduce application procedures online, but will also directly involve the citizens themselves and accept their inquiries and reports," explains Nils Barnickel of the Fraunhofer Institute for Open Communication Systems FOKUS. In collaboration with Korean IT experts he is currently planning a research project in the field of telephone-based e-government services.

The two sides have signed a memorandum of understanding in which they have agreed to develop a range of services for the mega city that will be similar to the planned service hotline in Europe. In future, all European citizens will be able to obtain comprehensive information and assistance in their dealings with public authorities, including the end-to-end handling of application procedures, simply by calling 115. Seoul would like to offer this attractive service to its own 20 million citizens.

Adapted from materials provided by Fraunhofer-Gesellschaft, via AlphaGalileo.

http://www.sciencedaily.com/releases/2008/09/080901085842.htm

How Gastric Bypass Rapidly Reverses Diabetes Symptoms

ScienceDaily (Sep. 3, 2008) — A recent report offers new evidence to explain why those who undergo gastric bypass surgery often show greater control of their diabetes symptoms within days. It also helps to explain why lap-band surgery doesn't offer the same instant gratification.

By studying mice that have undergone both procedures, the researchers show that changes in the intestine are the key.In addition to removing about two-thirds of the stomach, gastric bypass in effect produces a "double intestine," said Gilles Mithieux of Institut National de la Sante et de la Recherche Medicale in France. The portion closest to the stomach is taken out of the loop so that it receives no nutrients. The segment normally farther down is then attached directly to the stomach, where it receives all the nutrients coming in.

In both cases, those positional changes ramp up production of blood sugar by the small intestine, Mithieux said. He noted that fasting normally induces blood sugar production by the upper small intestine. By placing the lower small intestine, which doesn't normally produce much glucose, in close proximity to the stomach, it starts to act more like the upper portion.That blood sugar synthesized in the intestine pours into the portal vein (a large vein that carries blood from the digestive tract to the liver) where it sends a signal to the brain, he and his colleagues earlier found. "The walls of the portal vein system detect the glucose and inform the brain," he said. "It's an important signal for decreasing hunger."

They now find an important new element of glucose production by the intestine. It also increases insulin sensitivity and lowers blood sugar, improving the symptoms of diabetes. Mithieux said that's in part because glucose production by the intestine lowers glucose production by the liver, which accounts for a much greater overall proportion of blood sugar synthesis. These metabolic changes take place within days of surgery, well before any weight loss takes place.While gastric banding, in which a prosthetic band is placed around the upper stomach, works for weight loss, it doesn't affect the intestine at all and lacks the immediate metabolic benefits of bypass, they report.

Further evidence for the mechanism involved came from studies of mice lacking GLUT-2, a glucose transporter required for glucose sensing in the portal vein. Gastric bypass lost its insulin-sensitizing benefits in those GLUT-2-deficient mice. Similarly, mice whose portal veins had lost their nerve supply also stopped responding to the surgical procedure.The bottomline, according to Mithieux: the intestine deserves more respect. "Up to now, the intestine had been considered like a machine to assimilate nutrients. We've now begun to realize that it is a complex endocrine organ" with particular importance when it comes to glucose metabolism.As for what patients weighing gastric bypass versus lap-band surgery should do, Mithieux recommends they talk to their doctors about the possible benefits and risks of both procedures. The new findings do support the notion that gastric bypass may be an effective treatment for diabetes in obese patients. It might even have potential for people who are diabetic, whether they are obese or not, he said.

Journal reference:

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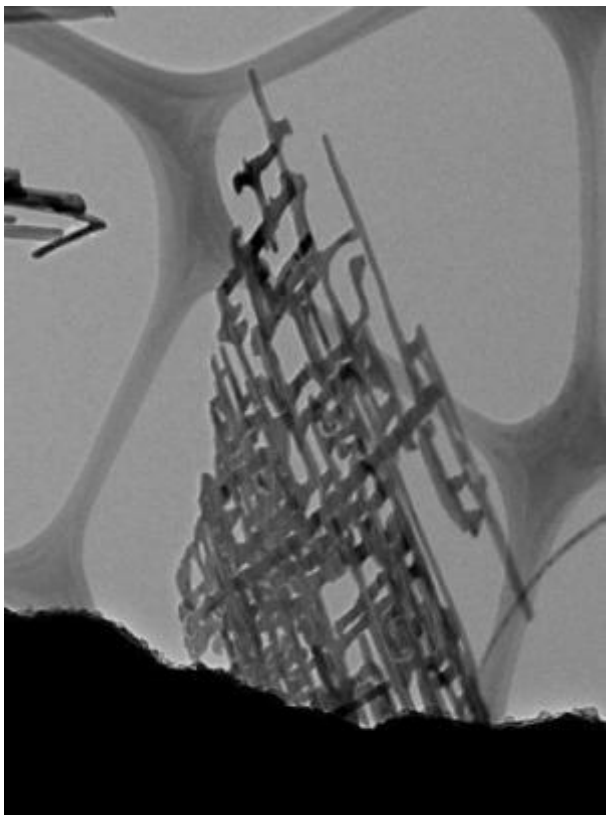
Adapted from materials provided by Cell Press, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/09/080902122834.htm

Scientists Grow 'Nanonets' Able To Snare Added Energy Transfer



Researchers at Boston College report creating nanonets, pictured here magnified 50,000 times. The novel nano-scale structure was grown from titanium and silicon in a two-dimensional network of wires that resembles flat, rectangular netting. (Credit: Angewandte Chemie International)

ScienceDaily (Sep. 3, 2008) — Using two abundant and relatively inexpensive elements, Boston College chemists have produced nanonets, a flexible webbing of nano-scale wires that multiplies surface area critical to improving the performance of the wires in electronics and energy applications.

Researchers grew wires from titanium and silicon into a two-dimensional network of branches that resemble flat, rectangular netting, Assistant Professor of Chemistry Professor Dunwei Wang and his team report in the international edition of the German Chemical Society journal Angewandte Chemie.

By creating nanonets, the team conquered a longstanding engineering challenge in nanotechnology: creating a material that is extremely thin yet maintains its complexity, a structural design large or long enough to efficiently transfer an electrical charge.

"We wanted to create a nano structure unlike any other with a relatively large surface area," said Wang. "The goal was to increase surface area and maintain the structural integrity of the material without sacrificing surface area and thereby improving performance."

Tests showed an improved performance in the material's ability to conduct electricity through high quality connections of the nanonet, which suggest the material could lend itself to applications from electronics to energy-harvesting, Wang said. Titanium disilicide (TiSi2) has been proven to absorb light across a wide range of the solar spectrum, is easily obtained, and is inexpensive. Metal silicides are also found in microelectronics devices.

The nanonets grew spontaneously from the bottom-up through simple chemical reactions, unprovoked by a catalyst, according to Wang and co-authors, post doctoral researcher Xiaohua Liu and graduate students Sa Zhou and Yongjing Lin.

Basic nano structures are commonly created in zero or one dimension, such as a dot composed of a small number of atoms. The most complex structures grow in three dimensions – somewhat resembling the branches of a tree. Working in 2D, Wang's team produced a web that under a microscope resembles a tree with all branches growing in the same perpendicular direction from the trunk.

Using titanium disilicide intrigued Wang because of the material's superior conductivity. Late last year, researchers at the Max Planck Institute for Bioinorganic Chemistry observed that a titanium disilicide semiconductor photo catalyst splits water into hydrogen and oxygen. The semiconductor also stores the gases produced, enabling the simple separation of hydrogen and oxygen. So-called water splitting may play a key role in producing hydrogen for fuel.

"We're excited to have discovered this unique structure and we are already at work to gauge just how much the nanonet can improve the performance of a material that is already used in electronics and clean energy applications," said Wang.

Adapted from materials provided by Boston College, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/09/080902171153.htm

How First Autism Disease Genes Were Discovered

ScienceDaily (Sep. 3, 2008) — At the 21st Congress of the ECNP 2008 in Barcelona, professor Marion Leboyer, University of Paris, France, presented the compelling neurobiological story of discovering the first autism genes.

Thereby she highlighted new findings on the role of gene mutations, their association with synapse abnormalities, and -- surprisingly -- a connection between circadian rhythms and autism risk. These insights will nurture applied projects on the development of new therapeutic strategies.

The autistic disorder was first described, more than sixty years ago, by Dr. Leo Kanner of the Johns Hopkins Hospital (USA), who created the new label ´early infantile autism´. At the same time an Austrian scientist, Dr. Hans Asperger, described a milder form of the disorder that became known as Asperger Syndrome, characterised by higher cognitive abilities and more normal language function. Today, both disorders are classified in the continuum of ´Pervasive Developmental Disorders´ (PDD), more often referred to as Autism Spectrum Disorders (ASD).

The prevalence of (classic) autism in the general population is about 15-20 in 10.000, while all Autism Spectrum Disorders (ASD) affect about 60 in 10.000 children. Males are affected four times more often than females. In approximately 10% of cases, autism is associated with a recognized cause, such as Fragile X Syndrome, Tuberous Sclerosis or diverse chromosomal abnormalities (mean observed rates between 5-10%), but in a vast majority of cases, no known causes are associated with autism (see figure).

All of these neurodevelopmental disorders are characterized by varying deficits in communication skills, social interactions, and restricted, repetitive and stereotyped patterns of interests and activities. Problems that may accompany these disorders are sensory distortion, mental retardation or seizures. Disease onset occurs during the first three years of life. Although early intervention has considerable impact on reducing symptoms and increasing a child´s ability to learn new skills, it is estimated that only 50% of children are diagnosed before the age of 3 years.

Most children with ASD respond well to behavioural management and highly structured, specialized programs in educational settings. Other therapeutic interventions comprise medications to treat behavioural problems such as aggression, self-injury, or severe tantrums.

Warning signs for Autism Spectrum Disorders such as social symptoms, communication deficits and repetitive behaviours should be considered sufficient reason to have a child evaluated by specialized professionals. The earlier the disorder is diagnosed, the sooner the child can be helped through treatment interventions.

Advances in autism research: genetic influences

Research into the causes, diagnosis, and the treatment of ASD has advanced interactively. Imaging studies have shown that many major brain structures are implicated in autism. Other research is focusing on the role of neurotransmitters such as serotonin, dopamine, and epinephrine. The past decade has been marked by an increased interest in the genetic basis of autism, and recent developments point to genetic factors playing a prominent role in the causes for ASD.

The role of gene mutations in autism

Twin and family studies have suggested an underlying genetic vulnerability to ASD. The estimated prevalence of autism in siblings is 5-10%. A higher recurrence risk in families with autistic subjects (45-times greater than the prevalence in the general population) and higher concordance for autism among monozygotic (60-90%) than dizygotic (0-10%) twins argue for a genetic predisposition to idiopathic

autism. These data are interpreted as showing that liability to autism is in large part due to oligogenic inheritance in which a combination of multiple – possibly interacting – susceptibility alleles results in autism.

A series of multiple independent whole genome scans and chromosomal abnormality studies have pointed out several candidate regions on chromosomes 2q, 7q, 6q, 15q and sex chromosomes. These regions possess candidate genes that have been screened for mutations or association with autism. In a European multicentre project called PARIS (Paris Autism Sib-pair International Study; coordinated by C. Gillberg & M. Leboyer) a large number of multiply affected families were identified, and several mutations of genes encoding proteins implicated in the process of synapse formation (synaptogenesis) have been described.

Autism and synapse formation (synaptogenesis)

In 2003 two new highly conserved members of the human neuroligin family – HNL4, located at Xp22.3 – were characterized (Jamain et al, 2003). A crucial factor in synapse formation, neuroligins are cell adhesion molecules that can trigger the formation of presynaptic structures in non-neuronal cells. The rare mutations of the neuroligins (1%) are associated with autism spectrum conditions. Another step forward in this compelling neurobiological story was the identification of a de novo frame-shift mutation in the X-linked HNL4 gene in two brothers, one with autism and the other with Asperger Syndrome. Since autism and Asperger Syndrome are overly represented in males, mutations in these genes may influence the process of synaptogenesis, and consequently may predispose males to Autism Spectrum Disorders.

In 2007, mutations of another gene encoding SHANK3 were reported (Durand et al, 2007). This gene regulates the structural organization of dendritic spines in neurons and is a binding partner of neuroligins, previously found to be mutated in autism and Asperger Syndrome. Surprisingly, a mutation of a single copy of SHANK3 at chromosome 22q13 is sufficient to induce language impairment, learning disabilities and/or social communication disorders associated with Autism Spectrum Disorders. Frequency of SHANK3 variants is very low even among autism patients and nearly absent in the general population. These results have thus shed light on one synaptic pathway sensitive to gene dosage and associated to Autism Spectrum Disorders.

In a large international study with a sample of 1.168 multiplex families, another exciting discovery led to the detection of sub-microscopic chromosomal abnormalities (Autism Genome Project, 2007): Copy Number Variant analysis (CNV) highlighted the role of a gene encoding neurexin, which is a tightly linked protein to neuroligin, implicated in synapse formation for glutamate neurons. This revealed a hemizygous deletion of coding exon for neurexin gene for a pair of affected siblings.

Accumulating evidence thus points out that neurexin/neuroligin/Shank3 (NLGN3/4, SHANK3, NRXN1) genes are related to autism risk, establishing a direct proof of the association of autism with synaptic abnormalities. Neurexin induces glutamate postsynaptic differentiation in contacting dendrites, while neuroligins induce presynaptic differentiation in glutamate axons. The neurexin-neuroligin link thus appears to be fundamental for glutamatergic synapse formation. Furthermore, aberrant glutamate function is often cited as a cause for autism.

By influencing the process of synapse formation for glutamate neurons, gene mutations predispose individuals to Autism Spectrum Disorders.

Autism and circadian rhythms

Another approach in research of the genetics of autism implies the melatonin pathway. Melatonin is produced in the dark by the pineal gland and is a key regulator of circadian and seasonal rhythms. A low melatonin level was reported in individuals with Autism Spectrum Disorders, but the underlying cause of

this deficit was unknown. In several individuals with Autism Spectrum Disorders, deletions of the ASMT-gene were found. This gene, located on the pseudo-autosomal region 1 of the sex chromosomes, encodes the last enzyme of melatonin synthesis. Biochemical analyses performed on blood platelets and/or cultured cells revealed a highly significant decrease in AMST activity and melatonin level in individuals with Autism Spectrum Disorders (Melke et al., 2008).

Recent research indicates that a low melatonin level, caused by a primary deficit in gene activity (AMST), is a risk factor for Autism Spectrum Disorders, and highlights the crucial role of melatonin in human cognition and behaviour.

Clinical implications

These findings stress the importance of further research into genetic abnormalities in autism to obtain a better understanding of the underlying disease mechanisms. However, several questions such as correlations between genotypes and phenotypes including cognition and brain imaging studies still remain to be investigated.

Research to unravel autism requires multidisciplinary approaches involving psychiatrists, psychologists, geneticists and brain imaging specialists.

Autistic patients require a broad workout taking into account psychiatric, somatic, cognitive, social and professional issues; furthermore they should be invited to participate in various research projects, ranging from fundamental research to more applied projects on the development of new therapeutic strategies. In view of these requirements the French Ministry of Research has established in 2007 the foundation Fondation FondaMental with the aim to intensify research in this field and to offer high-functioning autistic subjects optimal treatment and care in specialized expert centers.

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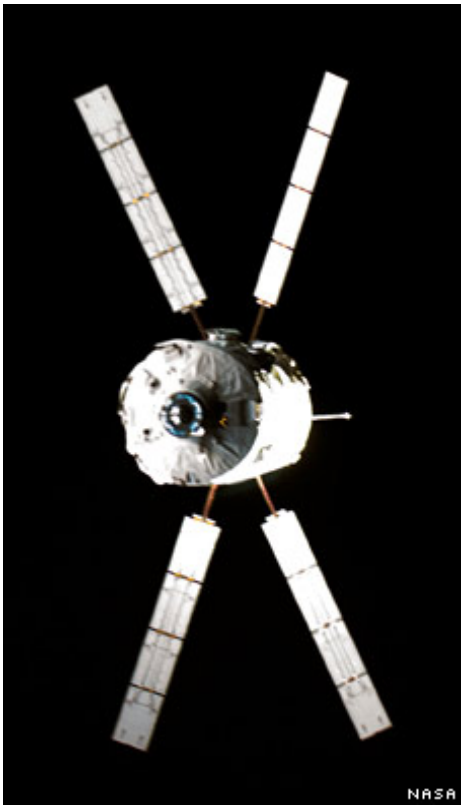
Adapted from materials provided by European College of Neuropsychopharmacology, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/09/080901205626.htm

'Jules Verne' begins final voyage

By Jonathan Amos
Science reporter, BBC News



Europe's space freighter has undocked from the International Space Station after completing its mission to the orbiting platform.

The ship - dubbed Jules Verne - moved away from the rear of the ISS at 2129GMT, taking itself to a position some 5km below the station.

The freighter will enter the atmosphere in three weeks' time, on 29 September.

The manoeuvre, over the Pacific, will destroy the vehicle and the station waste loaded on to it by astronauts.

Undocking was overseen by ISS mission controllers in Moscow, and by Jules Verne's dedicated management facility in Toulouse, France.

Jules Verne is the first in a series of unmanned freighters that will go to the station over the course of the next few years.

"It has satisfied all its requirements; it's met all our dreams and more," said John Ellwood, from the European Space Agency (Esa).

JULES VERNE - THE FIRSTS
The ATV is the first completely automated rendezvous and docking ship to go to the ISS

The ATV is the largest and most powerful space tug going to the ISS over its mission life
It provides the largest refuelling and waste elimination capability for the space station
It is the only vehicle on the current timeline able to de-orbit the ISS when it is retired

"The performance has in some cases been even better than we expected. It's been very satisfying after so much hard work by so many people," he told BBC News.

The ship - also known by the generic name Automated Transfer Vehicle (ATV) - is an immensely complex spacecraft.

Although many of Esa's scientific satellites are extremely sophisticated, nothing matches the scale of the freighter.

After launch, the robotic craft can work out where it needs to go in space, and then makes a fully automatic docking once it arrives at its destination.

It was developed for Esa as part of its ISS membership agreement, to haul cargo, propellant, water and oxygen to the space station; and also to provide propulsion capacity at the station.

On five occasions, Jules Verne has been called upon to fire its thrusters to lift the ISS higher into the sky, something that needs to be done every so often as the platform has a tendency to drift back to Earth as it skirts through the top of the atmosphere.

One of those re-boosts was required to move the ISS clear of debris from a disintegrated Russian satellite.

But Jules Verne has shown itself to be more than just a clever store cupboard and now, at the end of its life, a high-flying rubbish incinerator.

Astronauts, it seems, have appreciated the large space inside the ship. Its docking position on the rear of the platform has been a quiet place to sleep for some crewmembers.

The space has also been used as a bathroom, and the South Korean astronaut and nanotechnology engineer Yi So-yeon who visited the station in April used the vessel as a place to do her microgravity experiments.

From an engineering standpoint, the mission has raised no major technical issues that need to be taken into the next freighter which is already in preparation for an expected June 2010 launch.

Shortly after docking on 3 April it was noticed that a thermal jacket that protects the vehicle from the extreme conditions in space had lifted up slightly.

"But this was not really a problem," said Michael Menking from EADS-Astrium, which leads production of the vehicle. "If you measured the temperature inside there was no issue."

And with Jules Verne still operating on all its primary systems, the maiden voyage has in many ways been remarkably uneventful. "You'll understand if I say I like a really boring mission," joked Mr Menking.

Cost: Total bill was 1.3bn euros (at least 4 more ATVs will be built)
Total cargo capacity: 7.6 tonnes, but first mission flew lighter
Mass at launch: About 20 tonnes depending on cargo manifest
Dimensions: 10.3m long and 4.5m wide - the size of a large bus
Solar panels: Once unfolded, the solar wings span 22.3m
Engine power: 4x 490-Newton thrusters; and 28x 220N thrusters
Mission timeline: *Launch* - 9 March; *Docking* - 3 April; *Undocking* - 5 September; *De-orbit* - 29 September

After Friday's undocking, ATV-Jules Verne will sit under the space station until its final de-orbit manoeuvre can be timed with a night re-entry into the Earth's atmosphere.

Darkness will allow spotter planes to follow the fiery descent over an uninhabited part of the Pacific.

"It will be much easier to observe at night," said John Ellwood. "We're going to do the re-entry directly underneath the space station so the astronauts can take photographs of it.

"We want to make sure that everything we've done is correct, and this will be the final confirmation."

The question then remains as to what Esa wants to do with the technology. It is already committed to flying another four cargo missions to the ISS, but there is a strong desire among agency management and in industry to turn the ATV into a crewed vessel.

This would see the propulsion and avionics section of the ATV being fitted with a capsule that could survive re-entry and bring astronauts safely back to Earth.

EADS-Astrium believes a step-by-step programme with a budget of a couple of billion euros could evolve the current unmanned design into a fully independent European crew space transportation system.

Esa member states are likely to be asked to discuss the issue when space ministers meet in The Hague in November.

"We are optimistic, we've done our own studies from the technical point of view; but the Esa Council at the ministerial level is the right forum to decide if the 'ATV Evolution' is realised or not. It's a political decision," said Mr Menking.

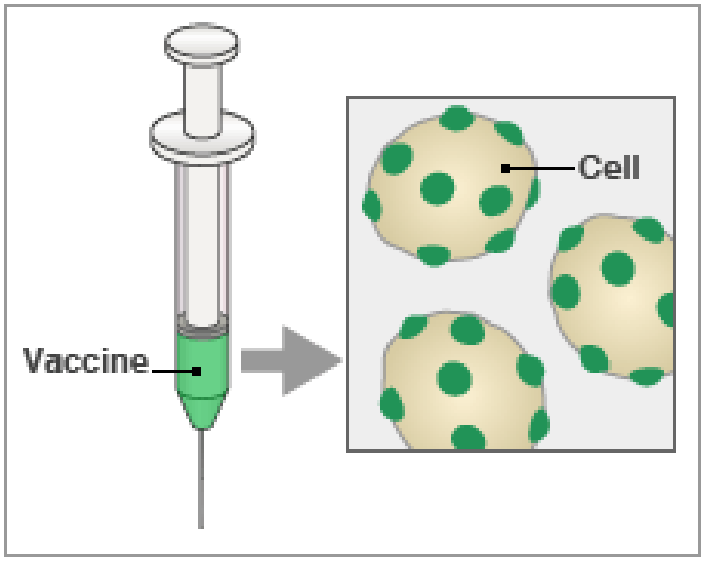
"It would be cargo re-entry as a first step and then, as a second step, you could think of a crew system."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7598980.stm

Published: 2008/09/05 22:27:47 GMT

Universal flu vaccine tests start

By Emma Wilkinson
Health reporter, BBC News



A universal flu vaccine which could mean an end to the annual jab is being tested on UK volunteers.

It targets a different part of the virus to current vaccines, which means it does not have to be altered every year to match circulating strains.

If successful, the vaccine developed by Oxford University researchers would also be a key weapon in a flu pandemic.

Experts said such a vaccine was the "holy grail" for flu researchers but there was still a long way to go.

Study leader, Dr Sarah Gilbert, said traditional influenza vaccines are designed to prompt an immune response to H and N proteins on the outer shell of the virus.

> **With this vaccine, we could end up having pretty much everyone vaccinated - a situation more like measles where you don't really see it anymore**
> Dr Sarah Gilbert

But these proteins are prone to mutation - and every year the vaccine has to be reformulated on the basis of the strains likely to be most prominent.

So instead, the researchers have developed a vaccine on the basis of proteins inside the cell, which are far more similar across different strains.

The vaccine uses a weakened smallpox virus to carry the proteins into the body - a technique that has already been used in malaria and TB vaccines.

Once the virus has invaded the cell and starts to multiply, these inner proteins called matrix protein 1 and nucleo-protein, are revealed to the immune system.

A specific type of immune cell, called a T cell, then learns to recognise and destroy cells containing the proteins the next time it encounters them.

Tests

Initially 12 people will be vaccinated to test the dose before further studies are done to check its effectiveness in people exposed to flu.

Dr Gilbert said if they were successful it could drastically change the way flu vaccine is used.

"With having to make new vaccine every year there's never enough to go around.

"With this vaccine, we could end up having pretty much everyone vaccinated - a situation more like measles where you don't really see it anymore."

In the case of a pandemic, stockpiles of the vaccine could be made in advance instead of having to wait for an outbreak to then identify the particular strain of flu.

Potentially, once people had received the vaccine they would only need a booster once every five to10 years.

But she added the research team had five to 10 years of further tests ahead of them.

However, it is hoped a similar approach might eventually also be used to combat HIV, TB, malaria and even cancer.

Professor John Oxford, a flu vaccine expert at Queen Mary, University of London said such a vaccine would be the "ultimate prize".

"But it's a fairly difficult prize to get - it may just be a question of luck.

"There are people trying all kinds of strategies."

He added that having to manufacture different flu vaccines every year was a "huge burden" on pharmaceutical companies.

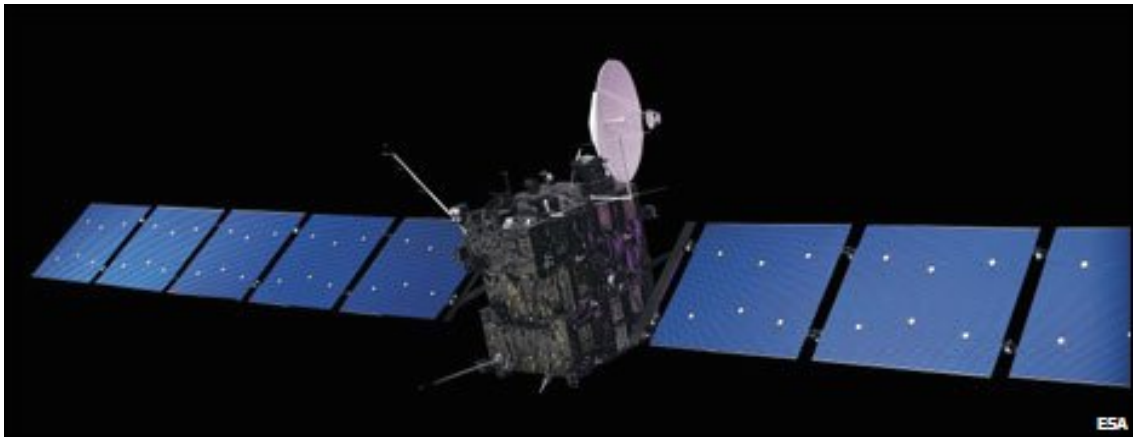
"This team have experience with this type of vaccine so they may well get there."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7577501.stm

Published: 2008/09/05 16:00:21 GMT

Rosetta probe makes asteroid pass

The Rosetta space probe has made a close pass of asteroid Steins.



The European Space Agency mission flew past the 4.6km-wide rock at a distance of about 800km, taking pictures and recording other scientific data.

The information will be sent back to Earth for processing and will be released to the public on Saturday.

The asteroid pass is a bonus for Rosetta. Its prime goal is to catch and orbit Comet 67P/Churyumov-Gerasimenko out near Jupiter in 2014.

Friday's pass occurred about 360 million km from Earth, in between the orbits of Mars and Jupiter, in the asteroid belt.

Closest approach to (2867) Steins - to give the rock its full designation - was timed for 1858 GMT. Rosetta was turned to give its instruments the best possible view of the target.

Mission planners said the spacecraft would have flown past the rocky body at a relative speed of 8.6km/s.

Both the probe and the asteroid would have been illuminated by the Sun, providing an excellent opportunity for science observations.

A radio signal was received from Rosetta at 2014 GMT, confirming a smooth fly-by. The probe was not expected to beam back its data haul until late on Friday.

The mission will make another asteroid rendezvous as it works its way out to Jupiter.

The probe will visit the (21) Lutetia space rock on 10 June 2010, but from the larger distance of 3,000 km.

Only a few asteroids have so far been observed up close. They have been shown to be very different in shape and size - ranging from a few km to over 100km across - and in their composition.

The rocks are often referred to as "space rubble" because they represent the leftovers that were never incorporated into planets when the Solar System formed 4.6 billion years ago.

As with comets, they may contain very primitive materials that have not undergone the constant recycling experienced by, for example, Earth rocks.

