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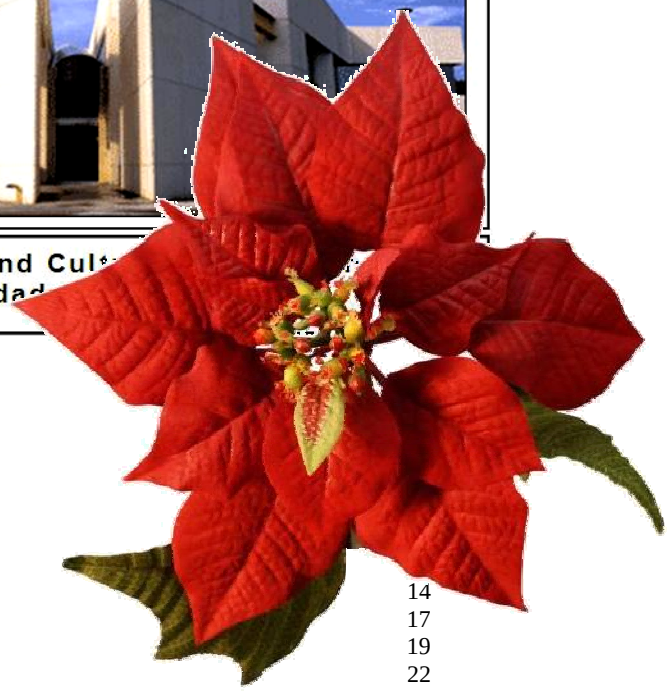

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World 'must tackle space threat'

By Julian Siddle
Science reporter, BBC News

The international community must work together to tackle the threat of asteroids colliding with Earth, a leading UN scientist says.

Professor Richard Crowther's comments come as a group of space experts called for a co-ordinated science-led response to the asteroid threat.

The Association of Space Explorers (ASE) says missions to intercept asteroids will need global approval.

The UN will meet in February to discuss the issue.

In the ASE report, the group of scientists and former astronauts point to the historical record to highlight the dangers of asteroids; an impact 65 million years ago may have wiped out the dinosaurs, and the Tunguska impact in 1908 produced a 2,000 sq km fire in Siberia, big enough to engulf a city the size of New York.

They say the next major threatening event could occur in less than 20 years. Asteroid Apophis is due to pass close to the Earth and analyses suggest a one in 45,000 chance of a collision.

An impact by Apophis would generate the equivalent of a 500 megatonne blast, at least 100 times more powerful than the Siberian event.

Professor Crowther of Britain's Science and Technology Facilities Council (STFC), is the chair of the UN Working Group on Near Earth Objects. He says the threat needs to be taken seriously.

"The issue is it's a single event, potentially causing a large number of casualties," be told BBC News.

The UN broadly agrees that action is necessary, though what form this should take is still under discussion.

Collision course

Professor Crowther welcomed the ASE report and said it would be discussed by the UN action team tasked with coming up with a plan, when they meet next February.

"A lot of what's in the report is consistent with what we're suggesting anyway, there needs to be effective scientific co-ordination, enough observatory time, and people looking in the right place at the right time."

The document says most asteroids entering the Earth's atmosphere are small and burn up before reaching the surface. But it is the larger ones - perhaps 200m or more across - that would need to be deflected away from a collision course with the Earth.

The researchers propose several ways of doing this, the most extreme methods being to crash a spacecraft into the asteroid to knock it off course, or to set off a nuclear explosion. They say the earlier the threat is dealt with, the less drastic the course of action need be.

Professor Crowther says the natural forces of gravity can be used to deflect asteroids in many situations.

"We can use the natural attraction of a probe to one of the bodies, to slowly pull the object away."

He says if done at sufficient distance from the Earth, the orbit of an asteroid can be changed slightly to take it away from a collision path.

ASE propose combining scientific monitoring and research with a global political strategy.

Professor Crowther says the scientific consensus is already broadly in place, but political consensus may take longer.

"We have to decide on a political framework, who's going to act and under what authority. That's clearly a role for the UN within the next two to three years. The key is to get it done before it's needed, when people are much more reasonable, rational and objective."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7760659.stm

Published: 2008/12/02 17:42:49 GMT

In E-mail, the Truth Is E-lastic

People lie much more often when using electronic communication rather than paper, business profs find.

By: Tom Jacobs | December 01, 2008 | 11:48 AM (PST)

That winking emoticon may be more revealing than we realize, ;) . A new study suggests people are more likely to lie using e-mail than other forms of written communication.

In the latest in an ongoing series of studies of how our behavior changes when we interact via e-mail, researchers Terri Kurtzberg of the Rutgers University Business School, Charles Naquin of DePaul University and Liuba Belkin of Lehigh University report many people feel free to fib using the popular form of high-tech communication. Their paper, which has yet to be published, strongly suggests the "e" in e-mail does not stand for "ethics."

"In previous studies, we found there was less trust, less cooperation in e-mail communications," Kurtzberg said in a telephone interview. "Generally speaking, people seem to have a harder time building relationships in the context of e-mail as opposed to communicating via paper. We had some indications that people were more willing to justify bad behavior (via e-mails); we thought lying might be the next piece. Sure enough, we saw a consistent effect."

Kurtzberg and her colleagues created "a stripped-down task" to test their thesis. "There wasn't a lot of context," she noted. "We told people, 'Here's a fictitious pot of money. Divide it between yourself and another person. Tell them how big the whole pot was and how much their share is.'"

The study participants — 48 full-time MBA students — controlled all the information. Half of them informed the other person of their "winnings" via a handwritten note; the other half sent e-mails.

In most cases, "What they chose to do was make themselves look fair," she said. "They reduced the amount they reported. Instead of saying, 'There's $89 dollars here to split' (which was the actual amount),

they'd say, 'There's $69 here to split, and I'm giving you $32.' It was important to maintain the illusion of honesty and fairness."

While that was true of both groups of participants, those who conveyed the information electronically were 50 percent more likely to lie. Specifically, 92 percent of those who communicated via e-mail were dishonest, compared with 62 percent of those who informed their partner via pen and paper.

"We (deliberately) made it easy for them to lie," Kurtzberg said. "There was no accountability. We told them the other side would never know the truth.

"On the other hand, this was not real money! There was nothing at stake, so there was no reason for them not to be the good guy. Yet the instinct to pull a fast one over e-mail was that much stronger."

In a follow-up test, the researchers looked at the question of whether people would be more honest if they felt some identification with the people they were swindling."We divided them into two groups," she said. "In one, they supposedly shared money with students from their own school, while in the second, they shared it with students from a different school. All of them in this test used e-mail. We still saw a tremendous amount of lying — 79 percent, give or take."

Why do people feel less pressure to tell the truth in an e-mail? Kurtzberg suspects the answer lies in "the norms we hold in our heads regarding what's acceptable behavior."

She noted that previous studies have shown the rate of lying is highest in telephone conversations. Scholars have hypothesized that is due to the presumed impermanence of the interaction. We assume we are more likely to get away with a lie during a casual chat, since it occurs in a fleeting moment and there's no record of it.Kurtzberg suspects we regard e-mail as similarly ephemeral.

"I think people have a slightly mistaken gut reaction to typing e-mails. We think of them as fleeting, when in truth they're anything but. We've seen some big corporate figures to get caught (by e-mail evidence). They're significantly harder to contain or erase than a piece of paper.

"This is just conjecture, but I suspect that as we see the generation that grew up using e-mail as a social tool enters the work force, they're imperfectly making the transition to using it as a professional tool. People who grew up with e-mail as a chit-chat tool don't feel that it's formal; they consider it more like an off-the-cuff conversation. So this problem may get worse before it gets better."E-mail, she notes, is a relatively new phenomenon; the rules of correct behavior have yet to be codified. "We need to set expectations for e-mail use," she said. "The more precise we get about what this tool is and how it should be used, I suspect it'll fall in line with other, similar forms of communication."

So after doing this research, is she more suspicious of the notes that appear in her in-box? "Not in day-to-day communications," she said. "I don't feel that the kind of information I send and receive over e-mail is particularly conducive to somebody else acting in a self-serving way.

"But were we having some sort of negotiations — some sort of communication where I needed something specific, and you had a vested interest in not giving it to me — my red flag would go up."
Hmm. Is there an emoticon denoting distrust? : (

http://www.miller-mccune.com/article/in-e-mail-the-truth-is-e-lastic

Getting a Handle on Why We Sleep

New research shows just how harmful insomnia is and how necessary sleep remains.

By: Michael Haederle | November 25, 2008 |

Sleep. It's something everyone likes to do and can't seem to do without.

Yet many Americans do with a lot less than they'd like. Suffering from chronic insomnia, they know all too well the deadening fatigue that follows interrupted sleep. But while the mental misery of sleeplessness is well documented, some eye-opening new reports warn serious health woes may await those who don't get enough shut-eye.

Sleep researchers at UCLA have found, for example, that losing even a single night's sleep causes the body's immune system to turn on healthy tissues. That may implicate sleep deficits in cardiovascular disease, some cancers, obesity, arthritis, diabetes and various autoimmune disorders.

Heavy snoring was found to be an independent risk factor for carotid atherosclerosis, raising the risk for stroke, according to research done at the University of Sydney in Australia, and a study by Dutch scientists showed that insomnia compromised cognitive processes related to verbal fluency, actually damping down the activity of the brain's prefrontal cortex.

Researchers used to regard lost sleep as more of an inconvenience than a health risk, says Dr. Chiara Cirelli, a sleep researcher in the department of psychiatry at the University of Wisconsin, Madison. "Now we know that sleep restriction for even a week has very profound cognitive effects."

It's enough to keep one up at night. More than a third of adults report having had some insomnia symptoms within a given year, according to the American Insomnia Association, and 10 to 15 percent of adults suffer from chronic insomnia.

The good news is that nonpharmacological strategies can be effective in battling insomnia. These include cognitive-behavioral therapy, which cuts through the spiraling anxiety that perpetuates sleeplessness, and maintaining good bedtime routines.

Scientists still don't know exactly why animals sleep, said Cirelli, whose recent study "Is Sleep Essential?" was published online by *PLoS Biology*. She and colleague Giulio Tononi considered the "null hypothesis" — that sleep is not essential. If that assumption, posed earlier this year by UCLA scientist Jerome Siegel, is correct, one would expect to find animals that don't sleep and animals that don't need recovery sleep when sleep-deprived. There also should be no serious consequences to going without sleep.