Rosetta data should therefore help researchers understand better how our local space environment has evolved over time.

The £600m Rosetta mission was blasted into space on 2 March, 2004.

Once in orbit around the 4km-wide Churyumov-Gerasimenko, the craft will despatch a small lander called Philae to the surface to study the object's chemistry.

The mission will then follow the comet as it moves in towards the Sun, monitoring the changes that take place on the icy body.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7599962.stm

Published: 2008/09/05 22:32:03 GMT

One Laptop signs up with Amazon

The One Laptop Per Child (OLPC) organisation has signed a deal with Amazon to sell its low cost laptops.

The online retailer will help with its next Give 1 Get 1 (G1G1) programme that is due to begin in late November.

Under this scheme people can buy one of the XO laptops for themselves and donate the other to a school child in a developing nation.

It is hoped the deal with Amazon will iron out the problems OLPC encountered when it ran the G1G1 programme itself.

Novel model

Dreamed up by MIT Professor Nicholas Negroponte, the OLPC was set up to create and build a powerful laptop for school children in developing nations that sold in the millions and cost less than $100 (£56).

The resulting XO laptop sports distinctive green and white livery, has wi-fi built in, can be powered by a pull cord, and comes loaded with educational software.

Many nations have expressed an interest in using the XO but relatively few started big projects that gave the machine to students and school children.

In a bid to boost the take-up of the XO laptop, the OLPC started the G1G1 programme in November 2007 that let US residents buy two of the machines for $398.

While many people expressed interest in participating the OLPC group hit problems in getting XO machines to customers. Production delays and delivery glitches led to many people cancelling orders while OLPC sorted out the problems.

The new round of the G1G1 programme is due to start in late November and run until the end of 2008. It will only be open to US residents.

At the same time the OLPC group said it planned to launch the second generation of its laptop in 2010.

The XO-2 does away with a keyboard in favour of two touch screens one of which can be converted to a touch type screen.

OLPC hopes that the new version will also get closer to its long-stated ideal of producing a computer that costs less than $100.

The current versions of the XO laptop cost about $200 but the new generation is expected to be available for about $80.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/technology/7599652.stm

Published: 2008/09/05 09:23:44 GMT

Holiday key to school standards?
By Mike Baker

So are you one of the smug ones at the school gates or in the staffroom?

As the new school year began in most parts of England, Wales and Northern Ireland this week, parents, students and school staff fell into one of two camps.

There were those with webbed feet who had spent their holiday in the UK and those who could remember that the bright light in the sky is something called the sun.

I was in the West Country in August and every tea room and café was filled with families with school-age children, desperately eking out their cream teas and hot chocolates to delay the moment when they had to return to the rain, their muddy campsite and another game of cards.

With the credit crunch biting, there were probably more people taking UK holidays this year. These will have included a large proportion of teachers, who have just received their 2.45% pay rise, just half the current level of inflation.

But none of us should have been too surprised that the school holidays brought rain.

Variations

No, this is not just another expression of fatalistic black humour, like always expecting rain on bank holidays.

Just look at the weather charts. August is simply not a good bet for UK holidays.

According to long-term average measurements from the Met Office, London, Plymouth, Manchester and Birmingham all have more sunshine in May, June and July than in August.

These places, which are typical of England, also have less wind in May, June and July than in August.

And as for rain, there is a lot less of it in May, June and July than in August. Indeed, even April - renowned for its showers - has less rain than August in most places.

Indeed the only good news about August is that it has about the same chance of snow as May, June and July.

Harvest

So why do we persist in releasing pupils for the school holidays in August, when it is relatively cloudy, windy and wet, while cooping them up in exam halls when it is sunny, warm and dry?

There could be great advantages to a school year that started at the beginning of August and ended in mid-June

Of course, at this point you can probably hear the sound of crowing from Scotland where, more sensibly, they start their summer holidays at the end of June and return in mid-August.

Mind you, the Scots should not crow too loudly. They too would have more sunshine on Scottish holidays if they were off in May and June rather than July and the first half of August.

So why do we mainly have school holidays in late July and August rather than in May, June and early July?

The answer, of course, is the harvest. School holidays are in August because that was when the Victorians wanted children in the fields to bring in the wheat.

That was already an out-dated idea as early as 1851, by which time more people were living in England's cities and towns than in the countryside.

So why have we still not changed it now that hardly any child, even those living in the country, goes anywhere near a combine harvester?

Earlier exams

There have been moves in parts of the country towards a five- or six-term school year, bringing slight changes to school holiday dates. But most have not dared to make big inroads into the timing of the summer holidays.

Yet there could be great advantages to a school year that started at the beginning of August and ended in mid-June.

For a start, the exam season could begin earlier, in April or May, avoiding the height of the hay fever season and the problem of making pupils study hardest when the weather is at its best.

It would also make it much easier to move to a "post qualification admissions" system for university entrance, with students able to apply after they know their exam grades rather than relying on predicted grades.

Most of all, though, it would cheer us all up and happier parents, students and teachers would surely mean an improvement in standards.

It could be the magic solution to better school performance that governments are looking for.

We welcome your comments:

Name
Your e-mail address
Town/city and country
Your comment
Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/uk_news/education/7600526.stm

Published: 2008/09/06 01:00:57 GMT

Team sports blamed for health gap

An over-emphasis on competitive team sports in schools is being blamed for "marginalising" the wider efforts to promote physical exercise.

Research from Loughborough University suggests that healthy individual exercise is losing out because PE teachers want to focus on team games.

This means that pupils are not learning about personal exercises such as aerobics and pilates, say researchers.

But England's education department said it was "bemused" by the report.

The study, being presented to the British Education Research Association's annual conference in Edinburgh, has been based on interviews with 112 PE teachers in a range of local authorities in England.

Obesity

The research has found that it will be difficult to promote the idea of individual health-promoting exercise when lessons are likely to be dominated by teachers' personal interest in team sports.

"A teacher who has experienced lifelong success in sport is likely to want to focus upon competitive team games within lesson," says researcher Laura Ward.

"This then presents us with a persistent cycle whereby sport is privileged within PE and health-related exercise is marginalised."

School sport has been seen as an important part of efforts to tackle the problem of childhood obesity.

Participation rates

The government says a target to get 85% of youngsters in England doing two hours of sport a week has been met - and it wants that to be increased to five hours per week by 2012.

Last year the former education secretary Alan Johnson attacked those who argued against competitive team sports in schools.

"It was an absurd and perverse political correctness which caused competitive sports to be banned in some schools and I hope we never see a return to such nonsense," Mr Johnson said.

A spokeswoman for the Department for Children, Schools and Families said: "We're frankly bemused by this research.

"Solo exercise like dance and athletics are in the top five most popular sports in schools and participation rates in PE and sport have soared - from less than a quarter doing two hours a week in 2002 to almost nine in 10 now.

"The fact is that young people thrive off competitive sport, particularly team sports - three million children took part National School Sport Week in June and the 1,500 elite teenage at the UK School Games last week.

"And we are investing £30m specifically into promoting competitive sport further through regional, borough and school leagues and inter-school fixtures."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/uk_news/education/7599973.stm

Published: 2008/09/05 11:37:37 GMT

African Idyll

By CAROLINE ELKINS

THE HOUSE AT SUGAR BEACH

In Search of a Lost African Childhood

By Helene Cooper

Illustrated. 354 pp. Simon & Schuster. $25

The skeletal remains of Africa's numerous civil wars litter the continent, from the easternmost reaches of Somalia to the western shores of Liberia. It is there, overlooking the picturesque beaches of the Atlantic Ocean, that unknown numbers of human remains — victims of Samuel Doe's reign of terror — haunt the earth. One building that serves as their communal headstone, itself a virtual skeleton, is physical testimony to the civil war that racked Liberia for nearly 25 years. This macabre marker is the house at Sugar Beach.

In her masterly memoir, Helene Cooper brings us back to the halcyon years when Sugar Beach, her family's home, embodied the elite privilege and disco-age chic to which Liberia's upper class aspired. The Coopers' mansion, 22 rooms in all, rose in solitude out of the plum trees and vines that thicketed Liberia's undeveloped coastline. Inside was a living homage to the 1970s, complete with velvet couches in a sunken living room, marble floors and a special nook for storing the plastic Christmas tree. Outside, where a carpet of grass stretched to the thunderous Atlantic, multiple servants made their home, and the latest-model American cars — from a Lincoln Continental to a two-tone green Pontiac Grand Prix — awaited their next 11-mile journey into downtown Monrovia.

Fate, so it seemed, handed Helene Cooper a "one-in-a-million lottery ticket" when she was born into "what passed for the landed gentry upper class of Africa's first independent country." Both sides of Cooper's family traced their roots to Liberia's founding fathers — freed slaves from the United States who fought disease and the recalcitrant local population to forge a new nation. Their bravery and ingenuity were legendary, and their descendants soon formed Liberia's upper caste.

At its heart, "The House at Sugar Beach" is a coming-of-age story told with unremitting honesty. With her pedigree and her freedom from internalized racism, Cooper is liberated to enjoy a social universe that is a fluid mix of all things American and African. "None of that American post-Civil War/civil rights movement baggage to bog me down with any inferiority complex about whether I was as good as white people," she declares triumphantly. "No European garbage to have me wondering whether some British colonial master was somehow better than me. Who needs to struggle for equality? Let everybody else try to be equal to me."

The young Helene Cooper oozes the awkward confidence of a privileged adolescent, and it is through her bespectacled eyes that we see the carefree decadence of Liberia in the years just before it descended into chaos. They are also the lenses through which we are introduced to Cooper's distinctly female world. Atop the matriarchy is her maternal grandmother, the unforgettable Mama Grand. Cooper's side-splitting portrayal of this hard-nosed, self-made landowner is nothing short of brilliant. With her gold-capped tooth glistening, Mama Grand is equally capable of dressing down a Lebanese merchant who "thought he was going to cheat me out of my rent" and berating the entire American government on camera for "60 Minutes." The women are the backbone of Liberia in its heyday, but they show their true strength when the country collapses.

A subtle, nostalgic ache for a childhood foreshortened is the watermark imprinted on every page of Cooper's story. The idyll at Sugar Beach, with its Michael Jackson LPs and Nancy Drew mysteries, was shattered when a ragtag group of soldiers — part of the rebel force that brought down the Tolbert government in 1980, and with it over 150 years of old-guard, one-party rule — arrived on the scene. The stench of their inebriation, of their lust for violence, overpowered the tranquility that still lingered in the bucolic air of Cooper's sheltered world. Her mother would try in vain to exorcise the odor — and the memories — the rebel intruders inscribed on her body and mind after they gang-raped her. Mommee sacrificed herself to protect the innocence of Helene and her other daughters, Marlene and Eunice, locking them in an upstairs room before the soldiers forced her down into the basement.

Cooper soon went into exile, joining thousands of other members of the Liberian elite who managed to escape the rebels' murderous pillaging. Mommee and Marlene were also among them. Eunice was not. The daughter of a poor upcountry mother, she had been taken into the household at Sugar Beach when Helene was a lonely 8-year-old in need of companionship. She quickly became "Mrs. Cooper's daughter" and was treated as one of Mommee's own. Yet over the years there were subtle reminders of Eunice's different status. And when it was time to flee, painful choices were made. Eunice was not a blood relation, and so she was left behind.

While Cooper's memoir is mesmerizing in its portrayal of a Liberia rarely witnessed, its description of the psychological devastation — and coping mechanisms — brought on by profound loss is equally captivating. The second half of the book tells the story of Helene's reinvention. Her aristocratic Liberian pedigree meant nothing in the hallways of her new school. She became the suspicious immigrant, spending lunchtime hiding in bathroom stalls and the recesses of the library rather than face the scrutiny and ridicule of her American classmates.

Cooper's perseverance and immense talent with language eventually catapulted her into a career as a journalist. Her success at The Wall Street Journal and later The New York Times is nearly as noteworthy as her ability to compartmentalize — or, some might say, dissociate. This mental sleight of hand is what affords her the psychological space to create a new life and cultivate her writer's craft. It would be a mistake to see her ruminations over race and class in America as the hypocritical ranting of a once-privileged African. They are, instead, a reflection of her internalized journey, part of the process of becoming whole.

The walls holding back the guilt of her early entitlement, the destruction of her childhood, the murder of family and friends, and the abandonment of her foster sister would finally come crushing down under the literal weight of an American tank in Iraq. When the tank destroyed the Humvee in which she was riding, Cooper narrowly escaped death. But once she was extricated from the wreck, her mind traveled to a different war. "At that moment," she writes, "as I lay in the sand in the desert, my chemsuit soaked with what turned out to be oil, not blood, I thought of Liberia."

For the first time in over 20 years, she soon returned to her former homeland. There, in the ravaged streets, in the overgrown jungles of yesteryear's plantations, she confronted the ghosts of the dead — and encountered the living survivors. With much suffering and loss, Eunice had miraculously endured the hell of the Doe era, as well as the civil wars and deep poverty that accompanied the ascent of Charles Taylor to Liberia's presidency. Eventually, the two sisters were reunited and returned to the house at Sugar Beach. In the defiled shadow of onetime grandeur, Cooper embraced the enormity of her past, and finally came of age.

Caroline Elkins is an associate professor of history at Harvard and the author of "Imperial Reckoning: The Untold Story of Britain's Gulag in Kenya," which won the Pulitzer Prize for general nonfiction in 2006.

http://www.nytimes.com/2008/09/07/books/review/Elkins-t.html?_r=1&8bu&emc=bua1&oref=slogin

Styron's Choice

By JESS ROW

Nineteen sixty-eight began as a promising year for William Styron. After six years of intense work, he had published, the previous fall, the novel he thought would cement his reputation: "The Confessions of Nat Turner," an account of an 1831 slave revolt in Southampton County, Va., narrated in Turner's voice. It was a risky, even provocative book — he'd always known it would be — but the gamble appeared to have paid off. "The Confessions" got excellent reviews, appeared on the best-seller list, was sold to 20th Century Fox and won a Pulitzer Prize. Best of all, Styron said, was the response from many African-Americans. Later in life (Styron died in 2006) he recalled traveling to a historically black college to receive an honorary degree shortly after "The Confessions" was published: "I felt gratitude at their acceptance of me," he wrote, "and, somehow more important, at my acceptance of them, as if my literary labors and my plunge into history had helped dissolve many of my preconceptions about race that had been my birthright as a Southerner."

And then history intervened.

Amid the upheavals of the spring and summer of 1968 — Martin Luther King Jr.'s assassination in April, Robert Kennedy's in June, rioting in American cities, the disastrous Democratic convention in Chicago — Beacon Press published a slim volume of essays called "William Styron's Nat Turner: Ten Black Writers Respond." Almost overnight, "The Confessions" became the center of a debate that has helped shape American literature ever since.

"The Confessions of Nat Turner" is based, very loosely, on a "confession" Turner gave to his court-appointed lawyer, Thomas Gray, shortly before his execution. Gray later published the confession. Styron wrote that the Turner he found in Gray's text was a "dangerous religious lunatic, . . . a psychopathic monster"; rather than expand on the historical record, he chose to write a meditation on history, giving him "dimensions of humanity that were almost totally absent in the documentary evidence." In the novel, Turner is a young slave brought up as a domestic servant in the household of a wealthy, altruistic plantation owner who decides to teach Turner to read as proof that slaves are capable of "cultivation." In Styron's depiction, Turner is pious, even saintly, with no romantic entanglements other than a chaste attachment to a young white woman who secretly holds abolitionist views.

Styron was a close friend of James Baldwin and drew inspiration from Baldwin's novel "Another Country" (1962), which depicted interracial romance in late 1950s New York from the perspective of both black and white characters. Baldwin, in turn, praised "The Confessions," observing that Styron had "begun to write the common history — ours." But in the broader African-American intellectual world, the novel was widely condemned. "Ten Black Writers Respond" has to be read in light of this history: as a polemic and corrective that introduced a spectrum of opinion mostly ignored in the mainstream press. "For all its prose power and somber earnestness," Loyle Hairston wrote, "Styron's novel utterly fails the simple test of honesty." "This is meditation mired in misinterpretation," Charles V. Hamilton wrote, "and this is history many . . . black people reject." John Oliver Killens: "In terms of getting into the slave's psyche and his idiom, it is a monumental failure." The 10 writers — magazine editors, psychiatrists, librarians, academics — argue with Styron's rejection of the historical record, his interpretation of Turner's scriptural and religious inspirations, his use of African-American dialect and his invocation of inflammatory stereotypes in both black and white characters. The book's tone at times echoes avant-garde manifestoes and agitprop pamphlets, but just as often it is pained, searching and evenhanded. Mike Thelwell wrote that "The Confessions" "demonstrates the persistence of . . . myths, racial stereotypes and literary clichés even in the best intentioned and most enlightened minds. . . . The real 'history' of Nat Turner, and indeed of black people, remains to be written."

"Ten Black Writers Respond" was met with a counterblast of scorn from the establishment, most famously a long essay in The New York Review of Books by Eugene Genovese, who dismissed Styron's

critics as censorious radicals opposed to racial dialogue. At public forums, young activists shouted Styron down when he tried to defend himself. After protests from Ossie Davis and other African-American actors, the planned movie was shelved. Styron retreated into private life and for many years remained embittered and unrepentant; in a 1992 afterword to the novel, he wrote that he had "unwittingly created one of the first politically incorrect texts of our time" and dismissed "Ten Black Writers" as "intellectual squalor." Late in life, however, he was gratified to hear younger African-American scholars, including Cornel West and Henry Louis Gates Jr., address the novel in more favorable terms. Gates even encouraged Spike Lee to consider making a film of "The Confessions"; Lee did consider it but later abandoned the project for financial reasons.

Over the decades, "The Confessions of Nat Turner" and "Ten Black Writers Respond" together helped create an explosion of interest in slave narratives and in 19th-century African-American literature, and made the study of slavery a vibrant field in American history. Not coincidentally, these same decades saw the emergence of what scholars call the "postmodern slave narrative": a genre that includes Toni Morrison's "Beloved," Charles Johnson's "Middle Passage," Edward P. Jones's "Known World" and Sherley Anne Williams's "Dessa Rose." Williams, speaking for many writers of her generation, identified "The Confessions" as a source — albeit a negative one — for her novel, writing that she no longer wanted the African-American experience to be, as she put it, "at the mercy of literature" written by others.

But it would be a mistake to describe the "Confessions" controversy only as a struggle over who has the right to tell the story of slavery. ("I do not believe that the right to describe . . . black people in American society is the private domain of Negro writers," the novelist John A. Williams wrote in "Ten Black Writers Respond." "I cannot fault Styron's intent.") Styron himself admitted that his novel was an effort to adapt Turner's sensibility and language to the 20th century, and it was the artificiality of this adaptation that most infuriated his critics. The prevailing mode of much historical fiction since then has been precisely the opposite: to take a term from the Russian literary theorist Viktor Shklovsky, novelists have wished to "defamiliarize" history by making it unrecognizable, unknowable, fantastic, brutal. "Beloved," with its harsh, fragmented narration of infanticide, is the most obvious example, but consider also Cormac McCarthy's "Blood Meridian," which portrays the Mexican frontier in the 19th century as an apocalyptic wasteland populated by psychopaths and mystics. Whether these novels are more honest than "The Confessions of Nat Turner" is perhaps an unfair question — honesty in fiction is a moving target — but they do embody a radically different sensibility, one that refuses to collapse the past into the present and that makes history almost fetishistically "different," difficult to accept or assimilate.

It may be unfair to celebrate a writer for being so publicly rejected and railed against, but 40 years' perspective should allow us to credit Styron for taking the risk of writing "The Confessions" and to appreciate the courage of the 10 writers who dissected it in searing detail. Their confrontation helped shatter the idea that there can or should be one version of "how slavery was"; now we have a hundred different versions — some omnipresent, some long silenced, some real, some fictional — telling a messier, trickier, less comforting story. This may not be the "common history" James Baldwin spoke of, but at least it's a step in the right direction.

Jess Row is the author of "The Train to Lo Wu," a collection of stories. He teaches at the College of New Jersey.

http://www.nytimes.com/2008/09/07/books/review/Row-t.html?8bu&emc=bub1

Author Gives Voice to Artists' Silent Muses, Their Wives

By PATRICIA COHEN

Years ago Ruth Butler was walking through the Musée Rodin in Paris when she glimpsed a small oil painting of a woman with short brown hair, intense eyes and pursed lips. It was labeled a portrait of Rodin's mother.

"I said, 'That's ridiculous,' " recalled Ms. Butler, who was on the museum's board and is now professor emerita at the University of Massachusetts in Boston and the author of a Rodin biography. She recognized the portrait as that of Rose Beuret, Rodin's model and later his wife.

"I thought that if even the Musée Rodin doesn't care about Rose, then I should write about this," Ms. Butler said as she sat sipping a cappuccino in the Petrie Court at the Metropolitan Museum of Art, gazing out at Central Park.

The book is "Hidden in the Shadow of the Master: The Model-Wives of Cézanne, Monet and Rodin," recently published by Yale University Press. In it Ms. Butler tries to rescue from obscurity the women who she argues were so much a part of the triumphs of these visionaries.

"These artists would find people whose body and face make a statement that they could not otherwise make," Ms. Butler said, arguing that the models have never been given their due. The women "made a contribution," she added. "They deserve to be seen, not just visually but biographically."

As artists in the second half of the 19th century shifted from painting historical, mythological and religious subjects to everyday life, they looked for a new kind of model. For the first time, Ms. Butler said, artists used the same model — often a wife or lover — over and over and over again in different paintings and in different scenes.

The switch was related in part to the end of official patronage, which centuries of artists had depended upon for support. The collapse of this system of sponsorship and the beginnings of an art market set off a series of changes for artists, not the least of which was often poverty.

The three artists that Ms. Butler focuses on — Auguste Rodin, Claude Monet and Paul Cézanne — all spotted their models on the streets of Paris, drawn to something unique in a face or manner. All later married and had sons. But the women were often treated badly.

Ms. Butler "provides good reason to look at these artists' work again," a reviewer in the British magazine The Spectator wrote, because "each look brings a lost soul back to life."

Very little is known about Hortense Fiquet, Cézanne's model and wife, who sat for 27 oil portraits and numerous drawings. Ms. Butler said she tried to get information from their descendants, but they either snubbed or misled her. The feeling in the family, she said, was that Hortense "was a lowlife, that she spent his money."

"They didn't like her," she added.

Leaving the Petrie Court, Ms. Butler walks to the second-floor gallery where two large portraits of Hortense Fiquet are hung. On the right is "Madame Cézanne (Hortense Fiquet, 1850-1922) in the Conservatory," from 1891. "She's extremely beautiful," Ms. Butler says. "Her body is full, round and powerful." Hortense is in a blue dress, seated in the center of a sunny room splashed in yellows and ochres. Two symmetrical lines form her eyebrows, which sit above a sharply sculptured nose; her pile of brown hair is shaped into a smooth cap atop her head.

A few feet away is "Madame Cézanne in a Red Dress." It is dated 1888-90, but Ms. Butler says it is almost certainly later than that, pointing to the radical change in style. Hortense is in the same Paris apartment, but the background is colored in cool blues, while the figure tilts to the right, as if she might slide out of the frame. Her right eye is in the shape of a small triangle with an arched eyebrow while the left is narrow and flat. "Her body is flattened out and off-kilter," Ms. Butler notes. "It's more abstract, angular."

This is the last portrait Cézanne did of Hortense. They were living apart, Ms. Butler says, she in Paris, he in Aix. "My conclusion is that she said, 'Well, I'm going to retire now.' "

In another room is a painting that was once titled "Camille Monet on a Garden Bench" but is now labeled "The Bench" (1873), an example of how these women have been erased from history, Ms. Butler says.

The picture was done when the Monets were living in Argenteuil, outside Paris, and were enjoying a flash of financial security. Camille, in an elegant gray-and-black dress, wide eyes and down-turned lips, is seated on a bench blankly gazing out, with a somewhat sinister-looking man hunched over her shoulder.

"Monet and Camille were a wonderful working couple," Ms. Butler says. "She just loved to pose."

Ms. Butler mentions an 1876 painting, "La Japonaise," in which Camille is wearing a blond wig and dressed in a flowing red kimono. Biographers who have claimed that Monet was making fun of his wife in this work were "so remote from what was happening," Ms. Butler declares. "They were having fun. She was a part of it."

Nearby is a portrait of the Monets — Claude, Camille and their son, Jean — in their backyard during the summer of 1874 painted by their friend Édouard Manet, whose wife, Suzanne Leenhoff, also frequently posed for him before they were married. Another view of the same backyard scene by Renoir, hangs in

the National Gallery of Art in Washington. (Manet is said to have whispered to Monet about Renoir: "He has no talent, that boy. Since you are his friend, tell him to give up painting.")

Ms. Butler says: "My sense of Camille here is that she's really adorable. She is seen as a beautiful woman at the center of a classical group.

"This is the high point of her life. She gets sick the following year and they ran out of money. She died four years later."

The Met's collection of Rodins, which the artist personally helped select when the museum opened a gallery devoted to his work in 1912, is the best in America, Ms. Butler notes. At the center of the long second-floor hallway is "The Bronze Age," a large nude sculpture of a man, his right hand clutching his head. It was the first Rodin that the Met acquired, Ms. Butler says, and it had to be returned to the artist initially because the patina was flaking off.

Opposite the statue, behind a glass case, is a small mask of Rose Beuret from about 1880, the only one of her in the collection. She is 36; her eyes are cast down, one brow is slanted, the other curved like a tilde, on the tip of her nose is a smudge.

Although Hortense Fiquet was bewildered by Cézanne's work, Rose Beuret and Camille Doncieux and Monet were very much partners, Ms. Butler says.

"Rodin and Rose worked together for 15 years," she says. She ran the atelier before his commission for the "Gates of Hell" in 1880, after which he largely pushed her aside.

Ms. Butler said that in the end, all the women suffered greatly because of their relationships. Hortense Fiquet was nicknamed "la boule" (connoting a ball and chain), while Rodin didn't marry Rose Beuret until the couple were in their 70s and she was near death.

Still, Ms. Butler wonders: "Would Rose have preferred to live with a railroad worker who came home for dinner every night? Would Camille have preferred to be married to a department store owner who would give her all the dresses she wanted?"

"Probably not," she answers. "They knew they played a role and they were very proud of their work."

http://www.nytimes.com/2008/09/04/books/04butler.html?8bu&emc=bub2

Author of Book Series Sends Kids on a Web Treasure Hunt

By MOTOKO RICH

When Rick Riordan was recently researching the life of Benjamin Franklin for the first book in a new children's fiction series about the most powerful family in the world, he came across an essay about flatulence written by the founding father better known for his experiments with electricity and awaking early.

"Come on, when you're writing for kids, that's just a must right there," said Mr. Riordan during an interview at the New-York Historical Society, where he sat on a bench in front of a glass case full of busts of Franklin. "It's an automatic connection. I had to put that in there."

So far Mr. Riordan (pronounced RYE-r-don) is chiefly known as the author of the popular Percy Jackson & the Olympians series, about the adventures of a young boy who is half Greek god, half human. Now he has written "The Maze of Bones," the first installment of "The 39 Clues," a new series that Scholastic, the American publisher of the Harry Potter books, is releasing next Tuesday.

Calling upon his experience of 15 years as a middle school English and history teacher, Mr. Riordan sought to fill the book with details that would be educational but also ensnare the average preteen reader.

"My goal in the classroom was always to make sure they were having so much fun that they didn't realize they were learning," he said. "I saw 'The 39 Clues' as a potential vehicle for doing some education in a fun way — to take some of these amazing stories from history, dust them off and make them alive."

"The 39 Clues" is planned as a 10-book mystery series for 8-to-12 year olds, with a different historical figure making a central appearance in each one. Scholastic is publishing it on an aggressive timetable, with plans to release one book every two to three months. In addition to writing the first book, Mr. Riordan has outlined the next nine novels, which will be written by other authors.

The story, devised in part by Scholastic's editors, follows the exploits of Amy and Dan Cahill, two orphans, 14 and 11, who are competing against other branches of the sprawling Cahill family (a clan that

has had "a greater impact on human civilization than any other family in history") to discover the first of 39 clues. Those clues are the keys to a secret that, when revealed, will lead to ultimate power.

Scholastic has deployed its considerable marketing fire power behind the new series, which is tied to a Web-based game (www.the39clues.com) and collectors' cards. The publisher, which thrived on the enormous success of the Harry Potter novels, is now facing the reality that many children are now as engrossed in the Internet and video games as they are in books.

"The idea is that every aspect will add to the storytelling in its own way," said David Levithan, an executive editorial director for multimedia publishing at Scholastic. "The Web or card experience is not at all going to replicate the book experience, nor is the book experience going to replicate the Web."

When giving Mr. Riordan guidelines for writing the first novel, Mr. Levithan and three other Scholastic editors wanted to make sure that the books would complement the Internet game. One instruction was that the 10 books would reveal only one clue per title, leaving gamers to find the other 29 online; another was that the series take place in a number of locales around the world.

Mr. Riordan, who looks the part of a prim schoolteacher, showing up for an interview on a blazing hot summer day in a wheat-colored blazer and dark slacks, said that throughout the writing of the book he checked in with the team of editors at Scholastic, who asked him to add or change details.

He said writing a book with a committee was not selling out, but was in some ways "liberating." Writing the Percy Jackson books, he said, "was a very solitary experience."

"The manuscript is pretty much done before I show it to anybody — my editor or even my sons," he said.

Mr. Riordan said that he always thought of his two sons before embarking on a project. "Are my own sons going to enjoy this book when I'm done with it?" he said. "If the answer is yes, and they're excited about it, then I'll probably go ahead and do it."

The Percy Jackson novels grew out of bedtime stories he told his older son, Haley, now 13, shortly after he was identified as having attention deficit disorder and dyslexia five years ago. Mr. Riordan started by telling Haley the Greek myths, but when he ran out of tales, he invented the story of a modern Greek hero. "Percy was born out of desperation," he said.

At Haley's request, Mr. Riordan, who had by then already published five detective novels for adults set in and around his native San Antonio, decided to write a manuscript for what became "The Lightning Thief."

The book was sold at auction to Miramax Books in 2004 for a low six-figure sum, enough for Mr. Riordan to quit his teaching job and focus full time on writing. The first four books in the series have sold nearly 1.5 million copies, according to figures from Nielsen Bookscan, which tracks about 70 percent of sales.

Mr. Riordan has just completed the fifth and final book in the Percy Jackson series, now published by Hyperion Books, a division of Disney. That will be released next May. The film version of the first book, which was optioned by Fox 2000, a division of 20th Century Fox, is being directed by Chris Columbus, the director of the first two Harry Potter movies; it is scheduled to come out in November 2009.

Mr. Riordan is working on a new fantasy adventure, as well as another book, based on new characters, set at Camp Half-Blood, where some of the action of the Percy Jackson novels takes place.

He will also continue to provide feedback to Scholastic as its editors send him subsequent manuscripts from the 39 Clues series.

Despite the fact that he is writing full time, he says he still feels like a teacher because he meets so many children on book tours. “I see hundreds of kids at a time rather than knowing one classroom very well,” he said.

“My modus operandi hasn’t really changed that much from when I was an English teacher,” Mr. Riordan added. “I wanted my students to leave my classroom loving reading and wanting to read more, and if they left my classroom thinking that reading is boring, then I haven’t done my job.”

http://www.nytimes.com/2008/09/02/books/02rior.html?8bu&emc=bub2

True Grit

By RON CARLSON

FINE JUST THE WAY IT IS

Wyoming Stories 3

By Annie Proulx

221 pp. Scribner. $25

In Annie Proulx's new story collection, a young rancher about to build a cabin on his claim in the late-19th-century Wyoming wilderness walks the perimeter of his 80 acres singing old cowboy songs. This ritual marking of his place takes him all day, and in the dusk he returns, his voice a raspy whisper. The careful observation of such a ceremony would seem to suggest that time might shed its blessings on the rancher and his wife, that they might enjoy peace and ease here and the grace of days.

Who are we kidding? This is Annie Proulx, a writer who staked her claim around the spectacular rectangle of Wyoming by marking its "metes and bounds" with "Close Range," took insurance on it with "Bad Dirt" and now appears with "Fine Just the Way It Is," a third collection of Wyoming stories, just to make sure. The title could be paraphrased "Even if it's broken, don't fix it." "Close Range" is a remarkable book, lyric and gritty, and it contains "Brokeback Mountain," a breathtaking love story. But each of these collections bears Proulx's brand of hard drama, hard irony, hard weather, and hard and soft characters blown about and many times destroyed by the powerful mix. Her sense of story is admirable, her sentences are artful, and she writes like a demon. She has nicely disrupted the mythology of the Old West.

All but one of the stories in "Fine Just the Way It Is" range from the 19th century to the modern day and offer a world in which the natural elements are murderous and folks aren't much better. Right after Archie, the fresh young landowner in "Them Old Cowboy Songs," sings the property line, Proulx throws in an uncharacteristically sunny aside: "There is no happiness like that of a young couple in a little house they have built themselves in a place of beauty and solitude." From time to time, you glimpse an Eden in Proulx's world, and when you see it, you'd better take a photograph, because it won't last long. More often her narratives are richly and bleakly Dickensian, right down to the names. In just one story, she gives us Chay Sump, Lightning Willy, Bible Bob, Bunk Peck, Rufus Clatter (a politician), the mother and stepdaughter Flora and Queeda Dorgan, Sink Gartrell, Wally Finch, John Tank and the libidinous voyeur and telegraph operator Harp Daft.

We're used to seeing the people in Proulx's stories deep in their hardscrabble lives, eking out their survival in company that often turns out to be wildly insalubrious. Archie, the young rancher, goes wrangling cattle to save some money, but the weather — which has always been a real thing in Annie Proulx's writing and not some symbolic touch brought in like a soundtrack — gets hold of him. Between a double dose of winter and a bad decision, his fate is iced up. But what happens to his wife is unspeakably worse, and Proulx doesn't spare us a beat of it, from her first labor pangs to the rest. Proulx puts legs under the old saw about the frontier being tough on women, making them carry the hard weight. With her Adam and Eve expelled and destroyed, she ends the story from the perspective of a neighboring prospector. "There was no way," he concludes, "to know what had happened." Proulx won't traffic in euphemism unless it cuts with the blade of irony.

In a story nicely titled "The Great Divide," another couple, Hi and Helen Alcorn, also look for their dream house, this time in a treeless homestead settlement. Yet all their post-World War I American optimism can't win the West. Their decision is the good news and the bad news at once: "They would

make their own frontier." This attempt takes various forms. At one point, Hi desecrates an Indian burial cave while fashioning a crude still to make potato whiskey. There's the metaphor right there — and symbols like these appear again and again, both in Proulx's stories and in the history of the American West. Later, Hi throws in with his brother-in-law, Fenk Fipps, and Fenk's sidekick, Wacky Lipe, chasing wild horses. Fatally kicked, Hi jokes all the way to town.

The deepest grief in the collection is borne by Dakotah Lister, who returns from Iraq injured and bereft. Raised by a feckless "trash rancher" and her resentful grandmother, Dakotah experiences her life as a relentless series of miscommunications and harm. Each rite is accompanied by embarrassment, mistake and mayhem. This kind of story could become brittle in a moment, could snap in half and sink, but Proulx buoys it with one stellar insight when Dakotah returns from serving in "Eye-rack." On the drive home: "She realized that every ranch she passed had lost a boy, lost them early and late. . . . This was the waiting darkness that surrounded ranch boys, the dangerous growing up that canceled their favored status. The trip along this road was a roll call of grief."

In two other tales, Proulx has a little fun featuring Satan at work remodeling his domain, but better than these is her honest-to-pete tall tale about "The Sagebrush Kid." The title character isn't a boy; it's a gravy-and-blood-fed plant that, according to legend, is still a voracious menace to this day, offering unwary pilgrims shelter from the sun. In Proulx country, it's even dangerous to park in the shade.

Ron Carlson's most recent book is the novel "Five Skies."

http://www.nytimes.com/2008/09/07/books/review/Carlson-t.html?8bu&emc=bua2

Nasty Boys

By WESLEY YANG

GUYLAND

The Perilous World Where Boys Become Men

By Michael Kimmel

332 pp. Harper/HarperCollins Publishers. $25.95

The great question haunting our lifestyle journalists — are our daughters having healthy, empowering sex? — has an implicit counterpart: If not, are the emotionally misshapen men of their generation to blame? Michael Kimmel, a sociologist at the State University of New York at Stony Brook, the author previously of the cultural history of "Manhood in America" and one of the leading lights of the emerging academic subfield known as men's studies, has finally asked, and even tried to answer, that question, at book length.

Back in 1960, 77 percent of women and 65 percent of men under 30 had attained the five milestones that mark a transition to adulthood: "leaving home, completing one's education, starting work, getting married and becoming a parent." In 2000, those figures had declined to 46 percent of women and 31 percent of men. One-fifth of all 25-year-olds live with their parents. "The passage between adolescence and adulthood," Kimmel concludes, "has morphed from a transitional moment to a separate life stage."

Young middle-class white men feel the relative decline in their status particularly acutely, Kimmel argues. Their privileges are under siege. Women compete with them in the work force. Formerly deferential minorities demand respect. The values of consumption have eclipsed those of masculine production. And all of this new competition occurs in a context of general downward mobility. The response of these young white guys to such confusing conditions, Kimmel asserts, is to withdraw into a place he calls "Guyland."

They move into communal housing with their college buddies. They work dead-end jobs. "The young have been raised in a culture that promises instant gratification," he tells us. "The idea of working hard for future rewards just doesn't resonate with them." They play video games like Grand Theft Auto, in which the player's avatar can have sex with a prostitute and recover his money by murdering her. They watch pornography in groups, "jiving with each other about what they'd like to do to the girl on the screen." They " 'hook up' occasionally with a 'friend with benefits,' go out with their buddies, drink too much and save too little." They listen to violent rap music and to talk radio hosts who encourage their sense of "aggrieved entitlement" toward a world that has snatched away the masculine dominance they imagined would someday be theirs.

On the one hand, Kimmel tells us he is writing about the kind of children who "were rewarded for every normal developmental milestone as if they were Mozart." On the other hand, these boys are all taught the "Guy Code" — a set of crude injunctions ("boys don't cry," "don't get mad, get even," "bros before hos," "size matters"and so forth) whose "unifying emotional subtext . . . involves never showing emotions or admitting to weakness." Meritocratic parents who strive to turn their ordinary progeny into gifted children do not teach the pitiless masculine creed of frontier America, but Kimmel uses both of these journalistic clichés to describe the same people when it serves his purpose.

Masculinity, Kimmel tells us, is not biological or "hard-wired" but rather "coerced and policed relentlessly by other guys." "Homophobia — the fear that people might misperceive you as gay — is the animating fear of American guys' masculinity." High school is "a terrifying torment of bullying, gay-

bashing and violence." Later, he acknowledges that gay-straight alliances now exist at many high schools. This fact alone would suggest, as every other indication from the mainstream media does, that homophobia is a problem almost unimaginably reduced in virulence in the last decade.

In college, Kimmel tells us, guys are initiated into fraternities through "increasingly barbaric" hazing, in which "the cement of the brotherhood is blood, sweat and tears — and, apparently, vomit and semen." (He describes here the fraternity hazing practice known as the "Ookie Cookie.")Later, he acknowledges that we do not know if hazing is in fact a bigger problem than it used to be. "Even if it was worse back then, which it probably wasn't, so what?" he asks. "The point is, of course, that standards change."

No. The point is, Kimmel has tried to link fraternity initiations that may or may not be "increasingly barbaric" to the emergence of a supposedly new social formation, "Guyland," that supposedly explains why men can't grow up. If his description of that world is not accurate — if the violence, bullying, hazing and homophobia that he claims have gotten worse have in fact gotten better, or stayed the same — then we have to look elsewhere for explanations. We've had fraternities for a long time, and hazing deaths or gang rapes have occasionally occurred in them. But their graduates used to reach the five milestones of transition into adult life earlier than they do today. So what does the Ookie Cookie really tell us?

Kimmel has named a real sociological condition and described some of its broad outlines vividly. But he recapitulates too much lurid old news, like the Glen Ridge rape case and the Spur Posse, on the premise that such events "are only the furthest extremes of a continuum of attitudes and behaviors" that touch nearly all young men. This is true in a sense too trivial to be illuminating: it's absurd to use the same cultural dynamics to explain both gang rape and sports talk radio. Kimmel asserts that the pressure to behave like a loutish Guylander is stronger now than ever before — a statement that the youth-extending urban hordes will recognize as absurd on its face.

For all this, "Guyland" bristles with excellent raw material. Kimmel has an ear for the telling quotation. Some are worth the price of admission all on their own:

"When I tell moms about the gender asymmetry of the oral sex 'epidemic,' for example, or what the hooking-up culture actually is like," Kimmel writes, "they seem shocked at how predatory it is, how the sex seems so disconnected from anything resembling even liking the other person. The fathers, though, get jealous." One man — the 48-year-old father of a 19-year-old boy — asks him to clarify: These guys are getting it on with, "like, different girls all the time and . . . the girls are willing to do that?" And "she doesn't even expect him to call her — let alone, like, be her steady boyfriend? Oh, what I wouldn't give to be 20 years younger."

Kimmel closes his book with a heartfelt plea for parents to remain active in the lives of their "guys" and help them become mature, empathetic, ethical men. With fathers like that — good luck.

Wesley Yang writes about contemporary culture for Nextbook.org and n+1.

http://www.nytimes.com/2008/09/07/books/review/Yang-t.html?8bu&emc=bua2

Designers Get to See Themselves as Others See Them

By JULIE BLOOM

In a palatial apartment on the Upper East Side decorated in European midcentury style, a well-heeled crowd came out to celebrate on Wednesday night. The 14 richly embellished rooms could have easily been the scene for a fancy benefit; instead, a group of about 60 people had gathered to watch the second-season premiere of Bravo's reality competition show "Top Design."

The event was one of several screening parties that night dedicated to the show. All the parties, though vastly different in setting, revealed what it was like for a regular person to see his or her own image for the first time on television.

"Top Design" is one of Bravo's lesser-known competition shows, but it employs the same formula as the channel's more successful "Project Runway" and "Top Chef." Thirteen interior design professionals are selected to compete on the show, which consists of a series of often absurd challenges, leading to the judging scene, where every week one of the designers is named the winner, and another is sent home. The designer who survives the run receives a $100,000 cash prize and a four-page editorial spread in Elle Decor magazine. Like "Top Chef" and "Project Runway," "Top Design" is all about process and buildup — will they finish in time? — and is filled with a combination of clever quips, catchphrases and campy drama.

The crowd on Wednesday night, filled with people from glossy publications like Domino magazine and Martha Stewart Living, sipped pinot grigio and nibbled on mini-crab cakes waiting for the episode to begin, while Eddie Ross, one of the contestants, bounced around greeting people. Mr. Ross, 30, who is from Greenwich, Conn., and has worked at the Food Network and Martha Stewart Living, was dressed in a Rugby by Ralph Lauren shirt and vest, a J. Press bow tie and jeans. His cherubic face could barely contain his excitement.

"I'm not nervous tonight," he said. "I'm so excited. I want to stick myself with a hat pin."

Mr. Ross said the experience of being on the show felt strangely infantile. "I went from being a grown-up to being a child," he said. "They tell you when you can eat, when you can sleep, when you can talk, when you can go to the bathroom." But the bizarre conditions are apparently worth it, he said.

"My style and what I teach people I think can really capture an audience," Mr. Ross said. "It's not like a 'Project Runway' where you're making a dress out of Twizzlers. My colleagues take this seriously, and they're professionals in the industry."

One of those colleagues, Deborah Buck, 43, an antiques dealer and the host of the party, said one reason for holding it was that the show is seen as an accepted showcase in the design world. "It's more legit," she said. "I think this could be enormous. It made perfect sense to me that this would be the next step for him."

Andrew Cohen, the senior vice president for original programming and development at Bravo, said: "It's a grueling experience being on a show like this. But if people are savvy enough, it can be a great platform for them to express their creativity on a national scale."

Another contestant eagerly awaiting her screen time at a party that night was Ondine Karady, 38, a set decorator who has worked on movies and television shows, including "Sex and the City," and owns her own boutique. She agreed that the experience was difficult.

"It was an incredibly stressful experience," she said, "because you're under these deadlines that are crazy. They're not real situations."

Ms. Karady, who is married to Jim Rutenberg, a political correspondent for The New York Times, was hosting her party at Pierogi, a cash-only bar in Williamsburg, Brooklyn, right around the corner from her home.

"After a while you got used to having a camera on you all the time," Ms. Karady said, in reference to the period when contestants are filming the show. "The weird thing is, you're literally sequestered."

At the bar, men in jeans and black T-shirts drank from cans of Schlitz while eating tomato with basil, which Ms. Karady's father had brought from his garden in New Jersey. "I've never seen myself on television before," Ms. Karady said. "I know how I behave, but I have no idea how they're going to portray me."

At a screening party at Country Club, a crowded, roped-off club in the meatpacking district, Nathan Thomas, another contestant, was clutching a Stoli on the rocks surrounded by friends dressed mostly in black ensembles, one of them in drag. "It's unbelievable," said Mr. Thomas, 30, who is from Denver and works as a senior designer at Nathan Egan Interiors in New York. "Just having all of my friends around me and my family watching me — there's nothing that matches that."

Heather Pane, 33, an interior designer who studied with Mr. Thomas at Pratt Institute, said she was concerned about the toll the season would take on her friend. "The part that worries me is the editing," she said. "We know how fabulous he is, but what does he look like to the eyes of the editing crew who are looking for the cute and the prettiest people? I hope they stay true to him."

Mr. Ross, Ms. Karady and Mr. Thomas all made it through the first episode. Mr. Thomas said the next day: "I was a little bit shocked to see myself, but I was also really proud. My mom was thrilled. She had been waiting so long, and who would have ever thought I would be on television?"

He said he already had plans to watch the second episode next week at another bar — this time with fewer people.

http://www.nytimes.com/2008/09/06/arts/television/06topd.html?th=&emc=th&pagewanted=print

The Outsiders' Insider

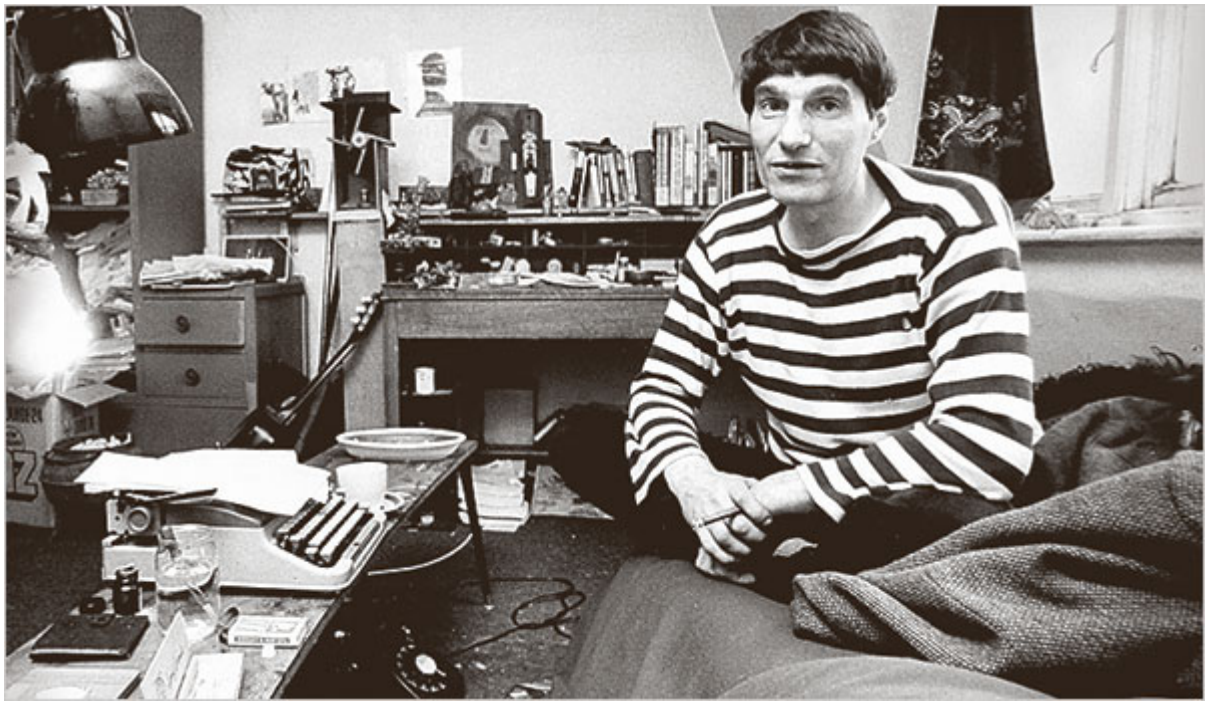
By SAM MUNSON

SYNCOPATIONS

Beats, New Yorkers, and Writers in the Dark

By James Campbell

226 pp. University of California Press. Cloth, $55; paper, $21.95



The art of the literary profile is, if not dying, at least in some corporeal danger. Too often, it is a platform for inanities praiseful or damning, instead of what it ought to be: an examination of the mysterious third component of the relationship between book and reader, the person and personality of the author. James Campbell's new book, "Syncopations" — a collection of profiles, literary essays and reminiscences drawn primarily from the pages of The Guardian Review, The Times Literary Supplement and other British publications — suggests there's some life left in the form. Whether this impression stems more from Campbell's fluency and intimate tone of voice, or from his angled, trans-Atlantic vision of mostly American writers, is hard to say. Whatever the cause, "Syncopations" should interest any observer of postwar American letters.

Campbell is a literary journalist — the phrase sounds timid and slightly obsolete — with a weekly column in The Times Literary Supplement and three books under his belt: "This Is the Beat Generation," "Talking at the Gates: A Life of James Baldwin" and "Exiled in Paris," a survey of Left Bank writers in the years after World War II. In "Syncopations," Campbell (who also writes frequently for The New York Times Book Review) revisits his earlier subjects, with recollections of the meetings with Baldwin that inspired his biography; an essay on the Scottish Beat extremist Alexander Trocchi; and ruminations on

Richard Wright's last, unpublished novel. Campbell is fascinated by outsiders, exiles, eccentrics, self-fashioners and self-destroyers.

His penetrating essay on Trocchi opens with a memorable claim: " 'Cain's Book,' Alexander Trocchi's drug-related mastercrime, is a novel to give to minors, a book to corrupt young people." Campbell first read Trocchi in 1970, as an unemployed "literary minor" living in Glasgow who "explored my 'inner space' with the help of hallucinogens." He took the book on a hitchhiking trip through Europe, North Africa and the Middle East, and later, for a university magazine, interviewed the author, who greeted Campbell with arms exposed "so that I could see for myself the ski-track scars running down both snowy-white arms where the veins had collapsed."

Campbell's sympathy for outsiders is not limited to extravagant self-medicators like Trocchi. His profile of Amiri Baraka, "The Rhetoric of Rage," manages to avoid the political positioning so common to discussing that controversial poet and polemicist. And in "I Heard It Through the Grapevine: James Baldwin and the F.B.I.," Campbell provides a well-woven chronicle of Baldwin's unhappy later years in the French village of St.-Paul-de-Vence, his own long effort to obtain Baldwin's massive F.B.I. file, the malfeasance of the Hoover-era bureau against prominent black leaders (both mainstream and radical) and Baldwin's own megalomania.

The piece conveys a sense of Campbell's ease with his subjects: "I stayed five days. Baldwin rose around noon. After his second coffee, he would move on to Johnnie Walker Black Label. The menu varied throughout the day, beer in the afternoon and wine with meals. At about 1 in the morning, he would cast a glance at the whisky bottle and say: 'I'm going to have a last drink and then go downstairs and do some work.' I would join him in that drink, and we would talk until 4 or 5. A moral force drove everything he said, even his witty, frequently self-effacing small talk. Every one of us was living on the Redeemer's account."

The book's slightly weaker first section deals with the constellation of writers and editors surrounding The New Yorker from the early 1950s to the 1980s and its longtime fiction editor William Maxwell. Maxwell himself comes in for extended scrutiny, along with John Updike, Truman Capote, Shirley Hazzard and others. But the real focus of Campbell's interest, and his clearest sympathies, lies with artists who worked their way into the literary world from the outside.

Campbell himself comes from the periphery of the British literary landscape, and in the book's third section he examines life at that periphery, past and present. His short essay on Robert Louis Stevenson, "Travels With R.L.S.," reflects on his rejection of the routinized life of haute-bourgeois prosperity that his father's and grandfather's successes (as engineers, a profession that caused considerable pain to the anti--modernizer Stevenson) permitted him — and on Stevenson's affection for the vestiges of pre-technological society. And in his "coda," "Boswell and Mrs. Miller: A Memoir of Two Tongues," Campbell describes his own ambivalent socialization into the use of British (as opposed to Scottish) English, a possible source of his sympathy with the off-kilter. "My Scots voice hasn't gone away, it's just concealed beneath these southern clothes," he writes. But if "Jamie is still talking native," students of literary culture, on either side of the pond, have little to complain of.

Sam Munson is the online editor of Commentary.

http://www.nytimes.com/2008/09/07/books/review/Munson-t.html?8bu&emc=bua2

Perhaps Death Is Proud; More Reason to Savor Life

By THERESA BROWN

At my job, people die.

That's hardly our intention, but they die nonetheless.

Usually it's at the end of a long struggle — we have done everything modern medicine can do and then some, but we can't save them. Some part of their body, usually their lungs or their heart or their liver, has become too frail to function. These are the "good deaths," the ones where the family is present and knows what to expect. Like all deaths, these deaths are difficult, but they are controlled, unsurprising, anticipated.

And then there are the other deaths: quick and rare, where life leaves a body in minutes. In my hospital these deaths are "Condition A's." The "A" stands for arrest, as in cardiac arrest, as in this patient's heart has all of a sudden stopped beating and we need to try to restart it.

I am a new nurse, and recently I had my first Condition A. My patient, a particularly nice older woman with lung cancer, had been, as we say, "fine," with no complaints but a low-grade fever she'd had off and on for a couple of days. She had come in because she was coughing up blood, a problem we had resolved, and she was set for discharge that afternoon.

After a routine assessment in the morning, I left her in the care of a nursing student and moved on to other patients, thinking I was going to have a relatively calm day. About half an hour later an aide called me: "Theresa, they need you in 1022."

I stopped what I was doing and walked over to her room. The nurse leaving the room said, "She's spitting up blood," and went to the nurses' station to call her doctor.

Inside the room I found my patient with blood spilling uncontrollably from her mouth and nose. I remembered to put on gloves, and the aide handed me a face shield. I moved closer; I put my hand on her shoulder. "Are you in any pain?" I asked, as I recall, thinking that an intestinal bleed would be more fixable than whatever this was. She shook her head no.

I looked in her eyes and saw ... what? Panic? Fear? The abandonment of hope? Or sheer desperation? Her own blood was gurgling in her throat and I yelled to the student for a suction tool to clear it out.

The patient tried to stand up so the blood would flow into a nearby trash can, and I told her, "No, don't stand up." She sat back down, started shaking and then collapsed backward on the bed.

"Is it condition time?" asked the other nurse.

"Call the code!" I yelled. "Call the code!"

The next few moments I can only describe as surreal. I felt for a pulse and there wasn't one. I started doing CPR. On the overhead loudspeaker, a voice called out, "Condition A."

The other nurses from my floor came in with the crash cart, and I got the board. Doing CPR on a soft surface, like a bed, doesn't accomplish much; you need a hard surface to really compress the patient's chest, so every crash cart has a two-by-three-foot slab of hard fiberboard for just this purpose. I told one of the doctors to help pick her up so I could put the board under her: she was now dead weight, and heavy.

I kept doing CPR until the condition team arrived, which seemed to happen faster than I could have imagined: the intensivists — the doctors who specialize in intensive care — the I.C.U. nurses, the respiratory therapists and I'm not sure who else, maybe a pulmonologist, maybe a doctor from anesthesia.

Respiratory took over the CPR and I stood back against the wall, bloody and disbelieving. My co-workers did all the grunt work for the condition: put extra channels on her IV pump, recorded what was happening, and every now and again called out, "Patient is in asystole again," meaning she had no heartbeat.