In "Do All Animals Sleep?" published in *Trends in Neuroscience*, Siegel cited some creatures that seem to do without sleep, including dolphins, which constantly surface to breathe. But dolphins exhibit "unihemispheric sleep," in which one side of the brain remains active while the other rests.

"The existence of unihemispheric sleep is some of the best evidence that sleep is important," Cirelli argued.

Cirelli and Tononi also discounted reports that some animals don't seem to need recovery sleep, concluding, "Sleep is present and strictly regulated in all animal species that have been carefully studied so far." Meanwhile, studies have shown that rats and flies die when deprived of sleep. Other creatures — including people — experience brief episodes of microsleep during waking hours as the brain tries to re-regulate itself.

Sleep-deprived people often don't know just how badly they're affected even though they are frequently drifting into microsleep, Cirelli said. "They get worse and worse, although subjectively they think they get better," she said. "One second you are perfectly fine, and the next second you are bad. You keep oscillating up and down, up and down."

But if sleep is indeed essential, what purpose does it serve? Cirelli and Tononi speculate that it has to do with how learning affects the brain's synapses — the junctures where neurons meet and exchange neurotransmitters.

"The function of sleep is a very basic cellular function, which is to maintain synaptic homeostasis," Cirelli said. As we go through our day, absorbing new information, the synapses become stronger, requiring ever-greater energy consumption. But during sleep, neurotransmitter levels drop as the neurons grow quiet and return to their original state.

Until recently, sleep research focused on behavior and the fluctuations of brain waves as measured by electroencephalograms (EEG). But now, thanks to functional magnetic resonance imaging (fMRI), scientists can get a real-time look at how the brain is affected by sleep deprivation.

In Amsterdam, Ellemarije Altena, a doctoral student at the Netherlands Institute for Neuroscience, recruited 21 older Dutch people suffering from chronic insomnia, matching them with 12 controls. The patients, who ranged from age 50 to age 75, had been suffering from insomnia for at least two and a half years.

According to a study titled "Prefrontal Hypoactivation and Recovery in Insomnia," published recently in the journal *Sleep*, Altena and her collaborators had subjects perform verbal fluency tests while undergoing fMRI scans. And while the insomniacs did just as well on the tests (in which they might, for example, be asked to think of as many words as possible beginning with a certain letter), the scans showed they had less activity in the left medial prefrontal cortex and the left inferior frontal gyrus, two fluency-specific brain regions.

Altena said those regions are involved in verbal "inventiveness," which often declines in patients with Parkinson's or Alzheimer's. The insomnia sufferers' ability to handle the test may mean that the test wasn't that difficult. Altena also speculates that there might be "some compensatory activation" of another part of the brain, although that might differ from one patient to another.

The study was significant because most previous research on sleep deprivation has occurred in laboratory conditions, Altena said. Thanks to fMRI and other new technology, "There's now more focus on natural insomnia."

The good news was that the deficits were at least partially reversible with sleep therapy. Patients, who kept a sleep diary, initially had their time in bed limited. As their sleep efficiency increased, they could stay in bed for longer periods. "The motivation for them to be treated for their insomnia was very, very high," Altena explained.

Patients were provided with bright lights during the morning and evening to help reset their inner clock. They were also advised to take warm baths a couple of hours before retiring to dissipate heat and normalize their core temperature.

Sleep therapy improved the insomnia sufferers' sleep efficiency by 14.5 percent. Moreover, their brain scans showed the affected prefrontal regions were partly restored. "It's very important to investigate these tasks in other age groups and see if these results hold for the other age groups," Altena said.

http://www.miller-mccune.com/article/getting-a-handle-on-why-we-sleep

A Faculty Caste System?

WASHINGTON — As many institutions begin to designate and differentiate graduate faculty from regular faculty, they run the risk of creating something akin to an academic caste system. But with careful thought and planning, two speakers at a session of the annual meeting of the Council of Graduate Schools said Thursday, that does not have to be the case.

Priscilla Kimboko, the founding dean of graduate studies at Grand Valley State University, in Grand Rapids, Mich., has been charged with establishing just such a designation at her institution. Its accreditor — the North Central Association of Colleges and Schools — encouraged the university to consider such a change so that it might further follow the guidance it offers institutions on determining qualified faculty members.

Kimboko argued that such a designation of graduate faculty would improve the quality of instruction at her graduate school. She also said it would ensure that active, publishing scholars would be available to help graduate students with dissertations and theses. Working with her colleagues in the graduate council and senate, Kimboko created a model of how graduate faculty should be defined. In most cases, this designation is for general faculty members who are qualified to teach in the graduate school as well.

Officials at Grand Valley, she noted, compared the university to its "peer institutions" and reviewed their standards for graduate faculty, if these peer institutions designated some professors as graduate faculty. Through this work, Grand Valley officials realized the need to specify "levels of appointment or engagement" in graduate education, as different disciplines at the graduate level demand different qualifications of their faculty members. They also discovered the need to establish standards for adjunct appointments at the graduate level, as these individuals might be qualified for certain positions but not others. Kimboko, however, acknowledged the inherent difficulty of this task.

"For an institution that prides itself on everyone being equal, the idea of levels can be troubling," Kimboko said. "People often claim that achieving the graduate-faculty designation places them at a higher level."

She proposes a three-tiered system of graduate faculty designation, ranging from those "fully engaged" to those serving only as something akin to a lecturer. At the top designation, full graduate faculty engage in all levels of graduate education from instruction and advising to mentoring master's theses and designing curriculums. Kimboko proposes that these individuals should have a terminal degree in their discipline, hold a tenure or tenure-track position, and be active scholars.

In the middle, she defines associate graduate faculty as those who primarily focus on the instruction of graduate students but have secondary roles in curriculum design, advising and mentoring. The proposed Grand Valley model states that these individuals must have a master's degree in an appropriate field with at least five years of related scholarly or professional work after earning their degree.

Finally, at the bottom of the designation, Kimboko qualifies graduate lecturers as those instructing only in specific courses, mostly because of a need in the classroom. There are further standards for graduate faculty who are either adjunct or clinical faculty. Grand Valley's proposal requires that these individuals have either a terminal degree or a master's degree with three years' experience in a professional or academic capacity. Exceptions, she added, could be made for individuals distinguished in their field, such as a famous author on a visiting professorship. Kimboko recommended that these be short, two-year appointments.

In all cases, she said, it is expected, above all, that those among the graduate faculty stay current in their fields and have a sustained engagement in research and scholarship. Those without a "continuous and cumulative record of scholarship" are likely unqualified for a position at the graduate level, she added.

Chief among the potential pitfalls of such designations, Kimboko said, are its impacts on clinical and research faculty at the graduate level. Many times, she noted, institutions rely on individuals with a "strong practice background" but perhaps without a terminal degree, making them less prepared for a

full faculty role. In general, she said these faculty members tend to have a "lack of understanding ... [or] experience with academe."

In all of these designations, she said it was difficult to find the right balance between a candidate's credentials and level currency in their field of study. She added that it was essential for graduate faculty members to be engaged with their full range of responsibilities beyond instruction.

J. David McDonald, graduate school dean at Wichita State University, in Kansas, described a model being implemented there that is similar but not identical. For example, he notes specific terms for all levels among graduate faculty — with those at the top receiving six-year appointments. He also put a greater emphasis on tenure or tenure-track status in achieving appointment to an upper level.

In the loftiest category of the Wichita State model, a full graduate faculty member is the only person with the ability to chair a doctoral dissertation. This extra responsibility, he said, demands the qualification of having served on a thesis or dissertation committee previously, preferably with a leadership role. McDonald said this additional requirement precludes an institution from allowing a newly minted doctorate to chair a board, a position that demands experience.

Individuals wishing to be appointed as graduate faculty at Wichita State originate at the department level, McDonald said. After proper vetting, candidates are then passed along to the academic and graduate deans. A graduate council gives a recommendation to the graduate dean for the final decision. As with the tenure-review process, there is a right to appeal this decision.

Important among the qualifications for all graduate faculty members, McDonald said, is a "substantial interest in graduate education." An individual without sustained scholarly research in her or her field is not a good fit for graduate education, he noted, much as an individual who does not have a desire to work with students in the classroom would not be a good fit.

"It is incumbent upon graduate schools to have an engaged faculty," McDonald said. "We don't want to saddle a graduate student with a faculty member who does not give them the oversight they need."

Some administrators in the audience at the meeting noted the difficulty of implementing such graduate faculty designations at their institutions because of union resistance. One noted that when his institution presented a draft of levels and definition, the faculty union would agree only to definitions that recognized all tenure or tenure-track faculty members as capable of achieving graduate faculty status.

Kimboko and McDonald, however, said they faced no such resistance, as there are no unions at their institutions. Still, they said, as the number of tenure and tenure-track professors decline in coming years, these definitions might face further challenges

— David Moltz

The original story and user comments can be viewed online at http://insidehighered.com/news/2008/12/05/graduate.

Seawater holds key to future food

By Julian Siddle
Science reporter, BBC News

Growing crops in salt water is becoming necessary to overcome shortages of fresh water, say researchers writing in the journal Science.

They suggest the domestication of wild plants that grow in salty conditions could help reduce global food shortages.

Only 1% of the Earth's water is freshwater.

Around the world, many agricultural areas are becoming less productive as salt levels in water supplies increase.

"Salinisation is irreversible," says Professor Jelte Rozema from the department of systems ecology at the Free University, Amsterdam, in the Netherlands. "Sooner or later mankind has to accept the world is becoming more saline."

The scientists say we will have to make use of salty environments for agriculture. Farmland is becoming increasingly salty as global sea levels rise, but plants which already thrive in salty areas may provide a ready food source.

Wild plants

Future crops could come from plant species that grow in brackish water, around the mouths of rivers, where salt and freshwater mix, say the researchers.

The rising cost of bringing in freshwater to irrigate traditional crops may force producers to turn to salt water agriculture.

"We have limited amounts of freshwater - most of it is used for drinking water. Gradually it will be profitable to think of brackish water and sea water as a resource." said Professor Rozema.

The scientists suggest the best way forward is to domesticate wild plants, crossbreeding them to produce higher yields.

Plants such as sea kale and asparagus-like samphire, which grow along the coast in many countries have been eaten for thousands of years, but it is only recently that their potential has been seen as a substitute for more traditional commercial crops.

In The Netherlands sea kale is now farmed commercially and finds a ready market says Professor Rozema.

"There's a company cultivating it on shingle beaches, its a big success in the Netherlands, people like to get new vegetables, they know sea water is not bad for them."