They worked on her for half an hour. They tried to put a tube down her throat to get her some oxygen, but there was so much blood they couldn't see. Eventually they "trached" her, put a breathing hole through her neck right into her trachea, but that filled up with blood as well.

They gave her fluids and squeezed bags of epinephrine into her veins to try to get her heart to start moving. They may even have given her adenosine, a dangerous and terrifying drug that can reverse abnormal heart rhythms after briefly stopping the patient's heart.

The sad truth about a true cardiac arrest is that drugs cannot help because there is no cardiac rhythm for them to stimulate. The doctors tried anyway. They went through so many drugs that the crash cart was emptied out and runners came and went from pharmacy bringing extras.

When George Clooney and Juliana Margulies went through these routines on "E.R.," it seemed exciting and glamorous. In real life the experience is profoundly sad. In the lay vernacular of Hollywood, asystole is known as "flatlining." But my patient never had the easy narrative of the normal heartbeat that suddenly turns straight and horizontal. Her heartbeat line was wobbly and unformed, occasionally spiked

in a brief run of unsynchronized beats, and at times looked regular, because chest compressions from CPR can create what looks like a real cardiac rhythm even though the patient is dead.

And my patient was dead. She had been dead when she fell back on the bed and she stayed dead through all the effort to save her, while blood and tissue bubbled out of her and the suction clogged with particles spilling from her lungs. Everyone did what she knew how to do to save her. She could not be saved.

The reigning theory was that part of her tumor had broken off and either ruptured her pulmonary artery or created a huge blockage in her heart. Apparently this can happen without warning in lung cancer patients. Only an autopsy could tell for sure, and in terms of the role I played in all this, it doesn't matter. I did the only thing I could do — all of us did — and you can't say much more than that.

I am 43. I came to nursing circuitously, following a brief career as an English professor. Often at work in the hospital I hear John Donne in my head:

Death be not proud, though some have called thee

Mighty and dreadful, for thou art not so.

But after my Condition A I find his words empty. My patient died looking like one of the flesh-eating zombies from "28 Weeks Later," and indeed in real life, even in the world of the hospital, a death like this is unsettling.

What can one do? Go home, love your children, try not to bicker, eat well, walk in the rain, feel the sun on your face and laugh loud and often, as much as possible, and especially at yourself. Because the only antidote to death is not poetry, or drama, or miracle drugs, or a roomful of technical expertise and good intentions. The antidote to death is life.

Theresa Brown is a staff nurse at a hospital in Pennsylvania.

http://www.nytimes.com/2008/09/09/health/09case.html?_r=1&nl=8hlth&emc=hltha1&oref=slogin

Bipolar Disorder Tied to Age of Fathers

By NICHOLAS BAKALAR

The older a man is, the more likely he is to father children who develop bipolar disorder as adults, a large Swedish study reports.

Previous studies have found an association between paternal age and both autism and schizophrenia, but this is the first time a connection with bipolar illness has been suggested. The study appears in the September issue of The Archives of General Psychiatry.

The researchers examined highly accurate Swedish government health records of more than seven million people with known biological parents to find 13,428 with bipolar disorder diagnosed at two or more separate hospital admissions. They matched each case with five controls, people of the same age and sex but without bipolar illness. They divided the fathers into five-year age categories beginning at 20.

After statistically adjusting for the age of the mother, family history of psychotic disorders, education level and other factors, they found consistently increasing risk as fathers aged. The highest risk was in fathers 55 and older. For mothers, after adjusting for the father's age, they found a statistically significant increase in only the 35 to 39 age group.

"It's a strong study from a methodological standpoint," said Dr. Alan Brown, an associate professor of psychiatry at Columbia who was not involved in the study. "National registries are very important because you're less likely to get bias and you can generalize findings across a whole country."

David Glahn, an associate professor of psychiatry at Yale, also uninvolved in the work, agreed. "The methodology is very strong," he said. "The statistics done here are all first-rate."

There is a possible biological explanation for the phenomenon, the authors write. The older a man is, the more often his sperm cells have replicated, and the more replications, the greater the chance for DNA copying errors. These are random changes, called de novo mutations, that are not inherited. Women are born with a complete supply of eggs that do not replicate as they age. The finding of only a small effect of mother's age on the incidence of bipolar illness in the offspring is consistent with this idea.

Emma M. Frans, a doctoral student in epidemiology at the Karolinska Institute and the lead author of the study, said in a phone interview that the findings applied to adult offspring only, not children. Bipolar illness is a rare disease in any age group; in community samples the prevalence varies from 0.4 percent to 1.6 percent of the population. Still, the risk of bipolar disease in the offspring of the oldest fathers was 35 percent higher than for those of the youngest, and the association was even stronger in the small number of cases in the study diagnosed before age 20.

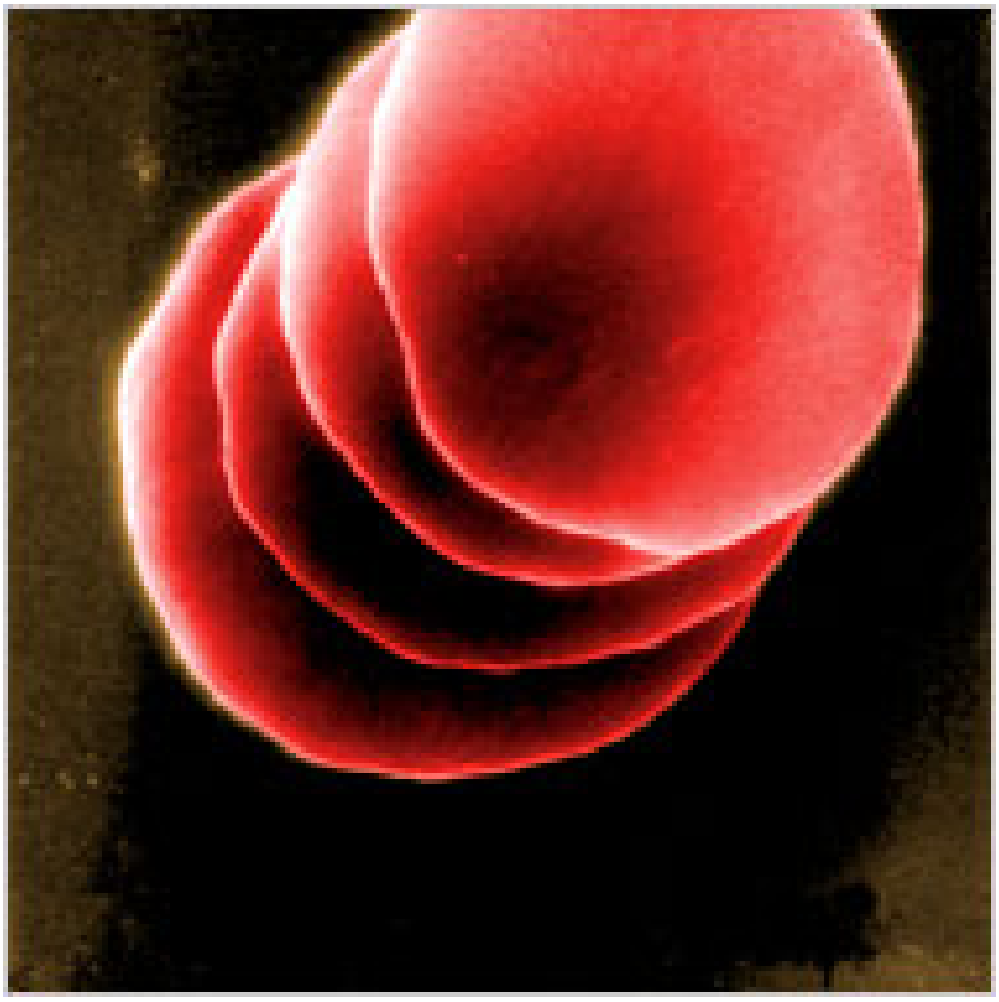
Dr. Dolores Malaspina, a professor of psychiatry at New York University who has studied schizophrenia in the offspring of older fathers, called the new study "very important," but added: "The vast majority of children of any fathers will not get bipolar illness. At the level of the whole population, it may be important, but for the individual father it's a small risk."

The Well column returns next week. Tara Parker-Pope's blog is online: nytimes.com/well.

http://www.nytimes.com/2008/09/09/health/09bipo.html?nl=8hlth&emc=hltha1

For Stem Cells, a Role on the Battlefield

By ANDREW POLLACK



When people envision using human embryonic stem cells for "regenerative medicine," they often talk about making neurons to treat Parkinson's disease, cardiac cells to repair the damage caused by a heart attack, or pancreatic islet cells to replace those destroyed by diabetes.

But some scientists say an early therapeutic use of such cells might be more prosaic: making red blood cells for transfusions.

Such blood cells, perhaps made in huge vats, might one day supplement blood donations, which are often in short supply. And the blood might be free of the infectious diseases that can be found in donated blood.

The military is especially interested because it can be hard to find and store red cells for use on the battlefield. The Defense Advanced Research Projects Agency, known as Darpa, is starting a "blood pharming" program aimed at developing a system that can make red blood cells from progenitor cells on the battlefield.

Making red cells is "one of the easiest things one might do starting with embryonic stem cells," said Eric E. Bouhassira, a professor of cell biology and hematology at Albert Einstein College of Medicine, who is doing research in the field.

The reason, he said, is that to treat Parkinson's disease, heart attacks or diabetes, scientists have to figure out not only how to make the proper cells, but also how to get them functioning in the body. But once scientists learn how to make red blood cells — or platelets, the cells that allow blood to clot — they already know how to use them.

In addition, matching a blood type is easier than matching other types of tissue to avoid rejection of a transplant.

Still, those advantages are offset by the huge volume of cells required for transfusions, far more than might be needed to treat Parkinson's or other diseases.

That is why a paper published online in August by the journal Blood drew some attention. Scientists at Advanced Cell Technology reported making 10 billion to 100 billion red cells starting from a plate of human embryonic stem cells.

"It's the first time to my knowledge that anyone has been able to produce these on a sufficient scale to talk of using them for transfusion purposes," said a co-author of the paper, Dr. George Honig, an emeritus professor and pediatric hematologist at the University of Illinois at Chicago.

But even that amount is less than needed for one transfusion. A unit of blood, about a pint, contains more than one trillion cells, said Dr. Dan S. Kaufman, associate professor at the University of Minnesota.

Advanced Cell Technology, which is struggling to raise money to stay in business, is not the only company pursuing blood cells.

James A. Thomson of the University of Wisconsin, the first person to derive human embryonic stem cells, was a founder of Stem Cell Products, a company formed to pursue making blood products from stem cells. The company has since merged with another he helped found, Cellular Dynamics, which is working on making cells to be used in pharmaceutical research.

The idea faces other challenges beyond the huge volume of cells needed. The red cells produced from embryonic stem cells so far tend to resemble embryonic or fetal red cells more than adult ones. They tend to be larger and often contain nuclei, which could impede their passage through the body. And they have a different form of the globin molecule, which carries oxygen.

How well the cells would work in the body is still unknown. The red cells produced by Advanced Cell Technology carried as much oxygen as adult red cells in laboratory tests. But they have not yet been tried in animals or people.

"The real test is in vivo," said Dr. Thalia Papayannopoulou, a professor of medicine at the University of Washington, adding that the manufactured cells might not last as long in the body as donated red cells because of differences in their membranes.

Safety is another issue. Blood substitutes made other ways have harmed patients in some circumstances.

Finally, there is the issue of cost. "People donate for free, and free is a difficult price point to compete with," said Nick Seay, chief technology officer of Cellular Dynamics. Even after the donated blood is processed, hospitals can buy a unit for about $200.

But with the expensive growth factors needed to develop red cells from embryonic cells, the costs could be thousands of dollars per unit, said Dr. Michael P. Busch, director of the research institute at Blood Systems, a large nonprofit blood center.

Red cells might conceivably be one of the first therapies derived from so-called induced pluripotent stem cells, which are made from adult skin cells. These cells are becoming popular for research because they avoid the ethically controversial destruction of embryos needed to create embryonic stem cells.

But a big barrier to using induced cells for therapy is that they are created by adding genes to the skin cell using a virus. One of the genes that has been used can cause cancer, as can the use of the virus. But red cells made this way would presumably not carry the cancer risk because the cells have no nuclei, Dr. Kaufman said.

Other cells, like those from bone marrow or cord blood, can also be used to make red blood cells. But those cells cannot reproduce indefinitely in culture like embryonic stem cells. Researchers like Cornelis Murre at the University of California, San Diego, are working on ways around this.

Darpa's initial "blood pharming" contracts will not involve human embryonic stem cells, said Mr. Seay of Cellular Dynamics. Under Bush administration policy, federal money can be spent for research on only a small number of approved embryonic stem cell lines. None of those lines is Type O negative, the universal donor that Darpa wants.

http://www.nytimes.com/2008/09/09/health/09bloo.html?nl=8hlth&emc=hltha2

A Look at Nonsmokers Who Get Lung Cancer

By DENISE GRADY

An unsettling fact about lung cancer is that not even clean living can guarantee a free pass. A significant proportion of cases — 10 to 15 percent — occur in people who never smoked, and just in the United States, 16,000 to 24,000 a year die.

What causes the disease in nonsmokers is not known, though researchers suspect genetic susceptibility combined with exposure to cancer-causing substances like asbestos, radon, certain solvents and other people's tobacco smoke.

A huge new study conducted in Europe, North America and Asia, based on 2.4 million nonsmokers who had lung cancer, provides new information about just who is at risk.

Male nonsmokers are more likely than female nonsmokers to die of the disease, the study found, and the overall risk to nonsmokers is not increasing.

"Concerns have been raised that the risk was higher in women and that the risk was increasing, but this study counters those two misperceptions," said Dr. Michael J. Thun, the lead author of the study and the head of epidemiologic research for the American Cancer Society. The study is being published online in PLoS Medicine.

Dr. Thun emphasized that although nonsmokers do have some risk, smokers are much worse off: a man who never smoked has a 1.1 in 100 risk of dying from lung cancer, but it jumps to 1 in 5 if he smokes. In women, the risk goes from 0.8 in 100 to 1 in 8. The figures vary, depending on how much a person smokes.

Today, about 59 percent of people in the United States say they never smoked, up from 44 percent in 1960.

The study found that among those who never smoked, Asians living in Asia (not those in the United States) and African-Americans had higher rates of illness and death from lung cancer than did people of European descent.

A puzzling and troubling finding is relatively high rates of lung cancer among nonsmoking women in parts of Pacific Rim countries.

"A plausible hypothesis is that the cooking fumes given off by woks contain all kinds of carcinogens," Dr. Thun said, adding that the most likely culprit was cooking oil, which vaporizes at high temperatures. But he said the problem needed more research.

http://www.nytimes.com/2008/09/09/health/09canc.html?nl=8hlth&emc=hltha2

The Claim: Aloe Vera Gel Can Heal Burns.

By ANAHAD O'CONNOR

THE FACTS

Aloe vera has been a common skin-care remedy since the Greek physician Dioscorides advocated using it for burns in the first century A.D.

But only in recent years have scientists conducted research to determine whether it lives up to its reputation. Some have found that aloe contains certain anti-inflammatory compounds and may act as an antibacterial agent. But studies on its effects on minor and moderate burns have been mixed.

In 2007, for example, a study in the journal Burns analyzed data from four controlled clinical trials involving a total of 371 patients, some were treated with topical aloe vera and others with placebo. Patients in the aloe vera group appeared to have slightly shorter healing times, but the evidence was not convincing, and the authors recommended further research.

In another study, scientists applied aloe vera to second-degree burns and compared it with other treatments. They found that it "hindered the healing process" when compared with a common antibacterial cream. Then in 2008, still another study looked at aloe vera applied to burns for six weeks and found that it decreased "subdermal temperature within the skin," but did not reduce bacterial counts or speed the regeneration of skin.

THE BOTTOM LINE

Inconclusive. Studies of aloe vera's effect on burns have produced conflicting findings.

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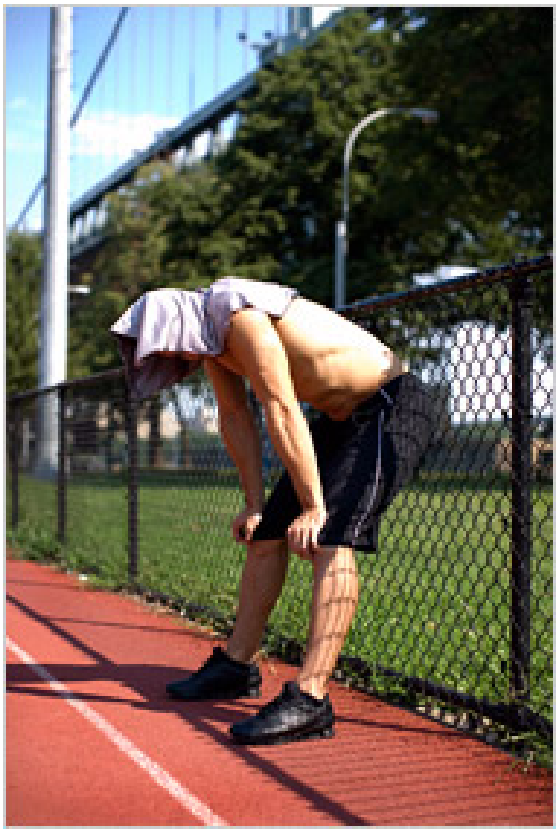
http://www.nytimes.com/2008/09/09/health/09real.html?nl=8hlth&emc=hlthb2

When Training Backfires: Hard Work That's Too Hard

By GINA KOLATA



UNTIL last spring, running was going great for 15-year-old Erik Kraus. He had been training hard without a break for 18 months and was becoming faster and faster.

Then, when spring track started, something went awry. Every time he raced 1,500 meters, his time was 15 seconds *slower* than in the previous race.

Erik's father, Dr. William Kraus, a runner himself and a cardiologist at Duke University who studies exercise, was concerned. Erik was tired all the time; his legs felt heavy; he was frustrated, irritable. Could it be the condition that athletes dread: overtraining?

Overtraining is the downside of training, the trap that can derail an athlete's success. It's a real physical condition caused by pushing too hard for too long. It can happen with too much exercise, too much intense exercise, or both. Its hallmarks are poor performances, exhaustion and apathy.

"You just feel bad," said Dr. William O. Roberts, an internist at the University of Minnesota who specializes in treating athletes and is a former president of the American College of Sports Medicine. "The spark is gone."

It can come on so insidiously that before athletes know it, they find themselves trapped in a downward spiral. The harder they train, the worse they do.

But there's another trap — the overdiagnoses of overtraining, said Dr. Steven Keteyian, the director of preventive cardiology at Henry Ford Hospital in Detroit.

Dr. Keteyian, who has written textbook chapters on the condition, cautions that it is quite rare. But many athletes worry about overtraining every time they fail to perform as well as they think they should.

"It doesn't happen over a two-week period of time," Dr. Keteyian said. And it is unlikely to strike someone running 20 miles or so a week or doing the equivalent amount of another endurance sport, he said.

"Twenty miles is nothing," Dr. Keteyian said. "Talk to me when you are running 50 miles a week. If you are a runner and have a steady history of running 40 to 70 miles a week and now you are pushing it to 80, 90, 100 miles a week and your times are dropping and you are feeling sluggish, then I'll start to listen."

If overtraining has occurred, "it's a long road back," Dr. Keteyian said. The only cure is to take weeks or months off. No athlete wants that, Dr. Keteyian said, so it's important not to jump to conclusions.

Dr. Kraus knew that overtraining was unlikely. But his son seemed to meet the criteria, such as they are. He began looking for credible data on overtraining but was soon disappointed to discover that overtraining remains poorly understood and understudied.

There is no definitive test for overtraining. Instead, the diagnosis is reached by exclusion. Besides slower times and fatigue, Dr. Keteyian and others say athletes may notice that their muscles are weaker and that their coordination is poorer. Their heart rates may be higher than they should be with moderate exercise. And their resting heart rates, taken first thing in the morning, can be higher, too.

Overtraining is an unintended consequence of the only known way for athletes to improve — by pushing their bodies and stressing themselves by deliberately going faster or longer than feels comfortable. "Training a little bit beyond your capabilities is the only way to get better," Dr. Kraus said. "But you have to balance that with rest and recovery. It's a fine line. Where is that edge and how do you get as close as possible without going over it?"

Elite athletes and their coaches are acutely aware of overtraining, said Frank Busch, the head coach for the University of Arizona's swimming team and an assistant coach for the United States men's Olympic swimming team. And they have become adept at heading it off.

Not too long ago, coaches thought that volume — hours upon hours of training — was the key to outstanding performances, Mr. Busch said. "The result was sort of an arms race among swimmers and other endurance athletes to see who could train the most," he said. "Athletes began getting overtrained."

Now coaches and swimmers know that there is a point of diminishing returns. Coaches look for signs that their athletes are doing too much. Performance is one indicator, of course, but so is something as simple as a swimmer who has stopped smiling, Mr. Busch said. "That's usually a sign that they are dreading practice or there is something else going on. Maybe they are exhausted around the clock."

Dr. Roberts said that among his recent overtrained patients was a young man who was a stellar Nordic skier. A year and a half later, in marched another: the man's mother, a middle-aged woman, also a prize-winning Nordic skier.

"They both trained too hard," Dr. Roberts said. Both, he added, "were more or less self-coached at the time." No one was monitoring them.

"Athletes are obsessed and gullible," Dr. Keteyian said. "They will do anything they can to improve their performance and they don't know when to stop."

Dr. Roberts suggested that athletes who feel tired all the time first take some time off from their sport, perhaps a few days to two weeks. If they still do not feel better, they should see their primary-care doctor and mention that they are concerned about overtraining. Or, he said, they might want to seek out a physician who specializes in sports medicine — a list is available on newamssm.org.

"An athlete would want to look for a physician who practices the broader scope of sports medicine and has not limited his or her practice to musculoskeletal problems," Dr. Roberts added.

As for Dr. Kraus, he told his son to take a two-week break. That did not help. He had the youth tested for ferritin, an iron storage protein. Overtrained athletes can have low iron levels and anemia, although overtraining is not the only cause.

But even though Erik's ferritin levels were sub par, and even though they rose slightly when he took iron supplements, he felt as tired and sluggish as ever. In the end, Erik Kraus ended up taking two months off. It was not easy. Like other athletes, he wanted to train, wanted to race, and he worried that he would never be competitive again. Now, finally, he has returned to running.

"When he first started back, he said, 'Oh, my gosh, this feels good,' " Dr. Kraus recalled. Then Erik went for an eight-mile run with the fastest runner on his team. He not only kept up with his teammate but pushed him at the end.

Erik returned home from that run all smiles. "He said, 'Dad, I had a breakthrough today,' " Dr. Kraus said.

http://www.nytimes.com/2008/09/04/health/nutrition/04BEST.html?nl=8hlth&emc=hltha4

The Pitfalls of Linking Doctors' Pay to Performance

By SANDEEP JAUHAR, M.D

Not long ago, a colleague asked me for help in treating a patient with congestive heart failure who had just been transferred from another hospital.

When I looked over the medical chart, I noticed that the patient, in his early 60s, was receiving an intravenous antibiotic every day. No one seemed to know why. Apparently it had been started in the emergency room at the other hospital because doctors there thought he might have pneumonia.

But he did not appear to have pneumonia or any other infection. He had no fever. His white blood cell count was normal, and he wasn't coughing up sputum. His chest X-ray did show a vague marking, but that was probably just fluid in the lungs from heart failure.

I ordered the antibiotic stopped — but not in time to prevent the patient from developing a severe diarrheal infection called C. difficile colitis, often caused by antibiotics. He became dehydrated. His temperature spiked to alarming levels. His white blood cell count almost tripled. In the end, with different antibiotics, the infection was brought under control, but not before the patient had spent almost two weeks in the hospital.

The case illustrates a problem all too common in hospitals today: patients receiving antibiotics without solid evidence of an infection. And part of the blame lies with a program meant to improve patient care.

The program is called pay for performance, P4P for short. Employers and insurers, including Medicare, have started about 100 such initiatives across the country. The general intent is to reward doctors for providing better care.

For example, doctors receive bonuses if they prescribe ACE inhibitor drugs to patients with congestive heart failure. Hospitals get bonuses if they administer antibiotics to pneumonia patients in a timely manner.

On the surface, this seems like a good idea: reward doctors and hospitals for quality, not just quantity. But even as it gains momentum, the initiative may be having untoward consequences.

To get an inkling of the potential problems, one simply has to look at another quality-improvement program: surgical report cards. In the early 1990s, report cards were issued on surgeons performing coronary bypasses. The idea was to improve the quality of cardiac surgery by pointing out deficiencies in hospitals and surgeons; those who did not measure up would be forced to improve.

But studies showed a very different result. A 2003 report by researchers at Northwestern and Stanford demonstrated there was a significant amount of "cherry-picking" of patients in states with mandatory report cards. In a survey in New York State, 63 percent of cardiac surgeons acknowledged that because of report cards, they were accepting only relatively healthy patients for heart bypass surgery. Fifty-nine percent of cardiologists said it had become harder to find a surgeon to operate on their most severely ill patients.

Whenever you try to legislate professional behavior, there are bound to be unintended consequences. With surgical report cards, surgeons' numbers improved not only because of better performance but also because dying patients were not getting the operations they needed. Pay for performance is likely to have similar repercussions.

Consider the requirement from Medicare that antibiotics be administered to a pneumonia patient within six hours of arriving at the hospital. The trouble is that doctors often cannot diagnose pneumonia that quickly. You have to talk to and examine a patient and wait for blood tests, chest X-rays and so on.

Under P4P, there is pressure to treat even when the diagnosis isn't firm, as was the case with my patient with heart failure. So more and more antibiotics are being used in emergency rooms today, despite all-too-evident dangers like antibiotic-resistant bacteria and antibiotic-associated infections.

I recently spoke with Dr. Charles Stimler, a senior health care quality consultant, about this problem. "We're in a difficult situation," he said. "We're introducing these things without thinking, without looking at the consequences. Doctors who wrote care guidelines never expected them to become performance measures."

And the guidelines could have a chilling effect. "What about hospitals that stray from the guidelines in an effort to do even better?" Dr. Stimler asked. "Should they be punished for trying to innovate? Will they have to take a hit financially until performance measures catch up with current research?"

The incentives for physicians raise problems too. Doctors are now being encouraged to voluntarily report to Medicare on 16 quality indicators, including prescribing aspirin and beta blocker drugs to patients who have suffered heart attacks and strict cholesterol and blood pressure control for diabetics. Those who perform well receive cash bonuses.

But what to do about complex patients with multiple medical problems? Forty-eight percent of Medicare beneficiaries over 65 have at least three chronic conditions. Twenty-one percent have five or more. P4P

quality measures are focused on acute illness. It isn't at all clear that they should be applied to elderly patients with multiple disorders who may have trouble keeping track of their medications.

With P4P doling out bonuses, many doctors have expressed concern that they will feel pressured to prescribe "mandated" drugs, even to elderly patients who may not benefit, and to cherry-pick patients who can comply with pay-for-performance measures.

And which doctor should be held responsible for meeting the quality guidelines? On average, Medicare patients see two primary-care physicians in any given year, and five specialists working in four practices. Care is widely dispersed, so it is difficult to assign responsibility to one doctor. If a doctor assumes responsibility for only a minority of her patients, then there is little financial incentive to participate in P4P. If she assumes too much responsibility, she may be unfairly blamed for any lapses in quality.

Nor is it clear that pay for performance will actually result in better care, because it may end up benefiting mainly those physicians who already meet the guidelines. If they can collect bonuses by maintaining the status quo, what is the incentive to improve?

Doctors have seldom been rewarded for excellence, at least not in any tangible way. In medical school, there were tests, board exams and lab practicals, but once you go into clinical practice, these traditional measures fall away. At first glance, pay for performance would seem to remedy this problem. But first its deep flaws must be addressed before patient care is compromised in unexpected ways.

Sandeep Jauhar, a cardiologist on Long Island, is the author of the memoir "Intern: A Doctor's Initiation."

http://www.nytimes.com/2008/09/09/health/09essa.html?nl=8hlth&emc=hltha8

Google to Digitize Newspaper Archives

By MIGUEL HELFT

SAN FRANCISCO — Google has begun scanning microfilm from some newspapers' historic archives to make them searchable online, first through Google News and eventually on the papers' own Web sites, the company said Monday.