Biofuel bonus

The researchers say plant breeders also need to look at domesticated plants that are salt tolerant, spinach and beetroot are closely related to samphire, and crops such as sugar beet can grow well in salty conditions.

"Its a salt tolerant plant, this salt tolerance has not been reduced during domestication." said Professor Rozema.

Genetic modification experiments have been conducted for more than 30 years to try to make crops such as wheat or rice salt tolerant.

But the scientists say trying to induce salt tolerance has so far proved impossible. They now believe the genetic manipulations necessary to achieve this may too complex to be achieved at present.

The researchers also say some species of plants currently growing in salty environments could have a future use as biofuels.

They cite one particular type of samphire, the seeds of which produce more oil than soya beans or sunflowers. The plant grows well on subtropical desert coasts.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7765109.stm

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Baby decisions - adding to the world's woes?

VIEWPOINT

Joanna Benn

How responsible is it to have children in a world whose environmental health is already under stress? That's the question Joanna Benn poses this week in the Green Room. On the other hand, she wonders, will a couple more hungry mouths make much difference?

I came out of my house last week and got caught up in a fleet of mothers and prams.

They were wearing a middle class yummy mummy uniform combining comfort and fashion - skinny jeans, UGG boots, black tops and large sunglasses.

The prams were all state-of-the-art three wheeled, balanced, air-bagged mini cars that can fold to the size of a postage stamp and carry the week's shopping.

The urban mother tribe looked chic, proud and collectively cool.

It got me thinking. I love kids, I love babies.

I love the idea of the Brady Bunch, of close-knit large families and a stream of brothers and sisters of different heights with crazy hair.

However, perhaps it's my age; suddenly everyone I know has children and it is confusing me.

I don't even know when it all happened. I remember conversations about university, jobs, flats, boyfriends and partners, but I seem to have missed the pre-baby musings.

One minute people were childless - or child-free, depending on your viewpoint.

The next - magic wand, small bang, plume of smoke - it was insta-family, complete with new people-carrier in the drive and more often than not, a house extension.

Two weeks ago, a single childless friend confessed she'd been looking into freezing her eggs. That apparently is not a taboo subject.

Nor are conversations about contraception, fertility patterns, mastitis, post-partum depression and sex, child behaviour problems, sleepless nights, credit crunch worries or redundancy.

However, dare ask how green is it to have kids in a world of dwindling resources, vast global inequality, terrifying climate change scenarios and dying empty seas... then people get uncomfortable and usually defensive.

Ugly truths

I have couched the question a few times: "Why did you want children?"

The answers have usually been - "It seemed the next thing to do, we wanted to, it felt right, I couldn't imagine not..."

Push again - "Have you thought about what kind of world you are bringing them into to? Some climate change scenarios give us a 10 to 15 year window before things get very ugly and scary indeed."

Resounding silence.

Being an environmentalist is, quite frankly, an awkward thing.

When I see babies, not only do I see the beauty, joy and miracle of life, I also see nappies, landfill waste, vast amounts of food and money needed, and a very shaky, unpredictable future.

According to United Nations projections, the world population will nearly stabilise at just above 10 billion people after 2200.

That's a lot of people on one small planet.

When we talk about the environment and available natural resources, we bandy around statistics; yet none of it seems to be about me or you or that guy that everyone talked about during the US election campaign, Joe the Plumber.

Mood swings

Ask any environmental organisation what it thinks about birth control; it'll sidestep the issue, and say it's not their place to comment.

If a commentator says there are too many people on the planet, their words smack of authoritarian dictatorships and human rights violations, and echo traces of unpalatable eugenics.

However, the reality is that every time we eat, switch on a light, get in a car, drink a beer, go on holiday or buy something to wear or use, we are adding to our environmental footprint.

Toddlers - small beings that they are - require almost unlimited nappies, a fair amount of food, and apparently a loungeful of loud, battery-powered plastic toys.

I am not saying we shouldn't have kids. They may well be the leaders of tomorrow, steering humanity into a just, equitable, fair and healthy future.

The new generation may indeed succeed where all others have failed, and learn lessons of the past.

Perhaps it's just my mood.

Or perhaps it's the media's fault that some of us feel as if humanity is sliding from one patch of melting ice to another in a murky sea of financial, environmental and social woes.

I am curious to know if I am the only 30-something woman who has these dilemmas, worrying about the planet's future and what we could and should do to ease the strain.

Am I fretting needlessly? Because in the grand scheme of things, one or two more children in the world really make no difference, do they?

And as for the future - rising sea levels, bare former forests, desertification, empty seas and a few dollar bills floating in the wind - well that'll all take care of itself.

Won't it?

Joanna Benn is a journalist, writer and consultant specialising in environmental issues

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7759845.stm

Published: 2008/12/02 11:40:34 GMT

A step closer to self-powered kit

Engineers have doubled the efficiency of piezoelectric devices that harvest energy from movement and vibration.

The trick lies purely in the size of the devices: a narrow range of thicknesses around 5,000 times thinner than a human hair.

The result means that "self-powered" devices, such as phones that charge when you speak into them, are one step closer to reality.

The research was reported in the journal Physical Review B.

The piezoelectric effect occurs in some crystalline and ceramic materials. Stretching or compressing them causes a separation of electric charge across their width, and that sets up a voltage that can be put to use.

Such piezoelectric materials have been in use for years in devices such as electronic lighters and microphones, where pressure from a thumb or even a sound wave is harvested.

More recently, plans to engineer piezoelectrics that collect energy from footsteps or the motion of clothing have made it to the drawing board. Several clubs even incorporate piezoelectrics into their dance floors, recycling a small part of the energy imparted by clubgoers.

Size matters

However, the behaviour of materials in comparatively large devices can change radically when pared down to the nanometre scale.

What Tahir Cagin and his colleagues at Texas A&M University have found is that when piezoelectric materials are made in a narrow size range around 20 nanometres (billionths of a metre), a new effect comes into play.

This "flexoelectric effect" produces a voltage from twisting and bending, instead of the uniform compression or stretching as in piezoelectricity.

The researchers proved that the effect can be maximised in nano-scale cantilevers - beams like tiny diving boards that generate a voltage - by tailoring the cantilevers' shape.

The theoretical study shows that the effect could as much as triple the amount of electricity available, gram for gram, from piezoelectric materials.

Piezoelectric materials have long been used in microphones and pick-ups for acoustic instruments, with the pressure wave of sound or simple vibration creating an electric signal.

The new results mean that such sounds or vibrations produce significantly more charge that can be gathered up and put to use.

"Even the disturbances in the form of sound waves ... may be harvested for powering nano- and micro-devices of the future if these materials are processed and manufactured appropriately for this purpose," Professor Cagin said.

That means that instead of the tiny electric signal produced in a microphone, piezoelectrics tailored at the nano-scale could directly power small devices or charge a battery.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/technology/7764537.stm

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'CHOIR OF ANGELS'
Illuminating the Dark Ages

By ROBERTA SMITH

Of the three great artistic histories that extend for many centuries, and galleries, from the Great Hall at the Metropolitan Museum of Art, the Byzantine-Medieval epic is the most discreet. The Egyptian and the Greek and Roman wings are signaled by highly visible statues and tombs that start waving hello almost before you clear security. In contrast, the story of art starting in Bronze-Age Europe lies mostly out of sight in galleries that lie beside and behind the Grand Staircase.

These days, if you stand in the right spot in the Great Hall and look down the broad corridor gallery on the right of the stairs, the unmistakable blaze of a tall, slim stained-glass window from 13th-century France glows like a beacon from about a half a football field away. With wattage like that, who can resist medieval art?

The window is one of many new displays in the Met's deliriously dense, newly restored and reinstalled Gallery for Western European Medieval Art from 1050 to 1300. A fairly extreme makeover, this renovation began with a boldly geometric floor of red slate and black and white marble that duplicates the one that was in place when the Met opened its first building in 1895. The walls are lined with spare new cherry wood vitrines based on ones used by J. P. Morgan, one of the Met's chief medieval-art patrons. His name appears frequently among the labels for the works inside: the enamels, ivories, bejeweled book covers and metalwork from all over Europe. And above and beyond the vitrines, carved stone sculptures, capitals, reliefs, crucifixes and stained-glass windows continue almost to the ceiling.

This renovation has been accompanied by smaller adjustments and changes in adjacent galleries. The displays in the Mary and Michael Jaharis Galleries for Byzantine Art, which opened in 2000 beside and behind the stairs, have been refined to improve the chronological flow. The Medieval Sculpture Hall, which lies just beyond the new medieval space — where the Met's popular Christmas tree resides at this time of year — has been startlingly improved with nothing more than new lighting and fresh paint. At the moment the sculpture hall also contains "Choirs of Angels: Italian Painting and Choir Books 1300-1500," a sumptuous little holiday show that will last into the spring.

In all this spiffing up, little-seen works have emerged from storage; others have come from galleries elsewhere in the museum. A few have arrived from the Cloisters, the Met's magnificent medieval assemblage in Washington Heights.

These include a relief of the Nativity and Annunciation that was never uncrated after its arrival in the 1940s, and the 12th-century Italian ciborium, or altar canopy, that the Met has owned since 1909. Made from limestone with hardstone and glass inlay, it has spent the last 60 years at the Cloisters. Now it stands at the center of the new medieval gallery like a walk-through crown.

New gifts and loans add substance and delight. Mr. and Mrs. Jaharis are the chief donors of an early-12th-century Byzantine Lectionary, a rare liturgical manuscript believed to have been made for the Hagia Sophia in Constantinople. The Library of the Jewish Theological Seminary is lending a monumental Hebrew prayer book with outsize calligraphy that has a Persian snap.

Nearby is an enormous cross, probably from 12th-century Armenia and on loan from the History Museum of Armenia in Yerevan, that country's capital. Carved in pumicelike basalt, it teems with reliefs suggesting intricate, knotted strap work (or macramé) in at least five patterns. Don't miss the face of the prophet Matthew peering through a slot beneath the cross as if manning the door at a speakeasy.

The medieval art gallery is the first major renovation of any medieval gallery at the Met in more than half a century — eons, even in the slow-motion time of museums. Even discounting the intoxication of the new, it is hard to think of another gallery in the museum — at least of Western art — where there is more going on historically and aesthetically and on such an even playing field in terms of art mediums.

The brimming, light-flooded presentation has been orchestrated by Peter Barnet, curator in chief of the museum's medieval art department and the Cloisters, his curators and the museum's designers. They seem to have wanted to mount a final assault on the notion of the medieval period as backward, antiquated or benighted. This misconception started in the full-of-itself Renaissance, which condescendingly christened the previous era the Dark or Middle Ages. Medieval, as the Enlightenment tagged it, only sharpened the bite.