The new program expands a two-year-old service that allows Google News users to search the archives of some major newspapers and magazines, including The New York Times, The Washington Post and Time, that were already available in digital form. Readers will be able to search the archives using keywords and view articles as they appeared originally in the print pages of newspapers.

Under the expanded program, Google will shoulder the cost of digitizing newspaper archives, much as the company does with its book-scanning project. Google angered some book publishers because it had failed to seek permission to scan books that were protected by copyrights. It will obtain permission from newspaper publishers before scanning their archives.

Google, based in Mountain View, Calif., will place advertisements alongside search results, and share the revenue from those ads with newspaper publishers.

Initially, the archives will be available through Google News, but the company plans to give newspapers a way to make their archives available on their own sites.

"This is really good for newspapers because we are going to be bringing online an old generation of contributions from journalists, as well as widening the reader base of news archives," said Marissa Mayer, vice president for search products and user experience at Google.

But many newspaper publishers view search engines like Google as threats to their own business. Many of them also see their archives as a potential source of revenue, and it is not clear whether they will willingly hand them over to Google.

"The concern is that Google, in making all of the past newspaper content available, can greatly commoditize that content, just like news portals have commoditized current news content," said Ken Doctor, an analyst with Outsell, a research company.

Google said it was working with more than 100 newspapers and with partners like Heritage Microfilm and ProQuest, which aggregate historical newspaper archives in microfilm. It has already scanned millions of articles.

Other companies are already working with newspapers to digitize archives and some sell those archives to schools, libraries and other institutions, helping newspapers earn money from their historical content.

The National Digital Newspaper Program, a joint program of the National Endowment for the Humanities and the Library of Congress, is creating a digital archive of historically significant newspapers published in the United States from 1836 to 1922. It will be freely accessible on the Internet.

Newspapers that are participating in the Google program say it is attractive.

"We wouldn't be talking about digitization if Google had not entered this arena," said Tim Rozgonyi, research editor at The St. Petersburg Times. "We looked into it years back, and it appeared to be exceedingly costly."

Mr. Rozgonyi said that the newspaper might be able to generate additional revenue from the digital archives by producing historical booklets or commemorative front pages. But he said that increasing sales was not the primary objective of the digitization program.

"Getting the digitized content available is a wonderful thing for people of this area," he said. "They'll be able to go to our site or Google's and tap into 100 years of history."

Pierre Little, publisher of The Quebec Chronicle-Telegraph, which has been published since 1764 and calls itself "North America's Oldest Newspaper," said many readers visit the newspaper's Web site to look for obituaries and conduct research on their ancestors.

"We could envision that thousands of families would be attracted to our archives to search for people who came over to the New World," Mr. Little said. "We hope that will be a financial windfall for us."

Brad Stone contributed reporting.

http://www.nytimes.com/2008/09/09/technology/09google.html?th&emc=th

Ph.D. Completion Gaps

Significant gaps exist — by demographic groups and disciplines — in who finishes Ph.D. programs. Generally, foreign, male, and white students are more likely to earn their doctorates after 10 years than are their counterparts who are American, female or minority.

While the patterns hold over all, they aren't the same for all disciplines. Black Ph.D. students, for example, are tied with white students in having the highest completion rates for Ph.D.'s in the life sciences, but lag in completion of engineering programs.

The data and analysis — being released today — come from the Council of Graduate Schools and make up the largest ever study of completion rates by different demographic groups. (Much of the existing data on Ph.D. students focuses on degrees awarded as opposed to completion rates, potentially masking serious issues in Ph.D. production.) Twenty-four universities provided data on their doctoral students to allow for a broad cross-section of Ph.D.-granting institutions, disciplines and demographics. The study is part of the council's Ph.D. Completion Project, which aims to identify policies and programs to encourage completion of doctoral degrees.

The project will use the new data as a baseline. Participating graduate schools now plan to start a series of programs designed to encourage completion and to speed it, and the hope is that subsequent data will show improvements.

Here are the figures that show where the graduate schools are starting:

Cumulative Completion Rates for Students Starting Ph.D. Programs, 1992-3 Through 1994-5

Group	By Year 5	By Year 6	By Year 7	By Year 8	By Year 9	By Year 10
Gender						
—Male	24%	39%	48%	53%	57%	58%
—Female	16%	30%	41%	47%	52%	55%
Race/Ethnicity						
—African American	16%	25%	34%	40%	44%	47%
—Asian American	15%	30%	39%	46%	49%	50%
—Latino	13%	24%	33%	43%	48%	51%
—White	18%	33%	43%	49%	53%	55%
—Other	12%	27%	35%	44%	46%	49%
International	33%	49%	59%	64%	66%	67%

Many unique factors shape whether an individual graduate student finishes a doctorate or does so in a reasonable time frame. But some of the average gaps may be significant enough, researchers hope, to help graduate schools over time identify better policies. Robert Sowell, director of the Ph.D. Completion Project, said that he was struck by the high success levels of black students in the life sciences and hoped that some factors might be found there that could be replicated in engineering.

One of the most striking gaps was found between international and domestic graduate students, with the former much more likely (67 percent vs. 54 percent) to complete doctorates within 10 years. Many graduate students from outside the United States enroll in science and technology programs, which historically have speedier Ph.D. completion times than do other programs. But even comparing international and domestic students with disciplines factored in, the non-Americans are much more likely to finish.

10-Year Completion Rates by Field and Citizenship

Field	Domestic U.S.	International
Engineering	58%	70%
Life sciences	58%	66%
Math and physical sciences	51%	68%
Social sciences	56%	63%
Humanities	50%	52%

Sowell said that a variety of factors could explain these gaps. Many international students have visas with specified time limits, and renewing visas can be complicated and uncertain — creating real pressure to finish, he said. Further, many of those visas limit the ability of the graduate students to hold jobs, while some American students hold full-time jobs throughout prolonged graduate school careers.

Gaps are also present when examining completion rates by discipline and race/ethnicity.

10-Year Completion Rates by Field and Race/Ethnicity

Field	African American	Asian American	Latino	White
Engineering	47%	53%	55%	60%
Life sciences	60%	47%	54%	60%
Math and physical sciences	37%	53%	53%	52%
Social sciences	47%	44%	55%	57%
Humanities	52%	46%	37%	51%

A similar analysis by gender — where men overall have higher completion rates — shows a split by disciplines. Men are more likely than women to finish doctoral programs in engineering, life sciences and mathematics and physical sciences. Women are more likely to finish in the social sciences and humanities.

10-Year Completion Rates by Field and Gender

Field	Women	Men
Engineering	56%	65%
Life sciences	56%	64%
Math and physical sciences	52%	59%
Social sciences	57%	53%
Humanities	52%	47%

In addition to examining 10-year completion rates, the report also has details on the percentages of graduate students finishing programs within seven years. For instance, of those who complete a Ph.D., 82 percent of men do so within seven years, while only 75 percent of women do. However, the data are not adjusted for leaves that, on average, women are more likely than men to take.

Sowell said that there are many reasons to focus not just on completion but speed to completion. Attrition can be particularly difficult for those who have spent years working on a degree, and

universities and other employers of Ph.D.'s are looking for talent, he noted. There is also the matter of cost. "The longer it takes the student, the more it is going to cost the student and the institution," he said.

Fundamentally, it is important for graduate schools to close these gaps in light of larger demographic trends, he said, to keep the supply of academic talent coming. Since future cohorts of graduate students will be less white and less male than current cohorts, Sowell said, "it's a matter of meeting that work force need."

He cited three examples of the kinds of the strategies colleges are trying to increase completion rates:

Better information going in. One factor many graduate schools believe contributes to high attrition rates is a lack of information about what it means to earn a doctorate. "They don't know what they are getting into," Sowell said. So graduate schools are trying to be more explicit about the demands of their programs and to expose prospective students to just what their lives would be like.

Dissertation help. More graduate schools are starting a range of programs to help the writing process, he said. "Dissertation boot camps," either as retreats or regular on-campus meetings, are designed to allow Ph.D. students to coach one another while receiving expert advice as well.

Family leave. More graduate schools are adopting policies to support students who become parents. In some cases, these policies may delay completion, but Sowell said that "the positive thing about the policies would be the completion rates."

— Scott Jaschik

The original story and user comments can be viewed online at http://insidehighered.com/news/2008/09/09/gaps.

Cardiac Arrest's Heartwarming Hope: Hypothermia

Dramatically cooling patients after cardiac arrest improves survival, recovery.

- By: Michael Haederle | September 08, 2008 | 03:00 PM (PDT)

The woman was sitting in a friend's car laughing at a joke when suddenly she slumped over, unresponsive. The panicked driver had the presence of mind to speed 15 blocks to the nearest hospital, the University of Chicago Medical Center, where doctors determined she had suffered a potentially lethal cardiac arrhythmia and worked to get her heart beating normally.

Then they put her on ice. The sedated woman's body temperature was rapidly lowered, putting her in a state of mild hypothermia, and kept there.

"She should not have done well," said Dr. David Beiser, one of the emergency-room physicians who treated the woman, "but we cooled her, and six days later she woke up." The woman has since returned to work.

Roughly 90 percent of the 300,000 people who suffer cardiac arrest in the U.S. each year die, but a growing body of research shows that cooling a patient's body to around 32-34 degrees Celsius (89-93 degrees Fahrenheit) after restarting the heart significantly improves survival.

Doctors may use ice packs, cooling blankets, an intravenous drip of chilled saline solution or special catheters with refrigerated tips to lower the patient's core temperature and keep it there for up to 24 hours.

"Hypothermia represents one of the most important advances in cardiac care since the development of defibrillators 50 years ago," said Dr. Benjamin Abella, an assistant professor of emergency medicine at the University of Pennsylvania. "If it was being aggressively implemented in hospitals, we would probably have thousands more survivors of cardiac arrest every year."

Although cardiac arrest is "one of the most lethal conditions in medicine," Abella said most doctors still are not using it on a routine basis. He co-authored a 2005 study showing that many wrongly believed there was insufficient evidence to adopt the procedure.

Cardiac arrest is not the same thing as a heart attack. In a myocardial infarction, a blocked coronary artery may cause chest pain and shortness of breath, but the condition can often be treated with clot-dissolving drugs, angioplasty or stents.

Cardiac arrest, where the heart loses its rhythm or stops beating altogether, may follow a heart attack or strike without warning. A sudden loss of consciousness results as blood flow to the brain stops, and if the heart is not restarted quickly, death follows.

A 2003 report in the American Heart Association journal *Circulation* found that prospective randomized trials in Europe and Australia had shown inducing mild hypothermia in comatose survivors of out-of-hospital cardiac arrest led to higher survival rates and fewer neurological complications.

In the European study, patients were kept chilled for 24 hours before being allowed to rewarm naturally. The study of 273 patients found 55 percent of the hypothermia group patients were living independently six months later, compared with 39 percent in a control group of patients who did not receive hypothermia treatment. And at six months, only 41 percent of the hypothermia group had died, while 55 percent of the un-chilled group had.

Doctors in the Australian study, conducted at four hospitals in Melbourne, used cold packs to cool patients. Their lowered temperatures were maintained for 12 hours after admission, and active rewarming started at 18 hours. This study of 67 patients found that 49 percent of its hypothermia group survived, as compared with only 42 percent of the unchilled control group.

The *Circulation* article's authors endorsed the October 2002 recommendations of the International Liaison Committee on Resuscitation, which said, "Unconscious adult patients with spontaneous circulation after out-of-hospital cardiac arrest should be cooled to 32 degrees Celsius to 34 degrees Celsius for 12 to 24 hours when the initial rhythm was ventricular fibrillation (VF)."

Beiser, an assistant professor of emergency medicine at Chicago, is conducting animal studies to try to understand how hypothermia protects patients. The research could yield lifesaving — and potentially lucrative — results. "We're looking at pharmaceuticals that mimic hypothermia," Beiser said.

Most people understand the danger to the oxygen-starved brain when the heart stops pumping blood, but many other secondary injuries also occur when circulation stops. "We're beginning to understand how the secondary injury occurs and how to limit it," Beiser said. "When you restart the heart and blood goes back to previously blood-starved tissue, you create a lot of oxidants, which can damage the tissue or transmit signals (that) can trigger cell death and inflammation."

Patients revived from cardiac arrest sometimes suffer something called total body inflammation, which may stop capillaries from working and obstruct blood flow to vital organs, Beiser said.

Hypothermia modulates this secondary injury, increasing certain oxidants and decreasing others, Beiser said, but exactly how is not well understood. For a long time, scientists thought it had to do with reduced

energy needs. “The initial hypothesis with cooling is that we’re decreasing the metabolic rate of the body,” Beiser said.

“What we’re actually finding is it’s turning up the transcription of certain genes while turning down the transcription of other genes,” he said, referring to the genetic activity involved in the production of new proteins within cells.

One might expect emergency physicians would rush to embrace the use of therapeutic hypothermia, given the robust research in support of its use, but that hasn’t been the case. In the February 2005 issue of the journal *Resuscitation*, Abella, Chicago’s Terry Vanden Hoek and others reported that a survey of 265 physicians had found 87 percent said they were not using the technique.

“Among reasons cited for non-use, 49 percent felt that there were not enough data, 32 percent mentioned lack of incorporation of hypothermia into advanced cardiovascular life support (ACLS) protocols, and 28 percent felt that cooling methods were technically too difficult or too slow,” the report said.

Another reason may be that many doctors believe that there is little that can be done for cardiac arrests.

“There’s a culture of despair and a feeling of futility in these cases,” said Beiser, who adds that he makes sure to let his ER staff know about successful outcomes from hypothermia treatment to instill a sense of optimism.

“This culture of hope really helps get hypothermia off the ground in an institution.”

http://www.miller-mccune.com/article/610#

Ancient trees recorded in mines

By Jonathan Amos
Science reporter, BBC News, Liverpool

Spectacular fossil forests have been found in the coal mines of Illinois by a US-UK team of researchers.

The group reported one discovery last year, but has since identified a further five examples.

The ancient vegetation - now turned to rock - is visible in the ceilings of mines covering thousands of hectares.

These were among the first forests to evolve on the planet, Dr Howard Falcon-Lang told the British Association Science Festival in Liverpool. "These are the largest fossil forests found anywhere in the world at any point in geological time," he told reporters.

"It is quite extraordinary to find a fossil landscape preserved over such a vast area; and we are talking about an area the size of (the British city of) Bristol." Please turn on JavaScript. Media requires JavaScript to play.

The forests grew just a few million years apart some 300 million years ago; and are now stacked one on top of another. It appears the ancient land experienced repeated periods of subsidence and flooding which buried the forests in a vertical sequence.

They have since become visible because of the extensive mining operations in the border area between the states of Illinois, Indiana and Kentucky.

Once the coal seams have been removed (what were, essentially, the compacted soils of the forests), it is possible to go into the tunnels and look up at what would have been lying on the forest floors. "It's a really exciting experience to drive down into these mines; it's pitch black," the Bristol University research said.

"It's kind of an odd view looking at a forest bottom-up. You can actually see upright tree stumps that are pointed vertically up above your head with the roots coming down; and adjacent to those tree stumps you see all the litter.

"We found 30m-long trunks that had fallen with their crowns perfectly preserved."

The researchers believe their study of these ancient forests could give hints to how modern rainforests might react in a warmer world. The six forests straddle a period in Earth history 306 million years ago that saw a rapid shift from an icehouse climate with big polar ice caps to a greenhouse climate in which the ice caps would have melted.

"The fascinating thing we've discovered is that the rainforests dramatically collapse approximately coincident with the greenhouse warming," explained Dr Falcon-Lang. "Long-lived forests dominated by giant club moss trees almost overnight (in a geological sense) are replaced by rather weedy fern vegetation." The next stage of the research is to try to refine the timings of events all those years ago, and work out the exact environmental conditions that existed. The thresholds that triggered the ancient collapse can then be compared with modern circumstances.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7604721.stm

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As Andean Glacier Retreats, Tiny Lifeforms Swiftly Move In

A University of Colorado at Boulder study of microbes beneath the retreating Puca Glacier at 16,400 feet in the Peruvian Andes is the first to show how life becomes established and flourishes in one of the most extreme environments on Earth. Shown is CU-Boulder postdoctoral researcher Elizabeth Costello, a study co-author. (Credit: Photo courtesy Steve Schmidt/University of Colorado)

ScienceDaily (Sep. 9, 2008) — A University of Colorado at Boulder team working at 16,400 feet in the Peruvian Andes has discovered how barren soils uncovered by retreating glacier ice can swiftly establish a thriving community of microbes, setting the table for lichens, mosses and alpine plants.

The discovery is the first to reveal how microbial life becomes established and flourishes in one of the most extreme environments on Earth and has implications for how life may have once flourished on Mars, said Professor Steve Schmidt of CU-Boulder's ecology and evolutionary biology department. The study also provides new insights into how microorganisms are adapting to global warming in cold ecosystems on Earth.

A paper on the subject was published online Aug. 27 in the Proceedings of the Royal Society B, the United Kingdom's national academy of science. Co-authors included CU-Boulder's Sasha Reed, Diana Nemergut, Stuart Grandy, Andrew Hill, Elizabeth Costello, Allen Meyer, Jason Neff and Andrew Martin as well as the University of Montana's Cory Cleveland and the University of Toledo's Michael Weintraub.

The researchers found that three species of a photosynthetic microbe known as cyanobacteria colonized the soil within the first year, either by dropping in from tiny pockets of dirt wedged in the receding glacier or blowing in as spores. Just three years later there were 20 different species of bacteria, growing by snatching gaseous forms of carbon and nitrogen from the atmosphere, Schmidt said.

"The most startling finding was how much the diversity increased in just four years in what was seemingly barren soil," said Schmidt, whose study was funded by the National Science Foundation's Microbial Observatories Program. The CU-Boulder team conducted their research from 2000 to 2005 on the Puca Glacier in Peru -- which is receding uphill about 60 feet a year -- by collecting samples and measuring soil chemistry and strength.

In 2005, Schmidt's group was awarded a five-year, $1.75 million NSF grant to identify and analyze a potpourri of microbes new to science residing in harsh, cold climates around the world. The team is using a novel technique that extracts DNA from the soil to pinpoint new groups of microbes and polymerase chain reaction, or PCR, to amplify and identify them, providing a snapshot of the microscopic diversity in high alpine regions.

Another unexpected finding on the Puca Glacier was how microbes stabilized the soil and prevented erosion on the slope by using their filament-like structure to weave soil particles together in a matrix, Schmidt said. The CU-Boulder researchers also found the microbes excrete a glue-like sugar compound to further bond soil particles.

In addition, they discovered that nitrogen fixation rates -- the process in which nitrogen gas is converted by bacteria into compounds in the soil like ammonia and nitrate -- increased by about 100-fold in the first five years. "Overall, our results indicate that photosynthetic and nitrogen-fixing bacteria play important roles in acquiring nutrients and facilitating ecological succession in soils near some of the highest-elevation receding glaciers on Earth," wrote the team in Proceedings of the Royal Academy.

Global climate change has accelerated the pace of glacial retreat in high latitude and high-elevation environments, exposing lands that have been devoid of vegetation for centuries or millennia, said Schmidt. He likened the high Andes to the harsh Dry Valleys of Antarctica, under study by researchers from NASA's Astrobiology Institute because of hostile conditions believed to be similar to those on portions of Mars.

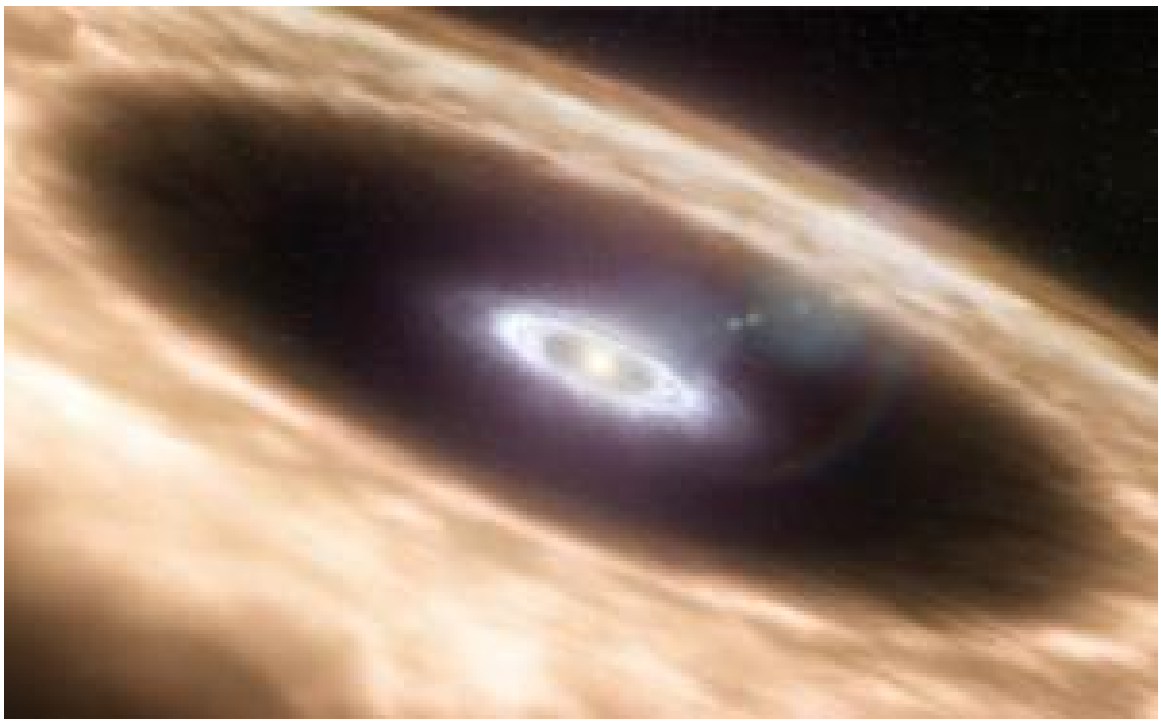
"This kind of research should help us understand how the cold regions of Earth function, and how the biosphere will respond to future climate change," said Schmidt. The research also could lead to the discovery of new antibiotics, as well as industrial enzymes that function at cold temperatures and could be used to drive chemical reactions normally requiring large amounts of heat, he said.

Because of rapid climate change at high elevations, time is of the essence for researchers at CU-Boulder and elsewhere working on tiny organisms in extreme environments. "We are racing to identify new species and archive them in the laboratory before bigger changes occur and they disappear," said Schmidt.

Adapted from materials provided by University of Colorado at Boulder.

http://www.sciencedaily.com:80/releases/2008/09/080908135944.htm

Presence Of Planets In Young Gas Discs Hinted At Using Clever New Astronomical Method



Astronomers have been able to study planet-forming discs around young Sun-like stars in unsurpassed detail, using ESO's Very Large Telescope. The studied discs were known to have gaps in the dusty discs (represented by the brownish color in the image) but the astronomers found that gas is still present inside these gaps (represented by the white color in the image). This can either mean that the dust has clumped together to form planetary embryos, or that a planet has already formed and is in the process of clearing the gas in the disc. (Credit: Image courtesy of ESO)

ScienceDaily (Sep. 9, 2008) — Astronomers have been able to study planet-forming discs around young Sun-like stars in unsurpassed detail, clearly revealing the motion and distribution of the gas in the inner parts of the disc. This result, which possibly implies the presence of giant planets, was made possible by the combination of a very clever method enabled by ESO's Very Large Telescope.

Planets could be home to other forms of life, so the study of exoplanets ranks very high in contemporary astronomy. More than 300 planets are already known to orbit stars other than the Sun, and these new worlds show an amazing diversity in their characteristics. But astronomers don't just look at systems where planets have already formed -- they can also get great insights by studying the discs around young stars where planets may currently be forming.

"This is like going 4.6 billion years back in time to watch how the planets of our own Solar System formed," says Klaus Pontoppidan from Caltech, who led the research.

Pontoppidan and colleagues have analysed three young analogues of our Sun that are each surrounded by a disc of gas and dust from which planets could form. These three discs are just a few million years old and were known to have gaps or holes in them, indicating regions where the dust has been cleared and the possible presence of young planets.

The new results not only confirm that gas is present in the gaps in the dust, but also enable astronomers to measure how the gas is distributed in the disc and how the disc is oriented. In regions where the dust

appears to have been cleared out, molecular gas is still highly abundant. This can either mean that the dust has clumped together to form planetary embryos, or that a planet has already formed and is in the process of clearing the gas in the disc.

For one of the stars, SR 21, a likely explanation is the presence of a massive giant planet orbiting at less than 3.5 times the distance between the Earth and the Sun, while for the second star, HD 135344B, a possible planet could be orbiting at 10 to 20 times the Earth-Sun distance. The observations of the third star, TW Hydrae, may also require the presence of one or two planets.

"Our observations with the CRIRES instrument on ESO's Very Large Telescope clearly reveal that the discs around these three young, Sun-like stars are all very different and will most likely result in very different planetary systems," concludes Pontoppidan. "Nature certainly does not like to repeat herself."

"These kinds of observations complement the future work of the ALMA observatory, which will be imaging these discs in great detail and on a larger scale," adds Ewine van Dishoeck, from Leiden Observatory, who works with Pontoppidan.

To study the gaps in dust discs that are the size of the Solar System around stars that are located up to 400 light-years away is a daunting challenge that requires a clever solution and the best possible instruments.

"Traditional imaging cannot hope to see details on the scale of planetary distances for objects located so far away," explains van Dishoeck. "Interferometry can do better but won't allow us to follow the motion of the gas."

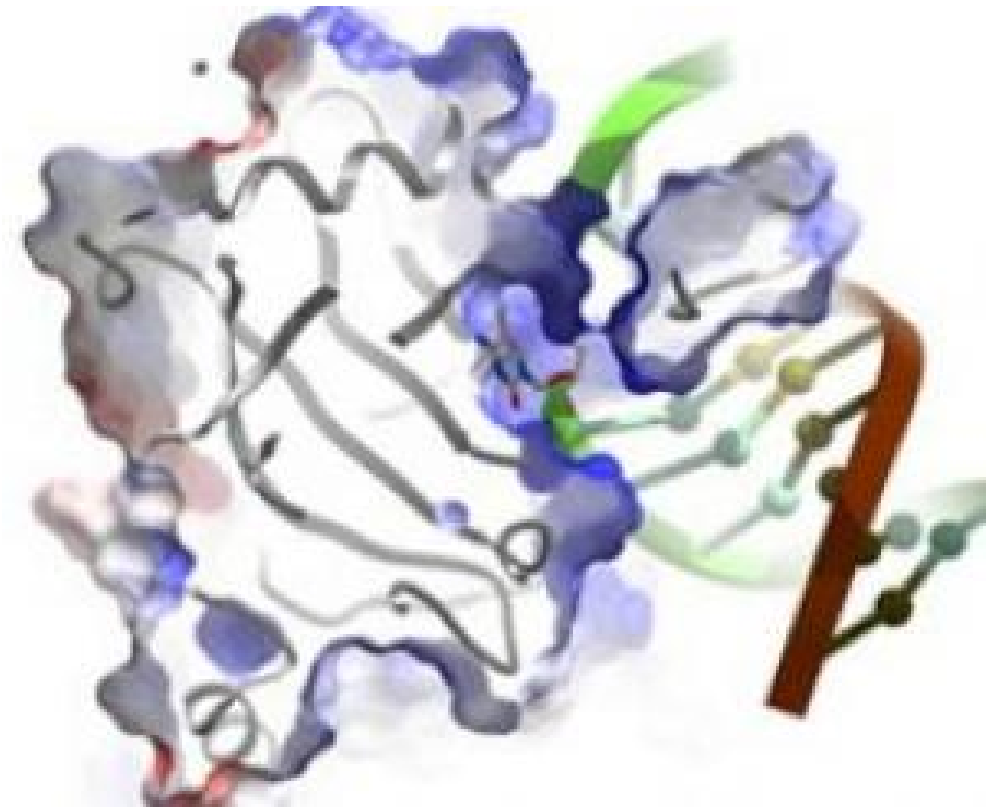
Astronomers used a technique known as 'spectro-astrometric imaging' to give them a window into the inner regions of the discs where Earth-like planets may be forming. They were able not only to measure distances as small as one-tenth the Earth-Sun distance, but to measure the velocity of the gas at the same time.