With an effect that is at once artistic, archaeological and devotional, this gallery recasts medieval art as a mammoth, busy and fast-moving project translating the Holy Scriptures into visual form, making them accessible to largely illiterate populations. It resulted in a free-for-all of constant themes and boundless variations. The stories recur again and again: Jonah and the Whale, Adam and Eve, the Annunciation, the Virgin and Child, the Crucifixion, the Entombment. (If your knowledge of the Bible is scant, medieval art is an excellent makeup option.)

But there is nothing fixed about the techniques, styles and materials of medieval art. Painting had not yet established its dominance; every medium had its storytelling role. Classicism was not yet the Ideal, but only one of many influences, which included barbaric ornamentation and Persian motifs. And space, not yet locked into one-point perspective, was subject to individual skill and imagination, regardless of medium; ingenious stabs at it abounded.

For an idea of monastic productivity, immerse yourself in the corner devoted to the champlevé enamel crucifixes, reliquaries, candlesticks and much else that issued from the Grandmont monastery near Limoges, France, and set the European standard. For quickness of evolution from the Romanesque to the Gothic phases of medieval art, start with a late-12th-century Spanish-stone capital of Samson fighting the lion, which has the jutting, angular forms of early Modernism. Compare it with "The Betrayal and Arrest of Jesus," a large relief of strikingly naturalistic struggling figures made in France less than a century later.

In one vitrine a line of small Virgins, mostly with Child, and French, in wood, ivory or gilt and enamel copper, recapitulate the same transition. Some things attract by sheer opulence, like the two gilded-silver Spanish book covers with cabochon jewels and ivory crucifixes, which belong to a bookbinding tradition that, coincidentally, is traced up to the present in an exhibition now on view at the Morgan Library. Other pieces draw you with unexpected resonances. A vitrine devoted entirely to Southern Italian ivories includes a small relief of Christ creating the animals that is surely the DNA strand for Edward Hicks's many "Peaceable Kingdom" paintings.

In the Medieval Sculpture Hall, the "Choir of Angels" show provides a rare glimpse of gemlike illuminations that were once part of books of religious music and used daily; their ornate initials would adorn a composition's opening page. Most were cut from these pages long ago, which is why they are often referred to as cuttings. Together they present a thumbnail history of one of the most exciting periods in Italian painting, ranging, for example, from a letter inset with a rendering of the battle of the Maccabees against a nearly vertical pink and red Sienese landscape, to one that contains a suavely detailed, spatially correct scene of Joseph being sold into slavery.

The initials are sometimes a little hard to read. They frequently have an animalist or at least vegetal life of their own and may be further distorted in their roles as proscenium stages. A double-peaked initial containing stacked scenes of Easter is not an M but a stretched A. Sometimes, but not always, the letters relate to the chief characters, as with the elongated P that frames a heart-rending depiction of the

martyrdom of St. Peter in rich, dark browns and blues that depart from the generally cheery sunshine palette of these works.

The stories told by the choir book illuminations often echo in the seven large South Netherlandish tapestries that have hung in the sculpture hall since who knows when. The effect of these works under new lighting and against blue-gray walls can be summed up in two words: absolutely spectacular. I could spend a week in front of the early-15th-century Annunciation (first on the left), with its bright, quiltlike tile floor; hallucinatory plant life; finely feathered angel; and, in the foreground, sturdy two-handled blue-and-white jug that most likely came from Italy or Spain.

Mr. Barnet and his team are not quite finished. Over the next month or two they will complete the reinstallation of the two Medieval Treasury galleries that lead from the sculpture hall toward the American Wing. It will be more tweaking than renovation from the floor up, but it will include facing walls inset with stained-glass windows that visitors will pass between, as through a gantlet of color and light.

As part of the Met's original, central structure, the new Medieval Art gallery has always been a heavily trafficked intersection. It shouldn't really work as a gallery of sacred art and yet it does. Its many small objects draw you close, away from the bustle, into a realm where craft, faith and narrative were one. The magic of this fusion is alive and well.

"Choir of Angels: Painting in Italian Choir Books, 1300-1500" is on view through April 12 at the Metropolitan Museum of Art; (212) 535-7710, metmuseum.org. The Mary and Michael Jaharis Galleries of Byzantine Art and the Gallery for Western European Art from 1050 to 1300 will be open indefinitely.

http://www.nytimes.com/2008/12/05/arts/design/05ange.html?_r=1&th&emc=th

Ancient supernova mystery solved

By James Morgan
Science reporter, BBC News

In 1572, a "new star" appeared in the sky which stunned astronomers and exploded ancient theories of the universe.

Now the supernova recorded by Tycho Brahe has been glimpsed again, by Max Planck Institute scientists.

They used telescopes in Hawaii and Spain to capture faint light echoes of the original explosion, reflected by interstellar dust.

This "fossil imprint" of Tycho's famous supernova is reported in Nature.

The study will help solve a 400-year-old mystery over the nature of the celestial event which captivated observers across the globe.

In early November 1572, the brilliant "new star" appeared in the constellation Cassiopeia, and was even visible during daylight.

Among those who marvelled was the great Danish astronomer Tycho Brahe, who recorded its precise position in his book, "Stella Nova".

His measurements revealed the "new star" was located far beyond the Moon - contradicting the Aristotelian tradition that such stars were unchangeable - which had dominated western thinking for nearly 2000 years.

This set the stage for the work of Kepler, Galileo, Newton and others.

Stella Nova

"The supernova of 1572 marked a milestone in the history of science," said Oliver Krause, of the Max Planck Institute for Astronomy, Germany.

"It ultimately led to the abandonment of the notion of the immutability of the heavens.

"But its classification has been controversial.

"The determination of the exact supernova type has not been possible, without spectroscopic information."

Based on historic records, Tycho's supernova [SN 1572] has traditionally been interpreted as a type Ia supernova.

Such supernovas are believed to occur when a white dwarf star undergoes a titanic, thermonuclear explosion.

Material from the star is ejected at up to 18,000 miles per second - or one-tenth of the speed of light.

The debris from Tycho's supernova has expanded over the last 400 years into a cloud of gas and dust with a diameter of more than 20 light years.

But the nature of the original explosive event which created this remnant has remained unresolved.

Cosmic flashbulb

To elucidate, Dr Krause and his team conducted a "post-mortem", by training their telescopes on faint light echoes from the original event.

A supernova explosion acts like a cosmic flashbulb - producing light that propagates in all directions.

The first direct light wave from the explosion swept past Earth in 1572, observed by Brahe.

But even today, further waves of light from the original explosion continue to reach Earth indirectly - reflected in the "mirror" of interstellar dust particles.

These "light echoes" contain a kind of "fossil imprint" of the original supernova, and are used by astronomers to "time travel" back to witness ancient cosmic events.

Dr Krause and his team were able to detect an optical spectrum of Tycho's supernova at near maximum brightness, using telescopes at the Calar Alto observatory, Spain, and at Mauna Kea, Hawaii.

"We find that it belongs to the majority class of normal type Ia supernovae," said Dr Krause.

"An exciting opportunity now would be to use other [light echoes] to construct a three-dimensional spectroscopic view of the explosion."

The new measurements may also shed light on important, unsolved questions about how type Ia supernovae arise.

In one model, a white dwarf star accumulates (accretes) material from a companion star until it reaches a critical mass and undergoes a thermonuclear explosion.

In another, the accretion occurs by the merging of two white dwarfs.

The proximity of Tycho - which lies in the Milky Way - makes it an ideal candidate for more detailed studies.

"The technique of observing light echoes from supernovae is a remarkable observational tool," said Dr Andrea Pastorello, of Queens University, Belfast.

"It will allow astrophysicists to characterise other supernova remnants in our galaxy and in nearby galaxies.

"This will hopefully clarify the relationship between supernova relics and their explosion mechanisms.

"Finally, it is likely that precise information about the frequency of the different supernova types in our galaxy and its surroundings will shed light on the star-formation history and chemical evolution of the local group of galaxies."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7762939.stm

Published: 2008/12/04 02:57:25 GMT

Child obesity 'may harm thyroid'

Being obese as a child may actually alter the shape of a gland important to growth and metabolism, Italian scientists have said.

Ultrasound tests on 186 children suggested their weight might be linked to structural changes in the thyroid.

Writing in the Journal of Clinical Endocrinology and Metabolism, the scientists said obesity may be causing thyroid disorders, not the reverse.

It is not yet clear whether losing weight could solve the problem.

The thyroid is a gland found in the neck which releases hormones which control metabolic rate and child growth.

Scientists have focused on the role of thyroid hormones in child obesity, with some suggestions that a problem with the thyroid may be responsible for some cases of overweight children.

However, this remains controversial, and the research from the Regional Hospital of Bolzano in Italy is likely to add to the puzzle.

The changes in thyroid structure they found were similar to those found in a disease called Hashimoto's thyroiditis, a condition in which the body's own immune system attacks the gland.

However, tests for antibodies which would confirm this problem drew a blank.

Weight loss

Instead, Dr Giorgio Radetti, leading the research, suggested that general inflammation caused by obesity could be responsible.

"The ultrasound findings are a bit mysterious, but do suggest the existence of a low-grade inflammation state, which has been known to characterise obesity.

"Our study shows that alterations in thyroid function and structure are common in obese children and we may have uncovered the link.

"We found an association between body mass index and thyroid hormone levels which suggests that fat excess may have a role in thyroid tissue modification."

Although losing weight can lead to the thyroid appearing to work properly in tests, he said that he was not sure that the structural changes found by ultrasound could be reversed this way, and called for more studies to investigate.

Professor David Dunger, a paediatric endocrinologist from the University of Cambridge, said that while it was an "interesting observation", it was unlikely to challenge the accepted view that thyroid problems could contribute to obesity, rather than be caused by it.