"The particular configuration of the instrument and the use of adaptive optics allows astronomers to carry out observations with this technique in a very user-friendly way: as a consequence, spectro-astrometric imaging with CRIRES can now be routinely performed," says team member Alain Smette, from ESO.

Adapted from materials provided by ESO: European Organisation for Astronomical Research in the Southern Hemisphere.

http://www.sciencedaily.com/releases/2008/09/080908105400.htm

Structure Of Key Epigenetics Component Identified



Researchers have determined the 3D structure of a key protein component involved in enabling "epigenetic code" to be copied accurately from cell to cell. (Credit: Image courtesy of Wellcome Trust)

ScienceDaily (Sep. 8, 2008) — Scientists from the Structural Genomics Consortium (SGC) have determined the 3D structure of a key protein component involved in enabling "epigenetic code" to be copied accurately from cell to cell.

Epigenetic code is a series of chemical switches that is added onto our DNA in order to ensure that the cells in our body can form different types of tissue, for example liver and skin, despite having identical DNA genetic code.

When DNA is copied from cell to cell, it is essential that the epigenetic code is also copied accurately. If not, a liver cell may divide into another type of cell, such as a nerve or eye cell. A breakdown in this system might also mean that a gene for cell growth is accidentally switched on, for example, leading to unregulated cell growth and the development of tumours.

Research published in 2007 showed the importance of the nuclear protein UHRF1 in ensuring that the epigenetic code is accurately copied. Epigenetic switches are created by the addition of a chemical group (methyl) to DNA in a process known as methylation, facilitated by the enzyme DNMT1. The researchers believe that when this code is copied, UHRF1 ensures the accuracy of the process, like a proof-reader checks a typeset article before printing.

The key element of UHRF1 involved in this "proofreading" process is known as the Set and Ring Associated (SRA) domain, but the exact mechanisms by which the SRA domain accomplishes this task were unclear. Today, in three different articles, the journal Nature publishes the structure of the key element of UHRF1 that facilitates this process.

"Given the increasing focus on epigenetics as a mechanism behind cancer, elucidating the structure of UHRF1 may provide crucial insights into what goes wrong," says Professor Sirano Dhe-Paganon from the Structural Genomics Consortium laboratories at the University of Toronto, Canada.

The structural papers not only represent an advance for the epigenetics field, but also an advance for how the science was done. The concurrent publication of the three papers highlights the competitive nature of this field, but in fact these papers were made possible because the SGC, in keeping with its policy of making its data freely and immediately available, made the underlying information available in the Protein Data Bank late in 2007. The availability of this information allowed the other groups to make more rapid progress in their own work.

"By releasing the structural information into the public databases as soon as it was available, we have ensured that other research groups could make immediate and maximum benefit from the shared knowledge," says Professor Dhe-Paganon.

Professor Masahiro Shirakawa from Kyoto University, Japan, openly acknowledges that the SGC data was crucial to his team's paper, which also appears in today's edition of Nature.

"We would like to express our gratitude to the researchers at the SGC for making their available on net," says Professor Shirakawa. "Structural biology is a complex, but very important field, with the potential to drive forward important research in many areas. The information provided by the SGC significantly speeded up our own work."

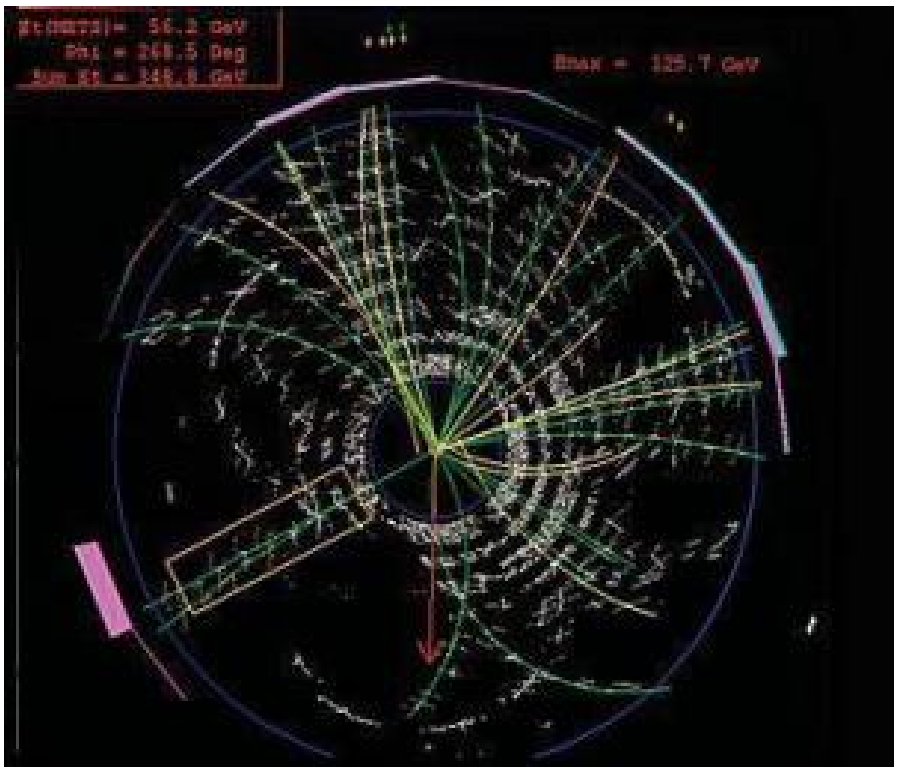
The SGC's "open source" policy contrasts with the accepted practice in the structural biology field, which is to make the underlying data available only after the work appears in print. However, Professor Al Edwards, Director of the SGC, believes strongly that data such as the 3D structure of proteins should be made freely available as soon as they are discovered.

"From the outset, it's been important to us to release our structural data immediately," says Professor Edwards. "This is contrary to the way many scientists work, but we believe it is crucial for facilitating scientific and medical progress, and our policy has not inhibited our ability to publish our work in the top journals. All the protein structures studied by the SGC have medical relevance and making them freely available ensures that scientists are able to use them to make progress in our understanding of disease and the development of new drugs."

Adapted from materials provided by Wellcome Trust.

http://www.sciencedaily.com/releases/2008/09/080903134159.htm

Hunt For Elusive Higgs Boson -- Most Highly Sought-after Particle In Physics -- Gets Boost



Scientists based at Fermilab have made important new discoveries that take them closer to finding the Higgs boson. (Credit: Image courtesy of Imperial College London)

ScienceDaily (Sep. 8, 2008) — The hunt for the Higgs boson, the most highly sought-after particle in physics, received a boost this month with the release of two new results from the Tevatron particle collider at the US Department of Energy's Fermilab in Illinois.

Scientists working on the DZero particle detector experiment, including physicists from Imperial College London, have for the first time successfully observed pairs of Z bosons at the Tevatron. Pair production of these force carrying particles is extremely rare and difficult to detect, and researchers say that having observed them represents a big step towards observing the Higgs boson itself.

Then just a week after spotting the Z boson pairs, DZero scientists, along with colleagues from the CDF collaboration at the Tevatron, were able to rule out the possibility of the Higgs boson having a mass of around 170GeV/c2 – a value which lies in the mass range scientists believe the Higgs may have. This is the first time that any experiment in the world has ruled out potential values for the mass of the Higgs boson since the Large Electron -Positron Collider at CERN proved that the Higgs could not have a mass of less than 114GeV/c2 in 2000.

Dr Gavin Davies from Imperial's Department of Physics, co-leader of the Higgs hunting group on the DZero experiment, explains: "We now know that the Higgs boson does not have a mass of 170GeV/c2. If it did have this mass, then we should have seen evidence for it at the Tevatron by now. Ruling out possible masses of the Higgs is a very important part of the hunt for this elusive particle."

The Standard Model of particle physics predicts the existence of a particle, known as the Higgs boson, which gives mass to other particles. Currently, the mechanism by which particles acquire different mass

values is unknown, and finding evidence for the existence of the Higgs boson would solve this fundamental mystery of nature.

The first of the Tevatron results, where pairs of Z bosons were observed, is a big step towards finding the Higgs boson because the pairs' experimental signature and characteristics are similar to those that would be seen if the Higgs was produced. In addition, the analysis methods and techniques used to find the Z bosons pairs are similar to those for finding the Higgs too.

So the Tevatron scientists have proven that their observation methods work, and that they are capable of observing very rare processes like those required to produce the Higgs.

Creating the experimental conditions in which the Higgs boson could be observed is extremely difficult. It requires very powerful particle collisions, and super-sensitive detectors to record the results of the collisions. To find the pairs of Z bosons, the DZero detector had to search through nearly 200 trillion particle collisions.

Dr Davies says that the results from the Tevatron signal the start of a new exciting phase of Higgs physics: "The observation of the very rare ZZ process is a real stepping stone to the Higgs. Following this with the first direct Higgs mass exclusion since 2000 is tremendously exciting.

"It shows that the Tevatron experiments are very much in the race for finding the Higgs," he added.

DZero is an international experiment conducted by around 600 physicists from 90 institutions in 18 different countries. Currently around 10 Imperial physicists are involved with the experiment, based either full or part time at Fermilab.

This autumn the Large Hadron Collider (LHC) particle accelerator at CERN in Switzerland will be switched on to perform particle collisions at even higher energies than the Tevatron. Observing the Higgs boson is also a key goal for the detector experiments at CERN. A large cohort of Imperial physicists are working on the LHC detectors, including Professors Tejinder Virdee and Andrei Golutvin, who are lead scientists on the CMS and LHCb detectors respectively.

Adapted from materials provided by Imperial College London.

http://www.sciencedaily.com/releases/2008/09/080903093433.htm

Tracking The Reasons Many Girls Avoid Science And Math

Nadya Fouad, vocational psychologist and UWM Distinguished Professor, is an author of a new study on what steers girls toward or away from math and science during their education. (Credit: Alan Magayne-Roshak, UWM)

ScienceDaily (Sep. 8, 2008) — Most parents and many teachers believe that if middle-school and high-school girls show no interest in science or math, there's little anyone can do about it.

New research by a team that includes vocational psychologists at the University of Wisconsin-Milwaukee (UWM) indicates that the self-confidence instilled by parents and teachers is more important for young girls learning math and science than their initial interest.

While interest is certainly a factor in getting older girls to study and pursue a career in these disciplines, more attention should be given to building confidence in their abilities early in their education, says UWM Distinguished Professor Nadya Fouad. She is one of the authors of a three-year study aimed at identifying supports and barriers that steer girls toward or away from science and math during their education.

"The relationship between confidence and interest is close," says Fouad. "If they feel they can do it, it feeds their interest."

It's a high-priority question for members of organizations like the National Science Foundation (NSF) and the National Research Council as they ponder how to reverse the rapidly declining numbers of women in STEM careers – science, technology, engineering and math.

Many young students, particularly girls, see math and science as difficult, and don't take any more classes than they have to, not realizing they are cutting themselves off from lucrative opportunities in college and careers.

The NSF-funded study – the most highly detailed study on this topic – dug deeply to identify the specific factors that would stoke interest.

"For the last 20 years, there has been all this work done on boosting interest of girls early on. But I don't think that's it," says Fouad, whose research has found evidence that confidence levels in math- and science-related tasks are lower for girls than for boys.

Complexity

The study tracked girls and boys in middle school, high school and their sophomore year in college in both Milwaukee and Phoenix, with the main goal of pinpointing when the barriers for girls appear and how influential they are. Co-authors include Phil Smith, UWM emeritus professor of educational psychology, and Gail Hackett, Provost at the University of Missouri–Kansas City.Self-efficacy is not the only important factor for girls, the study uncovered. Results point to a complicated issue, says Fouad. For one thing, math and science cannot be lumped together when designing interventions because the barriers and supports for each discipline are not the same.

"There were also differences at each developmental level and differences between the genders," she says. That means interventions would need to be tailored for each specific subgroup.

Overall, however, parent support and expectations emerged as the top support in both subjects and genders for middle- and high-school students. Also powerful for younger girls were engaging teachers and positive experiences with them.

The study confirmed that old stereotypes die slowly. Both boys and girls perceived that teachers thought boys were stronger at math and science. For boys this represented a support, while for girls it acted as a barrier.

Top barriers for all age groups and disciplines were test anxiety and subject difficulty. But these differed between boys and girls. In addition, the genders formed their perceptions of math or science based on the barriers and supports, but they often arrived at different views.Ultimately, it's perception, more than reality, that affects the person's academic and career choices, says Fouad.

Scholarly clout

That's the take-away message from her more than two decades of work. A fourth-generation college professor, Fouad studies cross-cultural vocational assessment, career development of women and minorities, and factors motivating people to choose certain careers.She and Smith were among the first teams of researchers to empirically support a model that identified the prominent role that self-confidence and outcome expectations play in predicting career interests.The next step in the NSF study on girls, and math and science is to examine the relationship between barriers and supports, and then to widen the view to include women who are not working in those fields despite having an educational background in math or science. Fouad received funding from UWM on this project and has just received a half-million-dollar grant to focus on women in engineering.

Nationally, 20 percent of graduates with degrees in engineering are women, she says, but only 11 percent of engineers are women. Her inquiry will explore the reason for the gap.

Adapted from materials provided by University of Wisconsin - Milwaukee, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/09/080905153807.htm

Gaining A Better Understanding Of Kidney Diseases

ScienceDaily (Sep. 8, 2008) — By introducing a genetic switch in mice it is possible to increase or decrease the production of specific protein molecules in their kidneys. Thus, researchers can study the influence of specific proteins on disease development.

Scientists of the German Cancer Research Center (Deutsches Krebsforschungszentrum, DKFZ), Heidelberg University Hospitals and other research institutes have published this model of investigating severe kidney diseases in the latest issue of Nature medicine.

Cystic kidney disease, renal fibrosis, or renal cell carcinoma: Many diseases of the excretory organs are characterized by overproduction or – on the contrary – absence of characteristic proteins in the renal cells. An international research team under the leadership of scientists from DKFZ and Heidelberg University Hospitals has now developed an animal model to better investigate these conditions.

The researchers introduced a genetic switch into the genome of mice. This switch allows to selectively turn on and off the production of disease-typical proteins in renal tissue. It is activated simply by adding the antibiotic tetracycline to the animal food.

To find out whether it is possible to study the development of kidney diseases in the genetically modified (transgenic) animals, the investigators stimulated the production of c-Myc in the renal tissue of the mice. Numerous tumors have been reported to be associated with elevated levels of this transcription factor. Shortly after activation of the c-Myc gene the animals started developing cysts that led to organ failure. Pathologists also discovered renal cell carcinomas in some of the mice. As a reaction to the overexpression of another signaling molecule, the mice developed renal fibrosis.

Earlier attempts to study disease development using transgenic animals have often failed because the proteins to be studied are overproduced in the murine embryos already. As a result, the animals often develop severe malformations that make meaningful conclusions impossible. “A particular advantage of our model is that we can switch on and off disease-typical renal proteins at any given time,” explained Associate Professor (PD) Dr. Robert Kösters of the Institute of Human Genetics of the University of Heidelberg and Professor Dr. Hermann-Josef Gröne of the German Cancer Research Center. “Thus, we are able to simulate the natural course of disease development and also of healing processes.”

Milena Traykova-Brauch, Kai Schönig, Oliver Greiner, Tewfik Miloud, Anna Jauch, Manja Bode, Dean W Felsher, Adam B Glick, David J Kwiatkowski, Hermann Bujard, Jürgen Horst, Magnus von Knebel Doeberitz, Felix K Niggli, Wilhelm Kriz, Hermann-Josef Gröne and Robert Koesters: An efficient and versatile system for acute and chronic modulation of renal tubular function in transgenic mice. Nature medicine, 24 August 2008

The task of the Deutsches Krebsforschungszentrum in Heidelberg (German Cancer Research Center, DKFZ) is to systematically investigate the mechanisms of cancer development and to identify cancer risk factors. The findings resulting from basic research are expected to lead to new approaches in the prevention, diagnosis, and treatment of cancer. Funding is provided by the Federal Ministry of Education and Research (BMBF; 90 percent) and by the State of Baden-Wuerttemberg (10 percent). The German Cancer Research Center is a member of the Helmholtz Association of National Research Centers (Helmholtz-Gemeinschaft Deutscher Forschungszentren e.V.).

Adapted from materials provided by Helmholtz Association of German Research Centres.

http://www.sciencedaily.com/releases/2008/09/080904102758.htm

New Rules Needed To Govern World's Fragile Polar Regions

Penguins in Antarctica. Antarctica is witnessing a growing parade of tourists (40,000, including tour staff, in 2007), as well as researchers (now about 4,000 in summer occupying 37 permanent stations and numerous field camps) and companies interested in exploiting the biological properties of that continent's "extremophiles." (Credit: iStockphoto/Bernard Breton)

ScienceDaily (Sep. 8, 2008) — A new co-ordinated international set of rules to govern commercial and research activities in both of Earth's polar regions is urgently needed to reflect new environmental realities and to temper pressure building on these highly fragile ecosystems, according to several of the experts convening in Iceland for a UN-affiliated conference marking the International Polar Year.

Due to climate change, the ancient ice lid on the Arctic Ocean is fast disappearing, creating new opportunities for fishers and resource companies, and opening a potential new, far shorter ocean route between Europe and Asia, a prospect already drawing billions of dollars in investment in ice-class ships.

Antarctica, meanwhile, is witnessing a growing parade of tourists (40,000, including tour staff, in 2007), as well as researchers (now about 4,000 in summer occupying 37 permanent stations and numerous field camps) and companies interested in exploiting the biological properties of that continent's "extremophiles."

However, "many experts believe this new rush to the polar regions is not manageable within existing international law," says A.H. Zakri, Director of the United Nations University's Yokohama-based Institute of Advanced Studies (UNU-IAS), co-organizers of the conference with Iceland's University of Akureyri, in partnership with Tilburg University (Netherlands), and the Northern Institute for Environmental and Minority Law, at the Arctic Centre of the University of Lapland (Finland).

"Pressure on Earth's unique and highly vulnerable polar areas is mounting quickly and an internationally-agreed set of rules built on new realities appears needed to many observers. In Iceland, leading scholars will detail fast-emerging issues in international law and policy in the polar regions caused by such

developments as the opening up of the Northwest Passage. They will identify priorities for law-making and research and offer their best advice to decision makers, who clearly need to act even faster than the changing environment."

Rising Arctic economic activity

Problems forecast for the Arctic as its ice recedes include:

1. Overfishing
2. Pollution from ships and offshore extraction of oil and gas
3. Oil spills
4. Invasion of alien species carried by ships' ballast water

"Overfishing, the result in part of illegal, unreported and unregulated fishing, is already occurring in the Okhotsk and Bering Seas," says conference presenter Dr. Tatiana Saksina of the World Wildlife Fund's International Arctic Programme.

"Agreements are needed now to regulate shared and straddling fish stocks and to protect fish migrating to higher latitudes in search of colder waters," she says.

"Arctic sea routes are among the world's most hazardous due to lack of natural light, extreme cold, moving ice floes, high wind and low visibility and the Arctic marine environment is particularly susceptible to the effects of pollution (as demonstrated by the Exxon Valdez oil spill). The same conditions that contribute to high oil spill risks can also make response operations extremely difficult or totally ineffective," she adds. "Yet there are no internationally binding rules to regulate operational pollution from offshore installations. Strict standards for the transportation of Arctic oil are also urgently needed."

National marine environmental protection regimes that cover significant portions of Arctic waters constitute a fragmented system of governance, with large gaps in jurisdiction, implementation and effectiveness. The UN Convention on the Law of the Sea (UNCLOS), meanwhile, includes environmental rules inadequate to protect the ice oceans, she says.

"Despite the applicability of many global and regional treaties concerned with the protection of the arctic marine environment and effective management of shipping issues by the International Maritime Organization (IMO), there are many problems that require attention. There is a need for an arctic ship routing system, traffic separation schemes, and use of Automatic Identification System (AIS) and Long Range Identification and Tracking (LRIT). Due to their vulnerability, arctic waters require very strict standards for ballast water exchange, fuel content, discharge and emission. There should be internationally binding standards for construction, design, equipment and manning of ships," says Dr. Saksina.

"There is an urgent need for a comprehensive international environmental regime specially tailored for the unique arctic conditions. This regime is needed before natural resource development expands widely. The earliest date of summer Arctic Ocean without ice may be 2013. The longer the delay in developing international environmental rules, the more likely it is that unplanned and unregulated development will damage the very resources most necessary for a sustainable future in the Arctic. There is no time to waste and no reason to wait."

Antarctic Tourists and Researchers

Conference chairman Dr. David Leary of UNU-IAS notes that the Madrid Protocol to the Antarctic Treaty commits signatories to avoid changing distribution, abundance or productivity of Antarctica's

fauna and flora, to jeopardize endangered or threatened species or to degrade or create substantial risk to areas of biological, scientific, historic, aesthetic or wilderness significance.

It also commits signatories to guard against importation of non-sterile soil and the introduction of non-native species and micro-organisms (e.g., viruses, bacteria, parasites, yeasts, fungi).

In the Antarctic, however, tourist activities can compromise the region due to seeds, invertebrates and soil in their clothing and footwear, and in their provisions and equipment, says Dr. Leary. As well, visitors may introduce and spread infectious disease-causing agents through, for example, interactions with wildlife and leaving behind organic wastes.

According to a 2005 UNEP report: "Governments may be reluctant to impose thorough quarantine controls on tourists for fear of damaging the industry … [and] tourists are likely to be moving between similar sites (for example, wildlife viewing areas), increasing the risk of spreading invasive alien species."

It also notes that "researchers may pose a particular risk to biodiversity because they have access to sites of high conservation value that may be closed to the general public, and may carry equipment or organisms to those sites."

Law professor Tullio Scovazzi of the University of Milano-Bicocca, Milan, says States should make full use of existing provisions under maritime law to establish measures to protect polar regions from harm, including shipping traffic separation schemes, recommended routes, deep- water routes, areas to be avoided, compulsory pilotage and other vessel traffic services.

He notes a UNCLOS provision devoted to "ice-covered areas" which refers to the right of coastal states to adopt and enforce laws and regulations within their exclusive economic zones, "where particularly severe climatic conditions and the presence of ice covering such areas for most of the year creates obstructions or exceptional hazards to navigation and pollution of the marine environment could cause major harm or irreversible disturbance of the ecological balance."

Given changing environmental circumstances, however, he anticipates potential new questions arising, such as:

- At what temperature are climatic conditions considered particularly severe?
- Do laws and regulations adopted by the coastal States for ice-covered areas apply also in the part of the year when the areas are not covered by ice?
- What happens if in certain years the waters are ice-covered for most of the year, but in other years they are not, also considering that the precise calculation of the duration of ice-coverage can only be made at the end of the year?

Bioprospecting is also emerging as an issue in both polar regions, says Dr. Leary of UNU-IAS.

"Bioprospecting in Antarctica in particular raises new questions about its impact on freedom of scientific research and the unique framework of international co-operation and governance in Antarctica and the Southern Ocean which is built upon the ideals of Antarctica as a region devoted to science and peace.

"Similar questions arise in the Arctic as well. It is quite suprising but it looks like bioprospecting is already a well established commercial activity in the Arctic, perhaps exceeding the level of activity in Antarctica. Both biotechnology companies and government funded research projects alike see the potential of the Arctic's unique biodiversity for new developments in biotechnology.

"The neural stem cells of Arctic squirrels for example offer interesting new possibilities for the treatment of strokes in humans, while some Arctic fish species have already yielded new interesting enzymes useful in industrial and manufacturing processes."

"But can these new commercial activities, often occurring on the high seas, be sustainably managed? That is but one new challenge for international law we are considering at this conference", says Dr. Leary.

Thorsteinn Gunnarsson, rector of the University of Akureyri says: "As the impact of climate change is increasing, it is highly important to discuss leadership and governance in the Arctic regions. The academic community should provide a platform to explore and openly debate these issues. University of Akureyri is very proud to offer this platform by holding this conference in international law and policy in the polar regions in cooperation with UN institutions and other partners."

Says Konrad Ostrerwalder, UN Under Secretary-General and Rector of UNU: "As the ecosystems of the Arctic are affected by climate change, so too will the inhabitants be affected, because of their heavy reliance on the natural resources of the Arctic.

"It is important that voices of the indigenous and other peoples of the Arctic be heard in the course of the development of government policies at all levels."

Conference funding has been provided by the Prince Albert II of Monaco Foundation, the Monaco Permanent Representation to Scientific, Environmental and Humanitarian International Bodies, the Dutch International Polar Year Committee, the United Nations Environment Programme (UNEP), UNU-IAS, the University of Akureyri and the Town of Akureyri.

Adapted from materials provided by United Nations University, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/09/080907123702.htm

Safer Skies For The Flying Public: New Air Traffic Control System Model Will Track Variables Without Human Input

Dr. Caramanis is working on a mathematical model that combines theories and calculations from probability, statistics, optimization modeling, economics and game theory to be used for a new air traffic control system. (Credit: Erin McCarley)

ScienceDaily (Sep. 8, 2008) — University of Texas professor Constantine Caramanis and colleagues at the Massachusetts Institute of Technology (MIT) are working on a air traffic decision-making system that rapidly adapts its flight recommendations without human input based on thousands of changing variables. The computer model Caramanis, lead researcher Cynthia Barnhart, and other colleagues from MIT are developing will monitor weather conditions as well as current airplane locations and probable routes.

"There is currently no unified decision-making framework for air traffic flow optimization," said Dr. Caramanis. "The complicated nature of the process, and the need to make quick adjustments when changes occur, will best be addressed with a mathematical model that combines theories and calculations from probability, statistics, optimization modeling, economics and game theory."

The Federal Aviation Administration (FAA) provides each airline with a set limit of planes that can take off and land during any given timeframe. These slot decisions are based on estimates of what will optimize air traffic flow, taking into consideration imperfect weather predictions, the changing mix of flights airlines wants to move, and other variables for the thousands of flights that crisscross U.S. skies daily. The airlines then choose the flights.

While developing the air traffic optimization model, the researchers will also consider new ways to lessen delays and flight cancellations. For example, they will consider the possibility of allowing airlines to barter for slots when one airline can't get a flight off the ground and others could do so.

"The idea is to have an overarching optimization model that allows balance and flexibility to the decisions being made so that we can successfully exploit whatever slack in the system we can," Caramanis said. "Our model will have autonomous re-configurability which is the ability to adapt to new information on its own."

Adapted from materials provided by University of Texas at Austin, Electrical & Computer Engineering, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/09/080903172421.htm

Comets Throw Light On Solar System's Beginnings

Comet Wild 2. (Credit: NASA/JPL)

ScienceDaily (Sep. 8, 2008) — A new picture of the composition of comets is emerging with the help of 21st century technology available at Diamond, the UK's national synchrotron light source, in Oxfordshire.

Scientists already know that comets played a significant role in ensuring that conditions were right for life on Earth. Most of the icy, small planetary bodies that otherwise became comets went into forming the gas giant planets in the outer Solar System but some were ejected from the vicinity of the largest planets. Of these, a fraction ended up in the inner Solar System bringing water and biogenic elements of interest to Earth. Without this cometary transport, life on Earth may never have had a chance to start.

Now, scientists from the Space Research Centre at the University of Leicester have, for the first time, brought samples of the Comet Wild-2 to Diamond. In doing so, using Diamond's microfocus spectroscopy capabilities – bright and powerful X-rays with a beam size equivalent to one 25th of a human hair – they have discovered that the old model of comets as dusty iceballs is not the whole picture.

Dr John Bridges, from the Space Research Centre, explains the results, 'Comets are starting to look a lot more complicated than the old dusty iceball idea. For one thing Wild-2 contains material, like chromium oxides, from the hot inner Solar System – so how did that material get mixed in with a comet which has spent most of its life beyond Neptune? It suggests that there has been major mixing of material from inner and outer parts of the Solar System in its earliest stages.

'At Diamond, we have also been finding X-ray signatures of iron oxides. These are important because they show that on the Wild-2 nucleus there could have been small trickles of water that deposited these minerals. Similar grains are found in carbonaceous chondrite meteorites. This might mean that there have been localised heating events perhaps caused by impact on the Wild-2 nucleus that melted some of its ice.'

Their samples, which were born in the Kuiper Belt near Neptune, were collected by the Stardust space mission, which involved a seven year long, five billion km, journey. They then travelled by more conventional means (Fedex) from the US to the Space Research Centre. The Stardust mission was conceived so that comets could be studied directly as this will help researchers to find out more about the Solar System's water and the dust that escaped planetary formation.

Dr Bridges adds, 'It's now becoming clear that not all comets are the same. For instance, Wild-2 may have more similarities to some asteroids and primitive meteorites than comets from the Oort Cloud, which extends to the outer limits of our Solar System and which are infrequent visitors to Earth.'

The University of Leicester team plan to study more cometary tracks at Diamond in the months to come, from which they will be able to establish accurate comparisons with meteorites and determine the processes – such as liquid water in the nucleus and mixing in material from the hot inner Solar System – that have gone towards forming comets.

Adapted from materials provided by British Association for the Advancement of Science.

http://www.sciencedaily.com/releases/2008/09/080908073845.htm

Cassini Images Ring Arcs Among Saturn's Moons

Cassini images reveal the existence of a faint arc of material orbiting with Saturn's small moon Anthe. (Credit: NASA/JPL/Space Science Institute)

ScienceDaily (Sep. 8, 2008) — NASA's Cassini spacecraft has detected a faint, partial ring orbiting with one small moon of Saturn, and has confirmed the presence of another partial ring orbiting with a second moon. This is further evidence that most of the planet's small, inner moons orbit within partial or complete rings.

Recent Cassini images show material, called ring arcs, extending ahead of and behind the small moons Anthe and Methone in their orbits. The new findings indicate that the gravitational influence of nearby moons on ring particles might be the deciding factor in whether an arc or complete ring is formed.

Both Anthe and Methone orbit Saturn in locations, called resonances, where the gravity of the nearby larger moon Mimas disturbs their orbits. Gravitational resonances are also responsible for many of the structures in Saturn's magnificent rings. Mimas provides a regular gravitational tug on each moon, which causes the moons to skip forward and backward within an arc-shaped region along their orbital paths, according to Nick Cooper, a Cassini imaging team associate from Queen Mary, University of London. "When we realized that the Anthe and Methone ring arcs were very similar in appearance to the region in which the moons swing back and forth in their orbits due to their resonance with Mimas, we knew we had a possible cause-and-effect relationship," Cooper said.

Scientists believe the faint ring arcs from Anthe and Methone likely consist of material knocked off these small moons by micrometeoroid impacts. This material does not spread all the way around Saturn to form a complete ring, because of the gravitational resonance with Mimas. That interaction confines the material to a narrow region along the orbits of the moons.

This is the first detection of an arc of material near Anthe. The Methone arc was previously detected by Cassini's Magnetospheric Imaging Instrument, and the new images confirm its presence. Previous Cassini images show faint rings connected with other small moons either embedded within or near the outskirts of Saturn's main ring system, such as Pan, Janus, Epimetheus and Pallene. Cassini had also previously observed an arc in the G ring, one of Saturn's faint, major rings.

"This is probably the same mechanism responsible for producing the arc in the G ring," said Matthew Hedman, a Cassini imaging team associate at Cornell University in Ithaca, N.Y. Hedman and his Cassini imaging team colleagues previously determined that the G-ring arc is maintained by a gravitational resonance with Mimas, much like the new, small moon arcs. "Indeed, the Anthe arc may be similar to the debris we see in the G-ring arc, where the largest particles are clearly visible. One might even speculate that if Anthe were shattered, its debris might form a structure much like the G ring," Hedman said.

Additional analysis by scientists indicates that, while the gravitational influence of Mimas keeps the Anthe, Methone and G-ring arcs in place, the material that orbits with the moons Pallene, Janus and Epimetheus is not subject to such powerful resonant forces and is free to spread out around the planet, forming complete rings without arcs.

The intricate relationships between these ring arcs and the moons are just one of many such mechanisms that exist in the Saturn system. Cassini Imaging Team Member and Professor Carl Murray, also from Queen Mary, University of London, said, "There are many examples in the

Saturn system of moons creating structures in the rings and disturbing the orbits of other moons. Understanding these interactions and learning about their origins can help us to make sense of what we are seeing in the Cassini images."

Images of Anthe and Methone with their ring arcs are available at: http://www.nasa.gov/cassini, http://saturn.jpl.nasa.gov and http://ciclops.org.

The Cassini-Huygens mission is a cooperative project of NASA, the European Space Agency and the Italian Space Agency. The Jet Propulsion Laboratory, a division of the California Institute of Technology in Pasadena, manages the Cassini-Huygens mission for NASA's Science Mission Directorate, Washington. The Cassini orbiter and its two onboard cameras were designed, developed and assembled at JPL. The imaging team is based at the Space Science Institute, Boulder, Colo.

Adapted from materials provided by NASA/Jet Propulsion Laboratory.

http://www.sciencedaily.com/releases/2008/09/080908092951.htm

Plastic Bottles: Bisphenol A Of 'Some Concern' According To U.S. Government Report

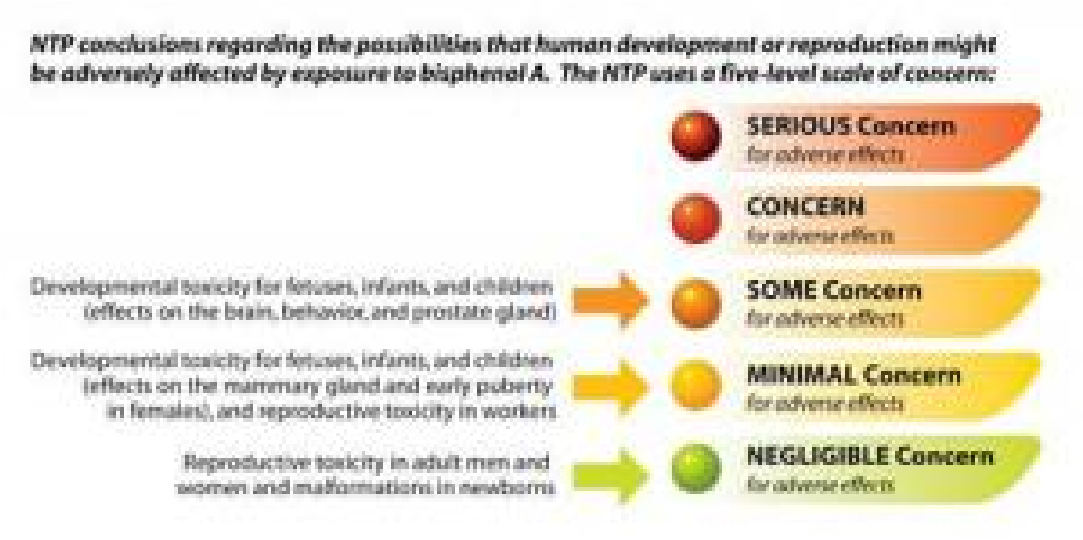


Chart showing NTP Conclusions on BPA. (Credit: Image courtesy of NIEHS)

ScienceDaily (Sep. 8, 2008) — Current human exposure to bisphenol A (BPA), a chemical used in many polycarbonate plastics and epoxy resins, is of "some concern" for effects on development of the prostate gland and brain and for behavioral effects in fetuses, infants and children, according to a final report released today by the National Toxicology Program (NTP).

The report provides the NTP's current opinion on BPA's potential to cause harm to human reproduction or development. The conclusions are based primarily on a broad body of research involving numerous laboratory animal studies. The report is part of a lengthy review of the scientific literature on BPA and takes into consideration public and peer review comments received on an earlier draft report.

"There remains considerable uncertainty whether the changes seen in the animal studies are directly applicable to humans, and whether they would result in clear adverse health effects," said NTP Associate Director John Bucher, Ph.D. "But we have concluded that the possibility that BPA may affect human development cannot be dismissed."

About the impact that these findings may have on consumers, CERHR Director Michael Shelby, Ph.D., said, "Unfortunately, it is very difficult to offer advice on how the public should respond to this information. More research is clearly needed to understand exactly how these findings relate to human health and development, but at this point we can't dismiss the possibility that the effects we're seeing in animals may occur in humans. If parents are concerned, they can make the personal choice to reduce exposures of their infants and children to BPA."

The NTP, an interagency federal research program at the National Institute of Environmental Health Sciences (NIEHS), part of the National Institutes of Health, uses a five-level scale ranging from negligible to serious, with "some concern" being the midpoint.

"We are expressing this level of concern because we see developmental changes occurring in some animal studies at BPA exposure levels similar to those experienced by humans," Bucher said.

The report also expresses "minimal concern" that BPA exposure will affect development of the mammary gland or accelerate puberty in females. The NTP expressed "negligible concern" that exposure of

pregnant woman to BPA will result in fetal or neonatal mortality, birth defects or reduced birth weight and growth in their offspring.

The NTP also expressed "negligible concern" that exposure to BPA causes reproductive effects in non-occupationally exposed adults and "minimal concern" for workers exposed to higher levels in occupational settings.

"The literature on experimental animal studies is large and filled with many conflicting findings. There are a number of remaining uncertainties in the scientific information on BPA," said Bucher. The report discusses many of the uncertainties, including the very limited data from studies in humans and the difficulty in relating the often subtle developmental endpoints in animal studies to human health risks.

The final report is available at http://cerhr.niehs.nih.gov/chemicals/bisphenol/bisphenol.pdf.

Adapted from materials provided by National Institute of Environmental Health Sciences.

http://www.sciencedaily.com/releases/2008/09/080903091142.htm

The Beatles Show Link Between Positive Experiences And How Memories Are Shaped

ScienceDaily (Sep. 8, 2008) — Results have just been announced for the Magical Memory Tour, the largest ever international online survey which asked people to blog their memories of the Beatles to create the biggest database of autobiographical memories ever attempted.The survey aimed to enhance our understanding of human memory by uncovering the role The Beatles and their music play in our personal histories. It was devised by psychologists Professor Martin Conway and Dr Catriona Morrison from the Institute of Psychological Sciences at the University of Leeds, who will be discussing their findings as part of the BA Festival of Science in Liverpool.

The six month online survey, launched by the BA (British Association for the Advancement of Science) during National Science and Engineering Week in March, generated some 3000 responses from people ranging from 17 to 87 years old and spanning 69 different nationalities. People were invited to blog the most vivid memory that came to mind relating to a Beatles album, song, news story or band member. The majority of respondents were 'silver surfers', between the ages of 55 to 65, who would have been teenagers during the Beatles heydays in the 1960s.

As expected, the majority of memories related to the teenage years of people's lives, showing a classic reminiscence bump. The difference here is that the bump occurs slightly earlier in the lifespan than for autobiographical memories more generally, suggesting that music, or at least The Beatles' music, is important in the storage of particularly early memories.The song that emerged overall as generating the most memories was 'She Loves You'. This is perhaps not surprising as this was the biggest selling single of the 60s and the Beatles most popular record ever.

With the exception of the murder of John Lennon, memories submitted were overwhelmingly positive, demonstrating that memory and emotion are linked. It seems that positive emotions are the ones primarily associated with shaping memory.There were some differences between nationalities: English people related most memories to the song 'She Loves You', whilst for Americans it was 'I Want to Hold Your Hand'; English people reported most film-associated memories to 'Help', while Australians reported most to 'A Hard Day's Night'. But what is more interesting than these relatively minor differences between nationalities is the similarities in terms of the moods, feelings, scenes and situations they relay. They show the influence The Beatles had as global cultural icons.

Dr Morrison says: 'We are so impressed with how vividly people could recall memories sometimes from more than 40 years ago, especially when many eloquent and vivid memories appear to have been little recalled in decades. This shows the power of music in shaping and reliving sometimes long-neglected memories. We were very keen to examine the levels of emotionality in the uploaded memories. We had anticipated that women might have more emotional memories but this has not been substantiated by the data. This again emphasises the universality of The Beatles as a force in people's lives.'

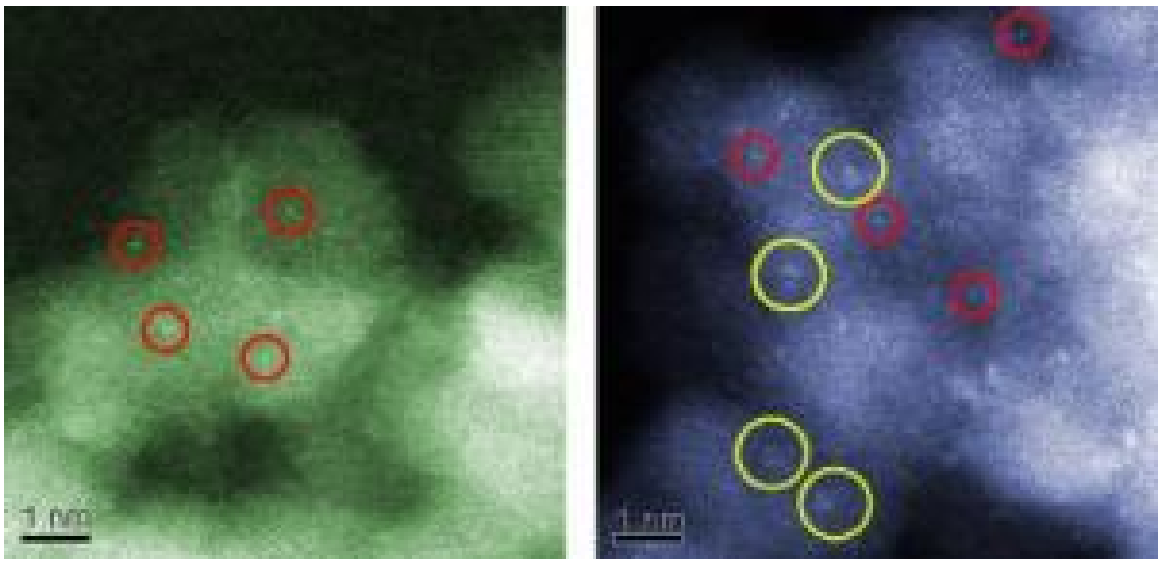
To read memories from the survey visit http://www.magicalmemorytour.com.

Magical Memory Tour is specifically supported by the Dana Alliance for Brain Initiatives and the Economic and Social Sciences Research Council (ESRC).

Adapted from materials provided by British Association for the Advancement of Science, via AlphaGalileo.

http://www.sciencedaily.com/releases/2008/09/080908073843.htm

Tiny Gold Clusters Are Top-notch Catalysts



Electron micrographs showing inactive (left) and active (right) catalysts consisting of gold particles absorbed on iron oxide. The red circles indicate the presence of individual gold atoms. The yellow circles show the location of subnanometer gold clusters that can effectively catalyze the conversion of carbon monoxide to carbon dioxide. One nanometer is about half the size of a DNA molecule. (Color added for clarity) (Credit: Lehigh University Center for Advanced Materials and Nanotechnology)

ScienceDaily (Sep. 8, 2008) — For most of us, gold is only valuable if we possess it in large-sized pieces. However, the "bigger is better" rule isn't the case for those interested in exploiting gold's exceptional ability to catalyze a wide variety of chemical reactions, including the oxidation of poisonous carbon monoxide (CO) into harmless carbon dioxide at room temperatures.

That process, if industrialized, could potentially improve the effectiveness of catalytic converters that clean automobile exhaust and breathing devices that protect miners and firefighters. For this purpose, nanoclusters—gold atoms bound together in crystals smaller than a strand of DNA—are the size most treasured.

Using a pair of scanning transmission electron microscopy (STEM) instruments for which spherical aberration (a system fault yielding blurry images) is corrected, researchers at the National Institute of Standards and Technology (NIST), Lehigh University (Bethlehem, Pa.) and Cardiff University (Cardiff, Wales, United Kingdom) for the first time achieved state-of-the-art resolution of the active gold nanocrystals absorbed onto iron oxide surfaces. In fact, the resolution was sensitive enough to even visualize individual gold atoms.

Surface science studies have suggested that there is a critical size range at which gold nanocrystals supported by iron oxide become highly active as catalysts for CO oxidation. However, the theory is based on research using idealized catalyst models made of gold absorbed on titanium oxide. The NIST/Lehigh/Cardiff aberration-corrected STEM imaging technique allows the researchers to study the real iron oxide catalyst systems as synthesized, identify all of the gold structures present in each sample, and then characterize which cluster sizes are most active in CO conversion.

The research team discovered that size matters a lot—samples ranged from those with little or no catalytic activity (less than 1 percent CO conversion) to others with nearly 100 percent efficiency. Their results revealed that the most active gold nanoclusters for CO conversion are bilayers approximately 0.5-0.8

nanometer in diameter (40 times smaller than the common cold virus) and containing about 10 gold atoms. This finding is consistent with the previous surface science studies done on the gold-titanium oxide models.

Journal reference:

1. A.A. Herzing, C.J. Kiely, A.F. Carley, P. **Landon and G.J. Hutchings. Identification of active gold nanoclusters on iron oxide supports for CO oxidation**. *Science*, Vol. 321, Issue 5894, Sept. 5, 2008

Adapted from materials provided by National Institute of Standards and Technology.

http://www.sciencedaily.com/releases/2008/09/080905215954.htm

As Easy As 1, 2, 3: Number Sense Correlates With Test Scores

Spots before their eyes. (Credit: Image courtesy of Johns Hopkins University)

ScienceDaily (Sep. 8, 2008) — Knowing how precisely a high school freshman can estimate the number of objects in a group gives you a good idea how well he has done in math as far back as kindergarten, researchers at The Johns Hopkins University found.

Good "number sense" at age 14 correlates with higher scores on standardized math tests throughout a child's life up to that point and weaker "number sense" at 14 predicts lower scores on those standardized tests, said Justin Halberda, assistant professor of psychological and brain sciences in the university's Krieger School of Arts and Sciences.

"We discovered that a child's ability to quickly estimate how many things are in a group significantly correlates with that child's performance in school math for every single year, reaching all the way back to when he or she was in kindergarten," Halberda said.

Halberda teamed up on the research with colleagues Michèle Mazzocco, associate professor of psychiatry and behavioral sciences in the Johns Hopkins School of Medicine and researcher at the Kennedy Krieger Institute, and Lisa Feigenson, also a Johns Hopkins assistant professor of psychological and brain sciences. The results of their investigation are scheduled for advance online publication by the journal Nature on Sept. 7.

Though people often think of mathematics as a pinnacle intellectual achievement of humankind, research reveals that some intuition about numbers, counting and mathematical ability is basic to almost all animals. For example, creatures that gather or hunt for food keep track of the approximate number of food items they procure in order to return to the places where they get the most sustenance. Humans share this very basic "number sense," allowing them, at a glance, to estimate the number of people in a subway car or bus, Halberda says.

The Johns Hopkins team wondered whether this basic, seemingly innate number sense had any bearing on the formal mathematics that people learn in school. So the researchers asked 64 14-year-olds to look at

flashing groups of yellow and blue dots on a computer screen and estimate which dots were more numerous. Though most of the children easily arrived at the correct answer when there were (for example) only 10 blue dots and 25 yellow ones, some had difficulty when the number of dots in each set was more nearly equal. Those results helped the researchers ascertain the accuracy of each child's individual "number sense."

They then examined the teenagers' record of performance in school math all the way back through kindergarten, and found that students who exhibited more acute number sense had performed at a higher level in mathematics than those who showed weaker number sense, even controlling for general intelligence and other factors.

"What this seems to mean is that the very basic number sense that we humans share with animals is related to the formal mathematics that we learn in school," Halberda concludes. "The number sense we share with the animals and the formal math we learn in school may interact and inform each other throughout our lives."

Though the team found this strong correlation between number sense and scholastic math achievement, Halberda cautions against concluding that success or failure in mathematics is genetically determined and, therefore, immutable.

"There are many factors that might affect a person's performance in school mathematics," Halberda says, "What is exciting in our result is that success in formal mathematics and simple math intuitions appear to be related."

Future directions for research include investigating the trainability of one's number sense and seeing whether early help in number sense could affect later formal math learning.

Funding for this research was provided by the National Institutes of Health.

Adapted from materials provided by Johns Hopkins University.

http://www.sciencedaily.com/releases/2008/09/080907211940.htm

Smoke Smudges Mexico City's Air, Chemists Identify Sources

Haze hangs over Mexico City. (Credit: Kimberly Prather, UC San Diego)

ScienceDaily (Sep. 8, 2008) — Mexico City once topped lists of places with the worst air pollution in the world. Although efforts to curb emissions have improved the situation, tiny particles called aerosols still clog the air.

Now, atmospheric scientists from UC San Diego and six other institutions have sorted through the pall that hangs over the city to precisely identify aerosols that make up the haze and chart daily patterns of changes to the mix.

This forensic work will help to identify the sources of these persistent pollutants, which plague other megacities in places like China and India as well. With this information, leaders will be better able to develop policies that will effectively clear the air.

Using an instrument that can quickly read the size and chemical fingerprint of individual particles one-by-one in real time, the scientists saw a daily rhythm in the chemical makeup of Mexico City's smog. Metal aerosols spiked in the early morning, contributing up to 73 percent of the particles they measured. By afternoon, shifting winds swept these industrial emissions away but blew in smoke particles from fires set to clear agricultural fields or burning in the hills south of the city. Burned bits of biomass accounted for as much as 76 percent of the smallest particles when strong winds flowed directly from the fires, they found.

"Nobody really knew that these kinds of aerosols were so abundant in the center of the city," said Kimberly Prather, professor of chemistry and biochemistry at UC San Diego and senior author on both papers. "Our instrument brings in a new level of precision by allowing us to identify high levels of specific pollutants that occur in transient peaks. A harmful type that is present in high amounts for just a

few hours might be overlooked in a sample collected over the course of an entire day and night. But if you live nearby, you still breathe air with concentrated pollutants.

Aerosols with the chemical signature of incinerated waste peaked most weekday mornings during the 20-day study period, the team reports in the early online edition of Environmental Science and Technology. From the top of a building in a mixed industrial and residential area in the northern part of the city, they saw an influx of aerosols that were a combination of lead, zinc and chloride mixed with soot between midnight and 10:00 am.

Although the source of these mixed-metal particles can't be determined with complete certainty from the data collected in this study, the pattern matched that found by a previous study of fly ash from incinerators burning municipal waste. Emissions from smelting, another possible source of metal aerosols, tend not to include chloride or phosphorous, both of which were mixed in with the morning metal aerosols. An absence of metals in the air on weekends and during a holiday, when industrial incinerators were closed, bolsters the case for pinning metals in the air onto burning waste.

"If you were to burn electronic waste, you would get particles very similar to these," said Ryan Moffet, lead author on both papers and a former graduate student at UC San Diego. Moffet now studies atmospheric aerosols at the Lawrence Berkeley National Laboratory.

The source of smoke particles is more clear. Satellite images taken during the experiment show a swath of fires burning in the hills surrounding Mexico City. By matching the types of smog bits they captured to the wind patterns each day, the team was able to attribute the afternoon influx of freshly burned biomass to these distant fires. Winds picked up each morning after 11:00 am, blowing the industrial waste away and bringing smoke from the fires to the south, they report in a forthcoming issue of the journal Atmospheric Chemistry and Physics.

Fuel burned by street vendors also contributes to smoke in the city, the scientists say. "A lot of people use charcoal on the streets to cook their food," Moffet said, "not only in Mexico City but also in cities in China and India that also struggle with air quality."

The project was part of the MILAGRO campaign (the Megacity Initiative: Local and Global Research Observations) conducted in March 2006 when scientists from more than 60 research institutions descended on Mexico City to study the composition of its smog and how it is transformed and transported regionally and globally.

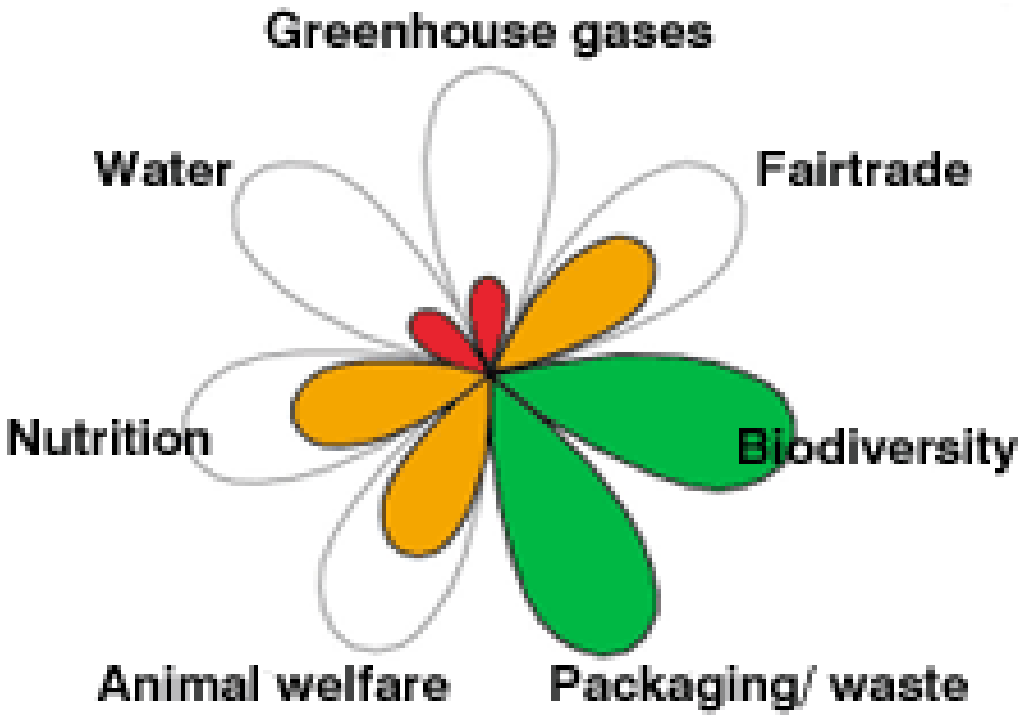
The National Science Foundation, Department of Energy, and the Mexico City Metropolitan Area Environmental Commission supported the study of metal aerosols. The National Science Foundation also supported the study of smoke particles.

Adapted from materials provided by University of California - San Diego.

http://www.sciencedaily.com/releases/2008/09/080903172459.htm

Foods 'should label up eco-costs'

By Jennifer Carpenter
Science reporter, BBC News, Liverpool



Food packaging could be embedded with computer chips that instantly link your phone to an on-line sustainable food guide, a UK conference has heard.

The guides would help consumers navigate their way through the ethical and ecological decisions about what they eat, the proponents argue.

The UK should lead Europe on this approach, food policy expert Professor Tim Lang said.

He was speaking at the British Association Science Festival.

Ethical impact

The criteria used to judge food sustainability are still up for debate.

"Do I eat green beans from Kenya, because they are good for me, or do I say no because there are four litres of water embedded in each stem of green bean?" asked Professor Lang, from City University, London.

He said scientists and policy-makers now realised the environmental, ethical, and health impacts of the food we ate.

Producers needed to find a way to present this information to the consumer, he told the conference.

He outlined a number of criteria that consumers should consider when buying food: how much energy and water are used to produce each calorie of food; what is the impact of the food item on climate, biodiversity, and the labour-force of the country it was grown in, and what are the health and financial costs of food.

Criteria agreement

"Packaging could be the point of entry for [this] information," said Professor Lang.

Information on socio-economic and environmental criteria could be presented simply through "food flowers" - diagrams where each petal represents a different impact, with the shaded area of a petal showing how highly a food item scores.

The more detailed information could be accessed from a website and uploaded from food packaging to our mobile phones.

There would, however, need to be universal agreement on which issues should be reflected in the labels.

"That needs governments to agree with companies, to agree with civil society to agree what those criteria are," explained Professor Lang.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7604996.stm

Published: 2008/09/08 23:50:31 GMT

Hugging benefits fractious chimps

By Jonathan Amos
Science reporter, BBC News, Liverpool

If you have just had a big falling out with a colleague, there is nothing better than the comforting and consoling arm of a good friend.

Chimps, it seems, feel the same way, according to a study at Chester Zoo.

The research is said to provide the first evidence that consolation in primates, such as hugging and stroking, can reduce stress levels after a fight.

The behaviour could indicate some level of empathy, Dr Orlaith Fraser told the British Association Science Festival.

"We can't actually say what's going on in a chimpanzee's mind; we can only deduce from their behaviour what's going on," the Liverpool John Moores University researcher said.