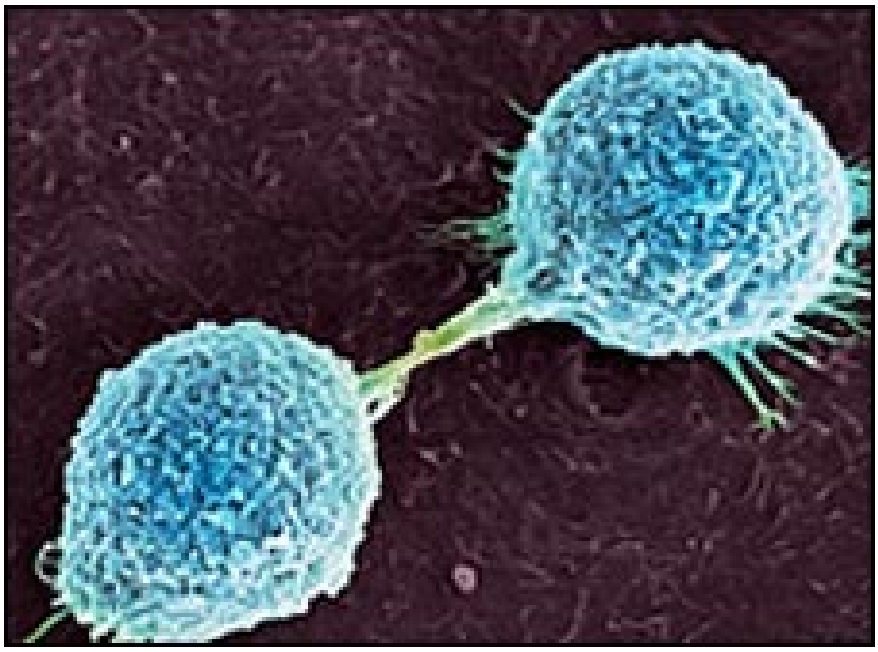
He said: "It tends to turn thinking about the thyroid on its head, and the findings would need to be reproduced by other studies."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7762471.stm

Published: 2008/12/04 00:51:01 GMT

Single cancer cell 'poses danger'

Cancer researchers may have underestimated the power of some cancers to spread and cause new tumours, say US researchers.



They found just one skin cancer cell was often enough to generate a whole new tumour.

The finding, published in the journal Nature, undermines hopes that only certain types of cancer cell could fuel the spread of the disease.

UK experts said more work was needed to pinpoint exactly how cancer cells work.

The cancer studied by the team from the Howard Hughes Medical Institute and the University of Michigan was melanoma, well known for its ability to spread lethally from a single site.

Normally the ability of a single cell to "seed" a new tumour is tested by injecting large quantities into mice with weakened immune systems and counting how many tumours emerge.

The relatively small proportion of tumours supported the view of many scientists that not all cancer cells could trigger a new tumour, and that this ability was confined to a smaller number of specialist "cancer stem cells".

However, Dr Sean Morrison, who led the latest work, said that this approach was flawed because the mice still had some immunity to these human cancer cells, leading to a significant underestimation of their potency.

One in four

First his team injected melanoma cells into mice with even more severely weakened immune systems, and found that 250,000 times as many of them formed tumours.

When single melanoma cells were used, they discovered that roughly one in four of them went on to seed new tumours.

He said: "As far as we know, this is the first time anyone has been able to show that individual cells from human cancers can efficiently form tumours."

For this reason, identifying and targeting a small subset of these cells just would not work, he said.

"We think the underestimation of tumour-causing cells is a general problem in many cancers, not just specific to melanoma."

He said that researchers needed to make their tests better to see if their cancers were equally potent.

In addition, his team used a battery of tests, but could find nothing marking out any of the cells as potential "cancer stem cells".

While this did not disprove their existence, he said, it could mean that some cancers, such as melanomas, were "good old-fashioned cancer", in which every cell was dangerous.

A spokesman for Cancer Research UK, Ed Yong, said that the idea that tumours grew from a tiny number of "cancer stem cells" was one of the "most interesting" in current research.

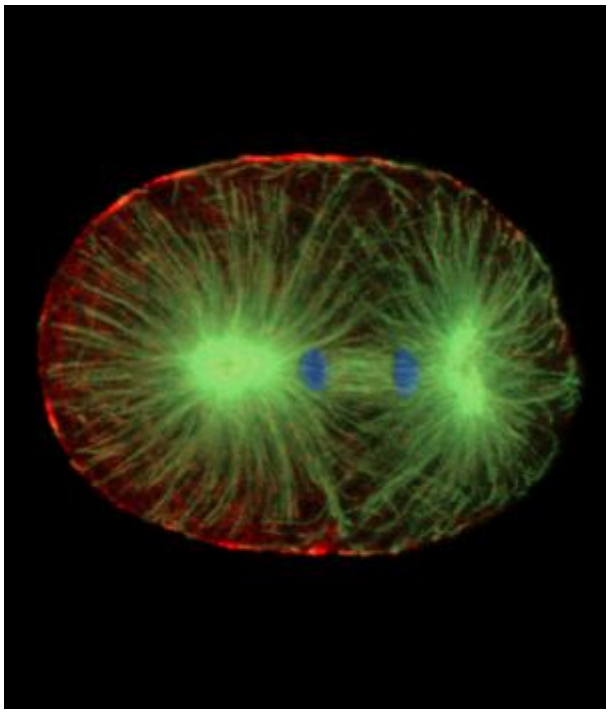
"But this study suggests that it may not be true for every type of cancer - in melanoma, a much larger proportion of cancer cells are able to give rise to a new tumour.

"It shows how important it is that we continue to fund research into how cancers develop at a fundamental level."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7762474.stm

Published: 2008/12/04 00:45:18 GMT

New Insight On Wonder Of Cell Division



A photomicrograph made using fluorescent light microscopy shows a one-cell stage Caenorhabditis elegans (roundworm) embryo undergoing cell division. (Credit: Image courtesy of Bruce Bowerman)

ScienceDaily (Dec. 5, 2008) — Biologists have discovered a mechanism that is critical to cytokinesis -- nature's completion of mitosis, where a cell divides into two identical daughter cells.

The researchers have opened a new window on the assembly and activity of a ring of actin and myosin filaments that contract to pinch a cell at just the right time. They focused on key proteins whose roles drive signaling mechanisms that promote the production of both linear and branching microfilaments along the inside surface membrane of a dividing cell. By down-regulating the production of branched microfilaments at the right time, the membrane may be more malleable and better able to pinch inward and complete cytokinesis.

The findings-- detailed in the Dec. 5 issue of the journal Science -- come from basic research using Caenorhabditis elegans (roundworm) embryos. The discovery provides more basic insight than immediate biomedical application, but the implications could lead to a fine-tuning of anti-cancer drug therapies or to isolating new targets for drugs to stop cancerous cell division, said Bruce Bowerman, professor of biology in the University of Oregon's Institute for Molecular Biology.

Bowerman and Karen Oegema of the Ludwig Institute for Cancer Research at the University of California, San Diego, were principal investigators of a seven-member team funded by the National Institutes of Health.

Scientists have theorized that the modulation of microfilament structure plays a role in healthy cell division. However, finding that such shape-shifting down-regulation specifically targets branched microfilaments assembly came as a surprise, Bowerman said.

C. elegans is used in many genetics research laboratories to discover basic requirements for the 20,000 genes that compose its genome; most of the genes are conserved in humans and carry out similar

processes. Using these nematodes, Bowerman said, is allowing researchers to "find players inside that previously weren't known to be involved in cytokinesis."

The new research focused on enzymes targeted by the GAP domain of the protein CYK-4 that is part of a multi-protein complex called centralspindlin. This GAP domain functions as a GTPase activator, targeting protein switches called GTPases, which bind and hydrolyze guanosine triphosphate (GTP) to guanosine diphosphate (GDP). When GTPase is bound to GTP it acts as an on switch; when GTP is hydrolyzed to GDP, the switch is turned off.

The researchers found that deleting a GTPase called Rac could bypass the requirement for the GAP domain in CYK-4, Bowerman said. Because Rac GTPases promote branched microfilament assembly, this suggests that normally the CYK-4 GAP acts to down-regulate the production of branched microfilaments.

Previously CYK-4 had been thought to only down-regulate a different GTPase called RhoA, which promotes linear microfilament assembly. Thus these new results implicate the down-regulation of branched microfilaments at the cell cortex as a critical step in cell division.

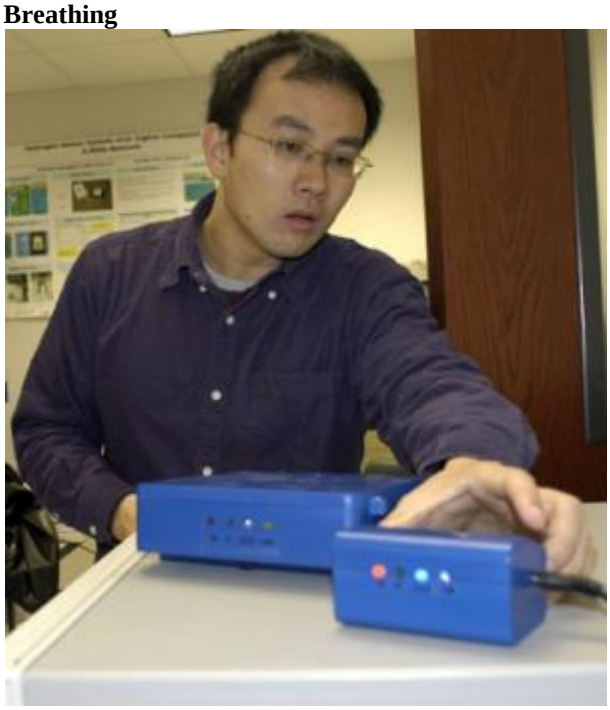
"We have found a completely new way of thinking about how cells remodel their internal skeletons such that they undergo the shape changes needed to divide and produce daughter cells," Bowerman said. "Some of these proteins already are targets of some cancer drugs. Now we have the opportunity to study and understand how certain proteins stabilize microfilaments within cells and inhibit cell division, and how other proteins act to modulate the stiffness of a cell's membrane to allow them to undergo shape changes needed for cell division and proliferation."

Co-authors with Bowerman and Oegema were lead author Julie C. Canman, a former doctoral student in Bowerman's lab and now a postdoctoral fellow at the Ludwig Institute for Cancer Research; Lindsey Lewellyn, Kimberly Laband and Arshad Desai, all of the Ludwig Institute for Cancer Research; and Stephen J. Smerdon of the National Institute for Medical Research.

Adapted from materials provided by University of Oregon.

http://www.sciencedaily.com/releases/2008/12/081204141753.htm

Wireless Crib Monitor Keeps Tabs On Baby's Breathing



Changzhi Li, a doctoral student in electrical and computer engineering at the University of Florida, adjusts a prototype baby monitor in an engineering laboratory on Nov. 24, 2008. The crib-mounted part of the monitor (left) keeps tabs on the baby's chest movements, sending an alarm to a portable unit (right) if the baby stops breathing. A team of University of Florida engineering students designed the monitor based on Doppler radar technology pioneered by Jenshan Lin, a UF professor of electrical and computer engineering. (Credit: Bob Bird/University of Florida)

ScienceDaily (Dec. 5, 2008) — Radar — the technology that tracks enemy bombers and hurricanes — is now being employed to detect another danger: when babies stop breathing.