"Because this behaviour is actually reducing stress levels and it's being offered by a valuable partner, it seems likely that this is an expression of empathy."

A bit of sympathy

Dr Fraser and colleagues spent 18 months observing 22 adult chimps at Chester Zoo.

They watched closely what happened immediately after the animals had a scrap - perhaps a fight over food, a mate or simply where to sit.

In about 50% of cases, the victim in the fight would be consoled by another member of the group. The soothing was always done by a valuable - or best - friend, a chimp with whom the victim would routinely play or share food.

The consolation usually took the form of a kiss or embrace, a grooming session or even play.

The scientists could see that this activity had the effect of reducing stress levels, indicated by the return to the animals' normal activities of self-scratching and self-grooming.

"Sympathetic concern" has also been observed in gorillas, bonobos, dogs and even rooks - but it is the calming effect that it had on the Chester Zoo chimps which is said to be a new observation.

"If these chimpanzees are actually motivated by empathy to console victims of aggression, they must first of all be able to recognise that the victim is distressed and then they must know what to do in order to act appropriately to respond to this distress," said Dr Fraser.

"This is something often thought to be a unique trait to humans, so understanding the link between consolation and stress reduction in chimpanzees is an important step towards understanding whether or not chimpanzees are capable of this level of empathy."

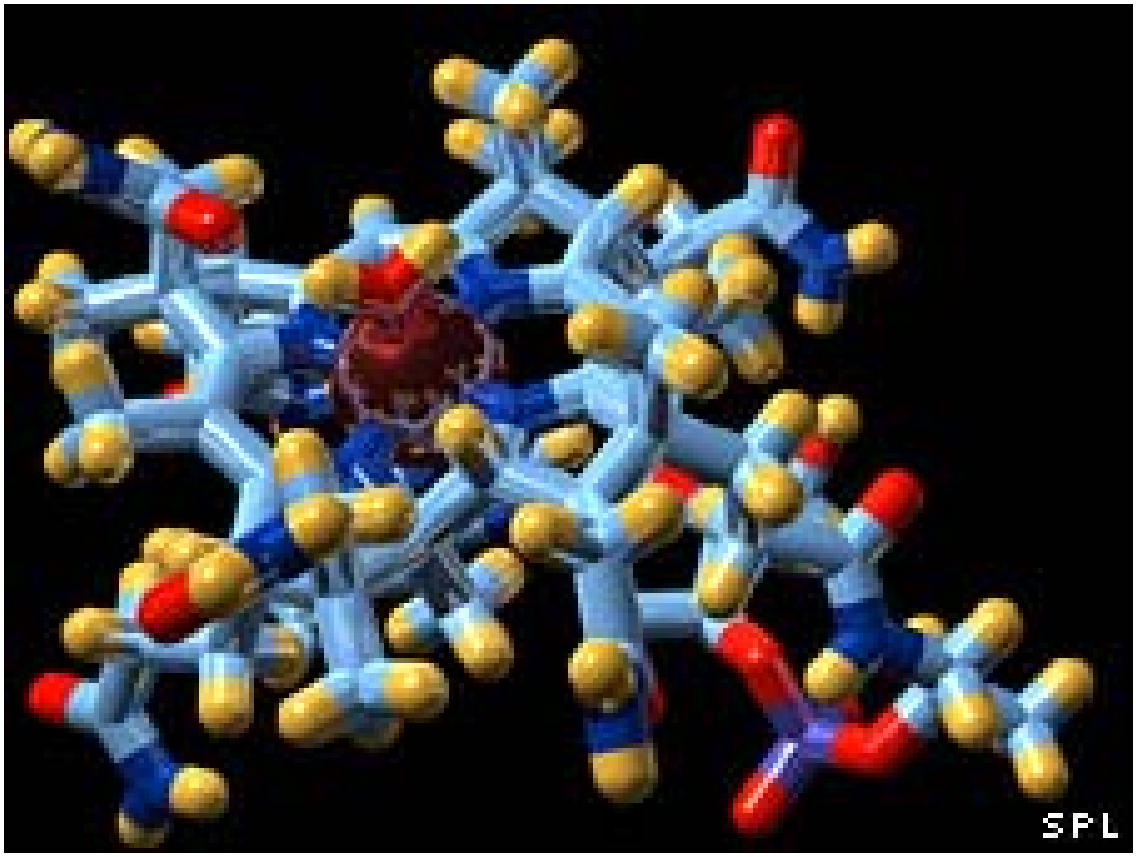
The results of the Chester Zoo study were recently published in the journal Proceedings of the National Academy of Sciences.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7603691.stm

Published: 2008/09/08 10:01:23 GMT

Vitamin 'may prevent memory loss'

A vitamin found in meat, fish and milk may help stave off memory loss in old age, a study has suggested.



Older people with lower than average vitamin B12 levels were more than six times more likely to experience brain shrinkage, researchers concluded.

The University of Oxford study, published in the journal Neurology, tested the 107 apparently healthy volunteers over a five-year period.

Some studies suggest two out of five people are deficient in the vitamin.

> **The rate of shrinkage of the brain as we age may be partly influenced by what we eat**
> Professor David Smith
> Oxford University

The problem is even more common among the elderly, and recent moves to supplement bread with folic acid caused concern that this could mask B12 deficiency symptoms in older people.

The Oxford study looked at a group of people between 61 and 87, splitting it into thirds depending on the participants' vitamin B12 levels.

Even the third with the lowest levels were still above a threshold used by some scientists to define vitamin B12 deficiency.

However, they were still much more likely to show signs of brain shrinkage over the five-year period.

Liver and shellfish

Professor David Smith, who directs the Oxford Project to Investigate Memory and Ageing, said he now planned a trial of B vitamins in the elderly to see if taking them could slow brain shrinkage.

He said: "This study adds another dimension to our understanding of the effects of B vitamins on the brain - the rate of shrinkage of the brain as we age may be partly influenced by what we eat."

Shrinkage has been strongly linked with a higher risk of developing dementia at a later stage and Rebecca Wood, the chief executive of the Alzheimer's Research Trust, said further research was needed.

"This study suggests that consuming more vitamin B12 through eating meat, fish, fortified cereals or milk as part of a balanced diet might help protect the brain. Liver and shellfish are particularly rich sources of B12.

"Vitamin B12 deficiency is a common problem among elderly people in the UK and has been linked to declining memory and dementia."

Dr Susanne Sorensen, from the Alzheimer's Society said: "Shrinkage is usually associated with the development of dementia.

"As vitamin B may be given as a food supplement, it may be useful to include tests of vitamin B levels in the general assessment of health of older individuals.

"This is another example of why it is crucial for people to lead a healthy lifestyle with a balanced diet rich in B vitamins and antioxidants.

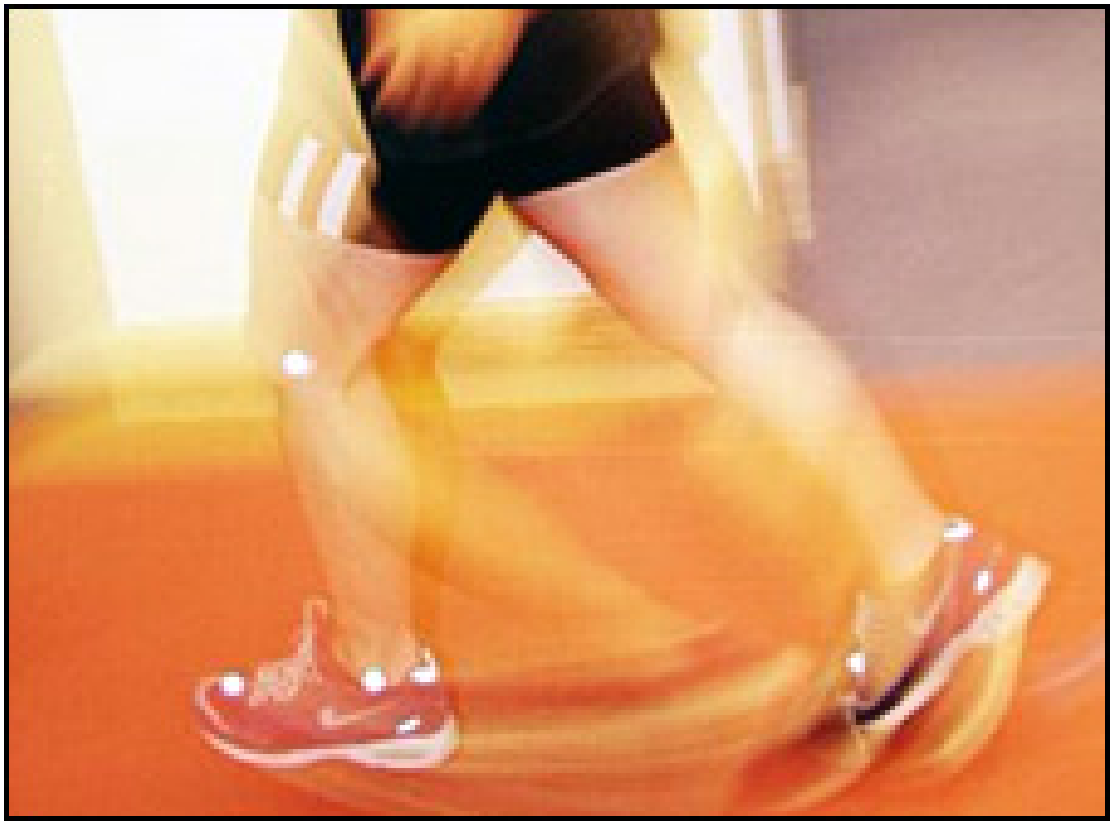
"The best way to reduce your risk of developing dementia is to keep active, eat a balanced diet, don't smoke and visit your GP to get your blood pressure and cholesterol checked."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7595423.stm

Published: 2008/09/09 13:59:40 GMT

Child exercise estimates 'wrong'

Parents vastly overestimate the amount of time their children spend exercising, research suggests.



On average they claimed their offspring took more than two hours exercise a day - while the truth was less than 30 minutes for both boys and girls.

The government recommends at least an hour a day - but specialists say it is impossible for parents to work out how much their child is doing.

The study was published in the journal Archives of Disease in Childhood.

> **What this shows is that parents really don't have a clue what their children are doing in terms of exercise**
> Professor Terry Wilkin
> Peninsula Medical School

One in three 11-year-olds in the UK is said to be overweight or obese, using the body mass index method of measurement.

The 60-minute recommendation was introduced in an effort to stave off the advance of obesity driven by unhealthy eating and sedentary lifestyles.

However, the evidence to support it is less clear and the latest study, by scientists at the Universities of Glasgow and Newcastle, suggests that monitoring it is equally problematic.

They fitted 130 six and seven-year-olds with an "accelerometer", a portable recording device worn on a waist belt, and left it there for a week.

This measured exactly how much the child was moving during the day, working out how much time was spent on vigorous activity, such as brisk walking, running and sport.

They then asked their parents how much exercise they thought that their children had done during the week.

The parents provided an optimistic picture - with 83% of boys and 56% of girls reported to be meeting the 60-minute guideline.

Off the mark

Unfortunately, the accelerometer readings showed that in fact, only 3% of boys and 2% of girls had met the target.

Parents claimed an average of 146 minutes of moderate or vigorous activity a day, compared to an average 24 minutes offered by the accelerometer.

Government boffins urgently need to come up with an accurate way of monitoring kids' exercise habits
Professor Alan Maryon-Davis
Faculty of Public Health

The parent questionnaires did not even manage to pick out accurately those with lower levels of activity from those who exercised more.

The study authors called for "marked improvements" in the way physical activity was measured to meet future "public health challenges".

They suggested that more research on the potential benefits of "light exercise" - which made up much of the playing activity of the children measured - might be worthwhile.

Professor Terry Wilkin, from the Peninsula Medical School in Devon, and a researcher into child exercise, said the results were "unsurprising".

He said: "What this shows is that parents really don't have a clue what their children are doing in terms of exercise - they spend most of their day at school, so how would they?

"If put under scrutiny, they will hopelessly overestimate activity levels.

"There is absolutely no basis for the current 60-minute recommendation and, frankly, we should leave that sort of information behind when we are trying to research the exercise levels of children."

Worrying findings

Maura Gillespie, of the British Heart Foundation called the findings "deeply worrying".

She said: "In order to really encourage children to be more active, we believe it is crucial that the environment around them allows for daily exercise.

"The government needs to ensure our streets are attractive and safe for cyclists and pedestrians, encouraging more children to cycle and walk to school safely.

"Neighbourhoods, parks and green spaces need to be well designed and maintained to encourage children to play safely outside."

Professor Alan Maryon-Davis, president of the Faculty of Public Health, said: "This study shows just how inadequate our current information on children's physical activity is.

"Government boffins urgently need to come up with an accurate way of monitoring kids' exercise habits."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7603610.stm

Published: 2008/09/08 23:21:38 GMT

Evidence for Educational Value of Diversity

A relationship exists between the diversity of medical schools and the perceived preparation of white medical students to care for diverse groups of patients, according to a study being published today in the *Journal of the American Medical Association.*

The study found that white students who attend medical schools with greater racial and ethnic diversity in the student body are more likely to rate themselves as highly prepared to care for minority populations. Those white students within the highest quintile for student body diversity, measured by the proportion of underrepresented minority students, were 33 percent more likely to rate themselves as highly prepared to care for minority patients than were those in the lowest diversity quintile. The correlation between diversity and preparedness to care for minority patients was highest at medical schools where students perceived a high degree of interracial interaction.

The findings were based on a survey by the Association of American Medical Colleges to 20,112 graduating medical students (64 percent of graduating students in 2003 and 2004) from 118 medical schools in the United States. Historically black and Puerto Rican medical schools were excluded. For non-white students, the study did not find correlations between student body diversity and preparedness to serve diverse populations.

Generally, the study found that underrepresented minority students were much more likely than other students to plan to practice in areas not well served by medical services. Nearly half of underrepresented minority students plan to do so, while less than 20 percent of other medical students have such plans.

The findings about medical school — and particularly about the impact of diversity on white students — are being praised by supporters of affirmative action as strengthening a crucial legal argument in favor of allowing colleges and universities to consider race and ethnicity in admissions decisions. The Supreme Court's 2003 decision in *Grutter v. Bollinger,* upholding the right to consider race, specifically noted the argument that diversity has educational value and said that affirmative action is not intended simply to help individuals who gain admission under such policies. Similarly, the 1978 Supreme Court decision upholding affirmative action (while barring quotas) in admissions, *Regents of the University of California v. Bakke,* cited educational values — and was decided with regard to medical school admissions, in that case at the University of California at Davis.

The new study's authors write that their work "lends empirical support for the Supreme Court's rationale" for upholding affirmative action in admissions. The study "indicates that a diverse student body is likely to be necessary but not sufficient.... Additionally, our analysis supports the concept of 'critical mass,' whereby a certain proportion of minority students is considered necessary to realize the benefits of diversity."

The authors are Somnath Saha of the Oregon Health and Science University, Gretchen Guiton of the University of Colorado at Denver, Paul F. Wimmers of the University of California at Los Angeles and LuAnn Wilkerson of UCLA.

Roger Clegg, president and general counsel of the Center for Equal Opportunity — a group that opposes the consideration of race or ethnicity in admissions — said in an e-mail that he found the new study "very unpersuasive." He said that the use of self-reporting was "dubious," but that — even if accurate and linked to diversity — he would reject this defense of affirmative action. "It does not follow that the only way to achieve these cross-cultural skills is through a diverse student body (versus, for instance, simply teaching the cross-cultural skills, which are not rocket science — or brain surgery, if you like — in class)." And even if the diversity does lead to better skill with treating a diverse group of patients, he said, that does not mean "that the improved cross-cultural skills are worth the price of discrimination."

— Scott Jaschik

The original story and user comments can be viewed online at
http://insidehighered.com/news/2008/09/10/jama.

The Pool of Potential (Second-Career) Teachers

A new survey finds a large pool of potential teachers among college-educated adults — 42 percent said they would consider entering the field. Those in engineering, science and information technology are "somewhat more likely" to consider teaching, and those who have a postgraduate degree, have attended selective colleges, and report having higher-than-average grades are also disproportionately represented in the potential teacher pool."Two-thirds of them say there's already been a point in their lives when they considered becoming a teacher, so for most of them this is not a brand-new idea," said Geoff Garin, president of Peter D. Hart Research Associates, which conducted the survey on "Teaching as a Second Career" on behalf of the Woodrow Wilson National Fellowship Foundation. The survey is based on interviews with 2,292 college-educated adults aged 24 to 60.

"They are articulate about the reasons why they would consider teaching. And it really comes down to three things," Garin said: the perceptions that teaching meshes with their goals to find personally rewarding careers, contribute to society, and balance work and family responsibilities. "We also know what would be holding them back from becoming teachers, and it really comes down to one word: money."The intractable issue of low teacher pay aside, the foundation also released a synthesis of research on mid-career and second-career teachers, and offers recommendations for improving their recruitment and preparation. Recommendations include expanding short-term opportunities for potential teachers to explore the field, through part-time positions in schools, for instance, before committing to changing their careers, and also tailoring certification and mentoring programs to meet adult students' needs.

"In many ways, the most striking feature of programs for new teachers who have entered the profession at mid-career or later is their lack of difference from more traditional teacher preparation programs for college students and recent graduates," the research synthesis states. "Indeed, some programs admit as much, noting that they have simply collapsed set college coursework into a shortened period of time. One program noted that it had taken '39 semester hours of coursework required in our undergraduate professional preparation program and compact[ed]...it into 24 semester hours.' "The survey attempted to pinpoint characteristics of teacher preparation and licensure programs that are appealing to potential career changers. For instance, 68 percent say that the location of the program is very important. Another 65 percent say that the inclusion of clinical training in real classrooms, with experienced teachers, is very important; 63 percent say that it's very important that training programs be tailored for adults with working experience; and 56 percent say the same regarding the availability of ongoing mentoring and support in the first years in the classroom.

Smaller but significant proportions of respondents rate the program's academic reputation (53 percent) and the availability of health insurance during training (45 percent) as very important. (Among potential teachers with incomes below $75,000, however, 60 percent rate health insurance coverage as very important.)"A shortcoming of many of our traditional programs and many of our alternate route programs is that they don't provide the single most important thing that teachers need to teach, which is a year-long process of being in the classroom of an expert mentor teacher who really knows how to teach," Linda Darling-Hammond, a professor of education at Stanford University, said during a Tuesday conference call detailing the survey results.

"We need to build up the internship or residency experience that you see in medicine," she continued. Darling-Hammond, whose name has been surfacing in conversations about what education policy might look like in a Barack Obama administration, referenced the Democratic presidential candidate's proposal to create more teacher presidency programs, echoed Tuesday during his speech on "A 21st Century Education" in Ohio.

— Elizabeth Redden

The original story and user comments can be viewed online at
http://insidehighered.com/news/2008/09/10/teaching.

World Cancer Declaration Sets Ambitious Targets For 2020

ScienceDaily (Sep. 5, 2008) — A summit of more than 60 high-level policymakers, leaders and health experts have adopted a global plan aimed at tackling the growing cancer crisis in developing countries.

The plan, contained in the World Cancer Declaration, recommends a set of 11 cancer-busting targets for 2020 and outlines priority steps that need to be taken in order to meet them. It was presented Sunday at the close of the World Cancer Congress in Geneva and offered as a global template for governments and other groups to tailor as they devise their own plans to guide local efforts.

"The rise of cancer in less affluent countries is an impending disaster," WHO director-general Dr Margaret Chan told delegates at the opening of the congress this week. "The time is right to make cancer control a development priority."

Chan said she believed that several recent trends in public health make the international community especially receptive to the arguments made in the declaration and responsive to its call to action.

Former UN commissioner for human rights Mary Robinson, who chaired the summit, said cancer control is a human rights issue, tied to the right to health through access to an effective health system.

"Ultimately, it is a question of human rights and above all, it is a question of human dignity. Adoption of the World Cancer Declaration is another step in a real commitment - a vision - of how to tackle this huge world health issue," said Robinson, who is now president of Realizing Rights, a New York-based human rights organization.

Much can be done to tackle cancer in the developing world, the experts said. About one-third of cancer cases can be prevented and another third can be cured if detected early and treated properly.

Targets recommended in the declaration include significant drops in global tobacco consumption, obesity and alcohol intake; universal vaccination programmes for hepatitis B and human papilloma virus to prevent liver and cervical cancer; dramatic reduction in the emigration of health workers with specialist cancer training; universal availability of effective pain medication and the dispelling of myths and misconceptions about the disease.

During the summit, participants made several suggestions for how to meet the targets in the declaration and emphasized certain priorities. The importance of myth reduction and proper pain relief for cancer patients were emphasized. The idea of a global fund for cancer, similar to the Global Fund to fight AIDS, tuberculosis and malaria, was tabled as a possible goal, given that cancer kills more people than those three diseases combined.

Other highlights of the World Cancer Congress closing ceremony include an award to Raul Pitarque and Javier Bou, who won the prize for a symbol to designate smoke-free environments for children. Pitarque and Bou are tobacco activists in Argentina, and their simple but evocative design was judged to be widely useable, communicating effectively across cultures.

Also recognized at the ceremony were the winners from the Reel Lives film festival - the first ever devoted to the theme of cancer. Jan Gassmann from Switzerland was honoured for his film *Chrigu", a moving and surprising portrait of a young man who once had great plans for the future until, at the age of 21, an advanced-stage tumour was found in his neck.

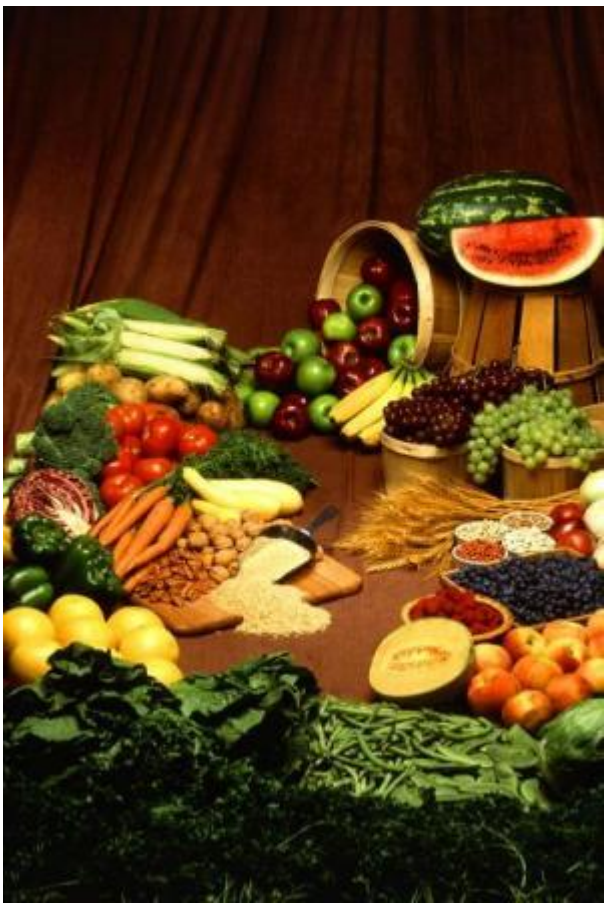
Runners up were "The Truth about Cancer" (USA) for best reportage, The Art of Living (India) for best personal story, The Children of Avenir (Morocco) for best educational or organizational film, and "Hookah" (Israel) for the best public service announcement.

About 25 million people worldwide are living with cancer. It is the second leading cause of death worldwide, accounting for about 13% of all deaths. Last year, cancer killed about 7.9 million people, about 72% of whom were in developing countries. The World Health Organization (WHO) forecasts that by 2030, the annual global death toll will rise to about 11.5 million.

The World Cancer Summit was hosted by the International Union Against Cancer (UICC), the leading international non-governmental organization dedicated to the global control of cancer. The UICC holds a World Cancer Congress every two years. The next World Cancer Congress will meet in Beijing, 18-21 August 2010.

Adapted from materials provided by International Union Against Cancer.

New Evidence On Folic Acid In Diet And Colon Cancer



Foods containing high levels of folate, such an assortment of fruits and vegetables, are an important part of a healthy diet. Researchers report new details on the link between low folate intake and an increased risk for colon cancer. (Credit: USDA Agricultural Research Service)

ScienceDaily (Sep. 5, 2008) — Researchers in the United Kingdom and Texas are reporting a new, more detailed explanation for the link between low folate intake and an increased risk for colon cancer, the second leading cause of cancer death in the United States.

Their study reinforces the importance of folate in a healthy diet.

Susan Duthie and colleagues note that researchers have known for years that a deficiency of folate, one of the B vitamins commonly called folic acid, increases the risk of birth defects. As a result, manufacturers enrich some foods with folate.

Scientists also have found that low folate in the diet increases the risk of developing colon cancer in adults. However, scientists lack an adequate explanation of how folate depletion affects the genes, proteins, and cells involved in cancer.

In this new research, scientists grew human colon cells in folate-depleted and folate-enriched tissue culture. They found that folate depletion caused increased DNA damage and a cascade of other biological changes linked to an increased cancer risk.

Journal reference:

1. Duthie et al. **The Response of Human Colonocytes to Folate Deficiency in Vitro: Functional and Proteomic Analyses**. *Journal of Proteome Research*, 2008; 7 (8): 3254 DOI: 10.1021/pr700751y

Adapted from materials provided by American Chemical Society.

http://www.sciencedaily.com/releases/2008/09/080901215125.htm

Molecular Evolution Is Echoed In Bat Ears

The big-eared horseshoe bat, Rhinolophus macrotis. (Credit: Photo by Professor Gareth Jones)

ScienceDaily (Sep. 4, 2008) — Echolocation may have evolved more than once in bats, according to new research from the University of Bristol.

Professor Gareth Jones of the University of Bristol and Dr Stephen Rossiter of Queen Mary University of London, in collaboration with colleagues from East China Normal University in Shanghai, investigated the evolution of a gene called Prestin in echolocating bats – mammals with the most sensitive hearing at high frequencies.

Prestin codes for a protein of the outer hair cells – the tiny structures in the inner ear that help to give mammals their sensitive hearing.Important mutations occurred during the emergence of mammals that led to the evolution of Prestin from similar proteins. Since mammals evolved, it has been argued that the Prestin gene has changed little.

The researchers studied the Prestin DNA sequence in a range of echolocating bats and fruit bats, which do not echolocate. They found that parts of the gene appear to have evolved to be similar in the distantly related echolocating species. Furthermore, they could not find any evidence of genetic changes in the Prestin of fruit bats that might be expected from a loss of high frequency hearing.

If Prestin does indeed help bats to hear their high-pitched echoes, then these results appear to support the idea that echolocation has evolved more than once in bats. This apparent independent evolution of a trait in distant relatives is known as convergence, a term that is more commonly used to describe the physical features of species that live in similar habitats and face similar selection pressures, such as the spines of hedgehogs and porcupines. Examples of convergence at a molecular level are very rare.

Professor Jones and Dr Rossiter said: “If hearing were an Olympic event, echolocating bats would be strong medal contenders. Their ears are tuned to higher sound frequencies than those of any other mammals because they need to listen to the returning echoes of their ultra-sonic calls.

"In recent years, scientists have discovered the curious fact that echolocating bats do not all group together in the evolutionary tree of life, but instead, some are more related to their non-echolocating cousins, the fruit bats. This has raised the question of whether echolocation in bats has evolved more than once, or whether the fruit bats lost their ability to echolocate.

"Evolutionary biologists have long appreciated that morphological similarities may not reflect evolutionary affinities among animals because of convergent evolution – similar lifestyles can cause distantly related animals to resemble one another when they occupy similar environments because natural selection will favour similar outcomes.

"Now the same seems to be true for gene sequences – the need to echolocate can cause genes to converge in their structure. Our study suggests that scientists should be cautious when inferring evolutionary relationships from genes that may be involved in important functions and, therefore, could be shaped by convergent evolution ."

Journal reference:

1. Gang Li, Jinhong Wang, Stephen J. Rossiter, Gareth Jones, James A. Cotton, and Shuyi Zhang. **The hearing gene Prestin reunites echolocating bats**. *PNAS*, (in press)

Adapted from materials provided by University of Bristol.

http://www.sciencedaily.com/releases/2008/09/080904102756.htm