In a high-tech twist on the remote devices that allow parents to listen to or watch their baby from afar, University of Florida engineering researchers have built a prototype baby monitor that focuses on a baby's breathing. If his or her chest stops moving, the crib-mounted monitor detects the problem and sends an alarm to a portable unit kept by the parents.

"It's a step beyond just watching the baby through a video link or hearing it cry," said Jenshan Lin, a UF professor of electrical and computer engineering and the principal investigator of the Doppler radar technology used in the monitor.

A paper on the system, which works by using Doppler radar to remotely scan the in-and-out movement of the baby's chest due to respiration, will appear in the February issue of IEEE Microwave Magazine.

Parents buy millions of baby monitors each year in the U.S., but most transmit only sounds or video images of the baby — both useful, but only if a parent is listening or watching. Some recently available monitors also monitor babies' movements and breathing, but Lin said he is not aware of any on the market that use wireless technology.

UF engineering students Changzhi Li, Julie Cummings, Jeffrey Lam, Eric Graves and Stephanie Jimenez designed the monitor.

The students did the work as part of the College of Engineering's Integrated Product and Process Design Program, which allows senior-level undergraduates to participate in yearlong design projects of new products or processes. The student team's goal: to use Lin's radar technology, first developed three years ago and under continuous refinement since, in a useful product with the potential to be licensed to a company.

The students produced a small-book-sized device that attaches to the crib just like a standard monitor. They also designed a remote station with red, blue, green and yellow lights, variously indicating the status of the baby's vital signs, the battery life of the station and confirming the station's wireless connection to the crib monitor. The station emits a loud alarm and flashes a red light when the monitor detects that the baby's breathing activity has fallen below a preset threshold, or that he or she has stopped breathing.

Future versions could also detect heartbeat, using a higher frequency signal, Lin said.

"It's the same Doppler radar that police use to catch speeders, but in our case, we don't measure constant speed, but rather back-and-forth motion — sort of like vibration," Lin said. "That's the fundamental principle of this technology."

The crib monitor's signals are very low power and not harmful to the baby or parents, Lin added. While a standard cell phone emits about one watt of power, the Doppler radar emits just one ten-thousandth of a watt of power, he said.

Tom Weller, associate dean for research at the University of South Florida College of Engineering, said the baby monitor is a good example of how research and education can come together in a useful product.

"This miniaturized monitor is an example of solid microwave engineering coupled with great innovation, and something with the potential for a very broad societal impact," Weller said in an e-mail. "It is especially noteworthy that Dr. Lin transferred his research output into the very capable hands of creative undergraduate students."

Lin is also pursuing other applications for his technology. His best-realized idea so far: a search-and-rescue robot equipped with the Doppler system to determine the presence of living people in structures damaged by earthquakes or explosions. Lin said the system, so far tested in a small working prototype robot, could complement robotic video systems because it requires less power to operate and has greater range. The robot was developed by student Gabriel Reyes as his research project in the University Scholars Program.

"Or the military could use it to find enemy soldiers," Lin said, noting that the Doppler radar easily penetrates walls or other structural components.

Lin has also reduced the size of the electronics in his system so that they fit on a fruit fly-sized microchip, potentially enabling the remote monitor to be used in cell phones. That could turn the phones into portable life-sign detectors useful, for example, for friends and family who wish to keep tabs on elderly relatives living alone, he said.

Li, who based his dissertation on the research, was awarded a graduate fellowship from the IEEE Microwave Theory and Techniques Society for his work.

Adapted from materials provided by University of Florida.

http://www.sciencedaily.com/releases/2008/12/081202170826.htm

U.S. Greenhouse Gas Emissions Still Increasing

Total U.S. greenhouse gas emissions were 7,282 million metric tons carbon dioxide equivalent in 2007, an increase of 1.4 percent from the 2006 level. (Credit: iStockphoto/Karl Dolenc)

ScienceDaily (Dec. 5, 2008) — Total U.S. greenhouse gas (GHG) emissions were 7,282 million metric tons carbon dioxide equivalent (MMTCO 2e) in 2007, an increase of 1.4 percent from the 2006 level according to Emissions of Greenhouse Gases in the United States 2007, according to a report released December 4 by the Energy Information Administration (EIA). Since 1990, U.S. GHG emissions have grown at an average annual rate of 0.9 percent. U.S. GHG emissions per unit of gross domestic product (GDP), or U.S. GHG intensity, fell from 636 metric tons per million 2000 constant dollars of GDP (MMTCO $_2$e/million dollars GDP) in 2006 to 632 MMTCO $_2$e /million dollars GDP in 2007, a decline of 0.6 percent. Since 1990, the annual average decline in GHG intensity has been 1.9 percent.

Total estimated U.S. GHG emissions in 2007 consisted of 6,022 million metric tons of carbon dioxide (82.6 percent of total emissions); 700 MMTCO 2e of methane (9.6 percent of total emissions); 384 MMTCO $_2$e of nitrous oxide (5.3 percent of total emissions); and 177 MMTCO $_2$e of hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF 6) (2.4 percent of total emissions).

Emissions of carbon dioxide from energy consumption and industrial processes, which had risen at an average annual rate of 1.1 percent per year from 1990 to 2006, increased by 1.3 percent in 2007. Unfavorable weather patterns, where both heating and cooling degree-days were higher in 2007 than 2006, and an increase in the carbon intensity of electricity generation, driven by decreased availability of hydropower, both contributed to higher energy-related carbon dioxide emissions in 2007. Methane emissions increased by 1.9 percent, while nitrous oxide emissions rose by 2.2 percent. Emissions of HFCs, PFCs, and SF6, a group labeled collectively as “high-GWP gases” because of their high heat-trapping capabilities, increased by 3.3 percent.

The full report can be found on EIA's web site at: http://www.eia.doe.gov/oiaf/1605/ggrpt/index.html

Adapted from materials provided by U.S. Department of Energy.

http://www.sciencedaily.com/releases/2008/12/081204093041.htm

Operations Engineering For More Efficient Operating Rooms

	Turnover Time, minutes	
	Nov-Dec 07	July 08
Children's Hospital Los Angeles	34	28
Riverside County Regional Medical Center	49	39
Ventura County Medical Center	45	34
9 minute average reduction thus far		
Excludes times longer than 90 minutes, day shift only, non ED patients, room (not surgeon) turnover		

Work by specialists in management engineering from the USC Viterbi School has led to significant improvements in turnover times for operating rooms at three safety net hospitals, allowing "many more hours of daytime surgery per year." (Credit: Image courtesy of University of Southern California)

ScienceDaily (Dec. 5, 2008) — Work by specialists in management engineering from the USC Viterbi School has led to significant improvements in turnover times for operating rooms at three safety net hospitals, allowing "many more hours of daytime surgery per year." Because of the success of the program, the work will be expanded to include three more hospitals.

The USC team began work in January, 2008 at Childrens Hospital of LA, Riverside County Regional Medical Center and Ventura County Medical Center. "The USC team, along with the nurses and doctors at the hospitals, applied engineering principles such as is done to streamline productivity at Toyota and other efficient organizations," explained David Belson of the Viterbi School Epstein Department of Industrial and Systems Engingeering.

According to a September 26, 2008report on the project made to the study funder, the California HealthCare Foundation, reducing O.R. turnover time was adopted as a goal because "this single metric is easily calculated and can be compared to industry benchmarks."

Turnover time was reduced at all three hospitals, at Childrens Hospital from 34 minutes in November 2007 to 28 in July 2008; from 49 minutes to 39 minutes at Riverside County Regional Medical Center; and from 45 minutes to 34 minutes at Ventura County Medical Center (see chart).

"Recommendations are still being implemented and a greater impact is expected," the report states. "The 21% average reduction thus far adds many hours of daytime surgery per year for each of the three hospitals studied.

The operational changes made were implemented with cooperation and extensive input from hospital staff. They included, at all three hospitals, efforts to:

Balance the capacities of the processes, to reduce queuing, particularly between pre-op and the operating rooms.

Improve communications so that people responsible for patient flow were aware of current patient status, when to move patients and overall performance.

Develop an accurate published schedule based on past history of surgery and realistic turnover times for all surgeries scheduled in advance.

Define scheduling rules so as to avoid bottlenecks, such as equipment shortages, and manage housekeeping support.

Implement checklists to avoid delays due to incomplete paperwork on the day of surgery.

Implement communications to alert surgeons and anesthesiologists to the time they are needed in the operating room for the next case and when patients are available for interviewing.

Create a stable staffing level for housekeeping through the workday.

Implement a report card that lets staff know how they are performing and circulate this information widely as an improvement incentive.

Three other hospitals, including San Francisco General in Northern California and Valley Presbyterian and St Francis Hospital in Southern California are now working with the Viterbi School team.

The kind of conditions observed and changes recommended are exemplified in one section of the report, discussing general factors involved in the problem:

"Patient flow in surgery consists of several sequential steps. Just as in a manufacturing flow or other sequential processes, there must be a balance of capacity and a smooth flow of patients. Late arrival at any one step creates delays in subsequent steps. Often a crucial step is the pre-op holding area just before the patient is moved into the operating room. The patient must be in pre-op in sufficient time for interviews by the clinical staff, checking of paperwork and various clinical tasks.

"If the patient arrives without sufficient time before the start of surgery, then the surgery start will be delayed until all the interviews and paperwork is completed. We often found that patients arrived in pre-op less than 15 minutes before surgery was scheduled when one-half of an hour or more was needed."

Some useful adjustments were based on common sense factors rather than sophisticated process engineering. For example: "Given the costs, it would be better to have patients arrive at pre-op early rather than late. Some pre-op and related areas felt that patients were less comfortable in per-op than in the admitting area and therefore slowed movement to pre-op. A better solution would be to improve conditions in pre-op. In one case, we recommended – and the hospital acted – to move a TV set from admitting to pre-op."

The USC team is from the Viterbi School's continuing effort in Health Care Engineering in the School's Epstein Department of Industrial and Systems Engineering. In addition to Belson, it includes Professor Randy Hall and graduate students Eun Ae (Michelle) Cho, Benigno De Vera and Ashley Crowder, and undergraduate student Jessica Midkiff,

"“Management engineering improves access to health care as well as reduces costs for the patient," says Belson. "Southwest Airlines has shown how faster turnaround times for planes helps reduce costs and increase passenger satisfaction. We believe health services delivery can learn from examples like these."

Adapted from materials provided by University of Southern California.

http://www.sciencedaily.com/releases/2008/12/081202153525.htm

Major Breakthrough For Dialysis Patients, According To Preliminary Results

ScienceDaily (Dec. 4, 2008) — Suffering from end-stage renal disease (ESRD), a growing number of patients at the Centre hospitalier de l'Université de Montréal (CHUM), have become the beneficiaries of a North American breakthrough: high efficacy hemodiafiltration (HDF).

An extracorporeal blood purification technique, HDF is indicated for ESRD patients. Since the HDF unit was introduced in CHUM's Nephrology section, preliminary results show a clear advantage of high efficacy HDF over conventional hemodialysis in several areas, including the following:

- Improved removal of uremic toxins;
- Decreased number of hospitalization days;
- A better tolerance for patients;
- Minimizes the state of chronic inflammation that too often may lead to complications over a long course of dialysis;
- Diminished need for certain medications.
- Increased biocompatibility across the blood-dialysis system interface.

"Conventional hemodialysis continues to save lives, but we now have the technology to improve the lot of dialysis patients," says Dr. Rénee Lévesque, nephologist and lead physician in the HDF program at CHUM, and a professor with the medical faculty of the Université de Montréal. "At CHUM, we're proud to soon be accepting a cohort of forty patients undergoing HDF." Dr. Lévesque added that the CHUM Nephrology section is putting much efforts behind the new process, and hopes that one day soon all dialysis patients will be treated in this fashion.

Recent retrospective clinical data indicate [1, 2] that HDF reduces the mortality rates of dialysis patients and randomized studies are under way to provide clear proof of increased survival rates for patients. Among these, the CONTRAST[3] study compares hemodialysis with online hemodiafiltration HDF in overall performance relative to cardiovascular morbidity and mortality. The study seeks to recruit seven hundred test subjects and follow them over a three-year period. CHUM is the only medical centre in North America to take part in this study, currently the largest in terms of the size of the randomized cohort.

Hemodiafiltration : the best of both worlds

HDF combines the elements of two processes, conventional hemodialysis (HD) and hemofiltration (HF). Renal replacement therapy for ESRD is based on two processes: diffusion and convection.

Conventional HD is diffusive; blood is circulated in an artificial kidney machine on one side of a semi-permeable membrane, while a special dialysis fluid is circulated on the other side. Small molecules of metabolic waste seep out into a dialysis solution flowing in the opposite direction on the other side of the membrane, mimicking the kidneys and washing wastes and toxins out of the bloodstream. One major toxin is urea. HD is the most widely used renal replacement function technology for ESRD.

Hemofiltration (HF) or ultrafiltration is exclusively convective, forcing blood through a filter under high pressure. The principle consists of applying a hydrostatic pressure gradient (high pressure on one side, low pressure on the other) across the membrane or filter. This results in an ultrafiltrate (water and electrolytes) on the other side. The quantity of ultrafiltrate lost in this process must be compensated by a matching infusion of replacement fluid. HF is used primarily in continuous mode and in acute care or intensive care.

In HDF, the diffusive component of HD is combined with the convective component of HF. As is the case in HF, the excessive loss of liquid must be compensated by the reinfusion of a sterile and apyrogenic (not producing fever) fluid. Recent developments have led to the "on-line" production of large volumes of

ultrapure liquid of high quality. This has led to higher quality physicochemical and microbiological properties in these solutions, in comparison with HD.

Some statistics on the treatment of end-stage renal disease:

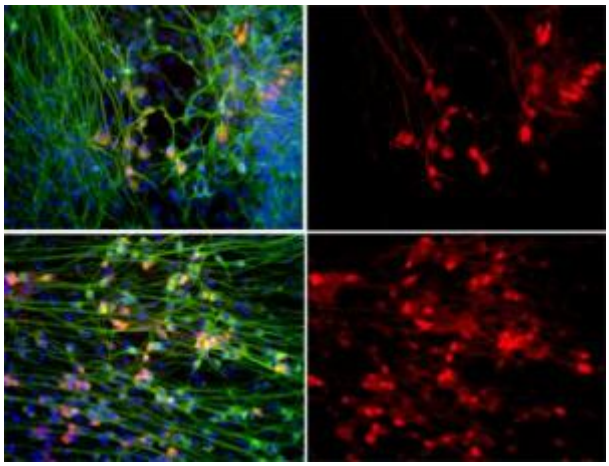
- At the end of 2003, there were 29,551 Canadians undergoing renal substitution treatment and that number is expected to double over the next ten years;
- Among that number, 61 % were in dialysis. Of these patients, 81 % were in hemodialysis and 19 % followed a regiment of peritoneal dialysis, e.g. from the abdomen.

1. Magnitude and impact of abnormal mineral metabolism in hemodialysis patients in the Dialysis Outcomes and Practice Patterns Study.
2. European Clinical Dialysis Database (EuCliD).
3. Effect of increased convective clearance by on-line hemodiafiltration on all causes and cardiovascular mortality in chronic hemodialysis patients – the Dutch CONvective TRAnsport STudy (CONTRAST).

Adapted from materials provided by Université de Montréal Hospital Centre, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/11/081127123127.htm

Novel Human Stem Cell-based Model Of Amyotrophic Lateral Sclerosis Opens Doors For Rapid Drug Screening



Top: When motor neurons (shown in red) are grown in the presence of defective astrocytes their numbers plummet. Bottom: Treating the cultures with apocynin, a powerful anti-oxidant, dramatically increases the survival of motor neurons. All cells' nuclei are labeled blue and neurons are shown in green. Right panel: Only motor neurons are shown. (Credit: Courtesy of Dr. M. Carol Marchetto, Salk Institute for Biological Studies)

ScienceDaily (Dec. 4, 2008) — Long thought of as mere bystanders, astrocytes are crucial for the survival and well-being of motor neurons, which control voluntary muscle movements. In fact, defective astrocytes can lay waste to motor neurons and are the main suspects in the muscle-wasting disease amyotrophic lateral sclerosis (ALS).

To get to the root of this complicated relationship, researchers from the Salk Institute for Biological Studies for the very first time established a human embryonic stem cell (hESC)-based system for modeling ALS. Their study confirmed that dysfunctional human astrocytes turn against their charges and kill off healthy motor neurons. But more importantly, treating the cultured cells with apocynin, a powerful anti-oxidant, staved off motor neuron death caused by malfunctioning astrocytes.

Their findings, which appear in the Dec. 4 issue of the journal Cell Stem Cell, provide new insight into the toxic pathways that contribute to the demise of motor neurons in ALS and open up new possibilities for drug-screening experiments using human ALS in vitro models, as well as clinical interventions using astrocyte-based cell therapies.

"A variety of drugs that had demonstrated significant efficacy in mouse models didn't keep their promise in both preclinical and clinical trials," says Fred H. Gage, Ph.D., a professor in the Laboratory for Genetics, who led the study. In fact, just one drug—riluzole— has been approved by the FDA to treat ALS, and it only slows the course of the disease by two months.

"There is an urgent need for new ALS models that have the potential to translate into clinical trials and that could, at a minimum, be used in conjunction with the murine models to verify drugs and drug targets," says Gage.

ALS, also known as Lou Gehrig's disease, was named after the legendary New York Yankee slugger who lent his name to the mysterious illness over 60 years ago. Usually fatal, the neurodegenerative disease attacks motor neurons controlling voluntary movement, leading to progressive paralysis and muscle atrophy.

Although ALS was first classified as a disease over 140 years ago, there are still few clues as to its cause. An important step toward understanding the disease came when scientists discovered that ALS can be induced by inherited mutations in the gene encoding the SOD1 enzyme, short for superoxide dismutase 1. This enzyme protects the body from damage caused by free radicals, highly reactive molecules produced by cells during normal metabolism.Spinal motor neurons express high levels of SOD1, which many originally thought might explain their selective vulnerability. But soon, mouse experiments revealed that motor neuron degeneration is not necessarily associated with the expression of defective SOD1 in the motor neurons per se but rather with its expression in a critical number of neighboring support cells.

Since most treatments that worked in ALS mouse models didn't live up to expectations in preclinical and clinical trials, postdoctoral researcher and first author M. Carol Marchetto, Ph.D., looked for an alternative: "Transgenic mice containing the human mutated forms of SOD1 have been very useful to study the disease onset and progression. But we felt that cell culture models using both human neurons and astrocytes could potentially be very useful for drug screening and, to some extent, cell replacement therapies."

To uncover the contribution of astrocytes to human motor neuron degeneration, Marchetto first coaxed hESCs to differentiate into motor neurons through a series of physical manipulations and exposure to a number of growth factors. When she co-cultured these cells with human astrocytes expressing a mutated form of SOD1, the number of motor neurons alive in the Petri dish plummeted. "In the presence of the mutation, the astrocytes activated an inflammatory response and started producing reactive oxygen species, a hallmark of ALS," says Marchetto.

When she treated these cells with known antioxidants such as apocynin, which is found in many plants, epicatechin, one of the beneficial ingredients in green tea and chocolate, or alpha-lipoic acid, which is produced by the body, the percentage of astrocytes churning out harmful reactive oxygen species decreased significantly. Not only that, when she treated motor neurons cultured in the presence of mutant astrocytes, apocynin—the only one tested in a co-culture experiment—helped motor neurons withstand their no-longer-supportive environment."We believe that we can use this system as a rapid drug screening test for oxidative damage to identify the best candidates for subsequent long-term co-culture experiments," says Marchetto.

While research on the effects of the SOD1 gene mutation is providing important clues about the possible causes of motor neuron death, only a small fraction of all ALS cases are actually due to the mutation; other as yet unidentified genetic causes clearly exist.

"The rapid advances in induced pluripotent stem cell technology will soon allow us to generate patient-specific stem cells that can be used in our co-culture assay to gain new insight into the different causes of ALS," says Gage.

This study was funded by Project ALS, the Dana and Christopher Reeve Foundation, the California Institute for Regenerative Medicine, the Lookout Fund, and the National Institutes of Health.

Researchers who also contributed to the work include postdoctoral researchers Alysson R. Muotri, Ph.D., and Yangling Mu, Ph.D., in the Gage laboratory, postdoctoral researcher Alan M. Smith, Ph.D., and assistant professor Gabriela G. Cezar, Ph.D., both at the University of Wisconsin-Madison, Madison.

Adapted from materials provided by Salk Institute.

http://www.sciencedaily.com/releases/2008/12/081203131035.htm

Sundance Tilts to Heart-Tuggers

By MICHAEL CIEPLY

LOS ANGELES — If things turn out as expected, festivalgoers will have more to cry about than the room prices at Sundance next year.

The programmers of the Sundance Film Festival on Wednesday announced a schedule of competition films that in their view, reflect an unusual tilt toward the emotional — maybe even melodramatic — side of independent cinema.

The festival, Sundance's 25th, is scheduled for Jan. 15 to 25 in Park City, Utah. (A full list of the competition films can be found at nytimes.com/carpetbagger.)

"Audiences this year are going to be surprised," Geoffrey Gilmore, the director of the festival, said this week in a far-ranging discussion of the mood and makeup of the 2009 program. "The range of emotions evoked by the films is going to be greater than in the past."

Mr. Gilmore even described one of the films selected, "The Greatest," about a family dealing with the loss of a teenage son, as being "three-hankie, if not more." Written and directed by Shana Feste, it stars Pierce Brosnan and Susan Sarandon.

The festival's flavor is also going to be a bit more international. Submissions from the United States fell, after years of steady increases, to 1,905 feature-length films, from 2,021 in 2008, while foreign submissions rose to 1,756, from 1,603. The 118 features selected (including noncompetition films still to be announced) were chosen from 3,661 submissions, up slightly from 3,624, despite a weakening independent movie market.

"It hasn't dropped the way it will drop, which I can tell you is certain to happen," Mr. Gilmore said of the submissions pool and its probable future erosion by the continuing financial crisis.

Mr. Gilmore and John Cooper, the festival's director of programming, noted that many entries stepped across national boundaries, as filmmakers — American and otherwise — tackled stories and themes that connected with worlds beyond their borders, often with financing from far-flung sources.

Thus the French-born writer and director Sophie Barthes, who got her start with a Ukrainian-language short, "Zimove Vesilya," made "Cold Souls" with Paul Giamatti, in New York and St. Petersburg, Russia, with some backing from Arte France Cinéma. The movie concerns an American actor's exploration of what the promotional materials describe as "soul extraction."

Another exercise in filmmaking without borders is "Sin Nombre," which has Mexican backing and is set for distribution by Focus Features. Directed by the American-born Cary Fukunaga, with a largely Hispanic ensemble of actors, "Sin Nombre" is a thriller about Central American migrants trying to cross into the United States.

But the festival's biggest shift, those who programmed it say, appears to be from head to heart. Alienation is out. Engagement is in.

"Not caring is no longer an issue," said Mr. Cooper, who described this crop of festival filmmakers as a next wave who had clearly broken with the "navel gazing" that characterized past Sundance films. "The Chumscrubber," for example, from the 2005 festival, was one of a run of indie movies about youth trapped in dysfunctional suburbia.

To hear Mr. Gilmore tell it, things may get downright weepy. Of one coming film, Lee Daniels's "Push," based on a novel about the trials of an abused girl in Harlem, he said, "It's so dark, but I cried so hard at the end of it."

Some movies, Mr. Gilmore said, would challenge assumptions about the festival's supposedly knee-jerk devotion to liberal, progressive political messages. One such film, he said, was the director Ross Katz's "Taking Chance," based on real events, about a military escort officer who accompanies the body of a dead marine back to his hometown in Wyoming. More about the feelings and values of the characters involved in the story, "Taking Chance," Mr. Gilmore said, stands apart from the heavy run of antiwar pictures that have populated festivals for years.

Inevitably many of the festival's features cluster around subjects and themes. Environmental calamity is a big one, especially on the documentary list. "Crude," from Joe Berlinger, shows the oil industry chewing up the rain forest in Ecuador; "The Cove," from Louie Psihoyos, tracks trouble in a sick ocean to a secret cove in Japan; and "Dirt the Movie," from Bill Benenson and Gene Rosow, looks at man's destruction of dirt.(Films shown out of competition — about half the features, and generally a more star-studded lot — are expected to be announced separately on Thursday.)

The festival celebrates its 25th year with a relatively low-key approach — the related Sundance Institute had a silver anniversary two years ago — built around the notion of storytelling. Filmmakers and others involved with the festival over the years are being invited to contribute online (at festival.sundance.org) to a collection of reminiscences, some of which are likely to be shared in connection with January's screenings.

Mr. Cooper and Mr. Gilmore said festival officials were stepping carefully around demands that they cooperate with a boycott of businesses associated with supporters of California's Proposition 8, banning gay marriage.The festival, for instance, will make certain that no film is screened only in the Holiday Village theater in Park City, operated by Cinemark, a chain whose chief executive, Alan Stock, donated to Proposition 8's backers in the November election. The idea is to give anyone who has qualms about Cinemark the opportunity to see a movie somewhere else.

But, given the dearth of theaters, programmers don't intend to abandon the Holiday Village.

"We don't have an alternative," Mr. Gilmore said. "If we had another theater we could walk down the street to, we might be thinking about that."

http://www.nytimes.com/2008/12/04/movies/04sund.html?scp=1&sq=Sundance%20Tilts%20to%20Heart-Tuggers%20&st=cse

SOL LEWITT
Now in Residence: Walls of Luscious Austerity

By HOLLAND COTTER

NORTH ADAMS, Mass. — The Conceptual artist Sol LeWitt, who died last year, was our Fra Angelico. And the three-story 19th-century mill here, housing a survey of his panoramic wall drawings, is our Museo di San Marco: a building full of art conceived by one artist, executed by many hands, devoted to big ideas. So it will be for the next quarter century, which is how long "Sol LeWitt: A Wall Drawing Retrospective" is scheduled to run.

The setting is close to perfect. The space, with its generous windows, is large and flexible enough to accommodate more than a hundred of the ink-painting murals LeWitt designed between 1969 and 2007. On the campus of the Massachusetts Museum of Contemporary Art, set amid stony hills in a working-class New England town, the site suits the stringently sensuous, anyone-can-make-it spirit of his art.

The show's timing is as ideal as it is regrettable. It is a pity that LeWitt, who conceived this project in collaboration with the Yale University Art Gallery and worked closely with Mass MoCA and the Williams College Museum of Art on its realization, couldn't have seen the results, which look organic and embracing in a way that his 2000 traveling museum survey did not. He often said that beauty was not the point of his art, but the Mass MoCA installation is pretty gorgeous.

And no art, we suddenly see, is better suited to meet hard economic times. Most of the materials used in the wall drawings are five-and-dime simple: pencils, colored ink, crayons, brushes, paper. You could tote them around in a shopping bag, ready to tackle the first empty wall you found.

Not that these drawings are street art. They aren't populist in that way; they were meant for the great indoors. But neither do they depend on elite settings — museums or galleries — to make sense. They are abstract, not arcane. Their visual effects can be complex, but their language is plain: lines, colors, clean surfaces, the basics of grade-school art class. No wonder they feel welcoming; they take us back to the past before they take us somewhere else.

Within those essential elements there's diversity. The lines come straight and curved; vertical, diagonal, horizontal. They resolve into geometric shapes (cubes, grids, bulls'-eyes); they splinter and fight; they gather in doodly squiggles like metal shavings to a magnet. In many cases they simply stream on, parallel and continuous, from floor to ceiling and wall edge to wall edge, like some crazy, destinationless Bruckner scherzo that expresses high joy by running in place.

Most of the surfaces are matte and dry like frescos, though in one piece, first done in Germany in 1999, vertical bands of saturated colors are interrupted by a glossy black splat of thick acrylic. And within matte surfaces visual textures subtly vary depending on whether color has been drawn, brushed, washed or dabbed on.

The color range is dramatic. Early drawings from the 1970s are diagrammatic patterns of blue or black lines on white ground connecting corners of walls with door jambs and the odd fire-alarm unit. They might look mathematical or scientific, expressions of an American mania for measuring and surveying, if their logic wasn't so batty. As it is, they turn the very idea of calculation into a game. They connect dots, but to no purpose. They turn space into a walk-in cat's cradle.

By the 1980s, though, color had replaced or equaled line as a primary element. And the entire chromatic spectrum was brought into play. Sometimes hues were tamped down, but just as often they were high-keyed and brash, giving certain drawings — I'm thinking of a composition of snaking orange and green bands — the retinal hilarity of Op Art.

Lusciousness and austerity alternated over 40 years, but through all the blossomings and thinnings, this art remains, at a fundamental level, ordinary, modest, graspable, doable. It also stays resolutely impersonal, never sticking for long with any single graphic style, never showcasing a distinctive touch, never carrying a signature.

Although LeWitt came up with the initial designs, his relationship to the work was otherwise hands-off. He wrote instructions for how the work should be done — firm but easy-to-follow recipes with occasional sweeten-to-taste allowances — but hired other artists to do it. Some he trained, with the expectation that they would train others, who would in turn train still others, stretching on through generations.

To help assure smooth continuity, he devised art that didn't require virtuosic talent, just straightforward artisan skills and patient attention. If a drawing was done correctly that was enough.

But the fact that LeWitt asked teams to do the work was significant. On a strictly practical level, this meant each piece could be expeditiously recreated. At the same time the collaborative model offered an alternative to a star-obsessed market. And, like a kind of mini private-sector version of the Works Progress Administration, it gave artists paying jobs doing what they liked to do.

Finally, he understood, as every teacher does, that doing preset tasks could stimulate creativity. Many of his drawings were done by supervised groups of art students — those at Mass MoCA included — in a learning-on-the-job tradition very similar to Renaissance workshop practice. A master artist provides the overarching concept; senior artists oversee production; apprentices do the grunt work and in the process discover and develop ideas of their own.

LeWitt's work is, famously, about ideas before all else. He was one of the first artists to formally define — in a 1967 Artforum article — Conceptual Art. And he was among the first to make work that fit the definition: work that played down the unique art object, with its associations of individual genius, exchange value and physical permanence, in favor of utopian proposals, collective visions, objects that existed first and last as ideas. ("The wall drawing is a permanent installation, until destroyed," LeWitt wrote in 1970.)

A small show called “The ABCDs of Sol LeWitt” at the Williams College Museum of Art, near Mass MoCA, zeroes in on that watershed 1960s moment with an archival display of his manuscripts and drawings, including a draft of the Artforum article with the words that put LeWitt’s career on the map:

“When an artist uses a conceptual form of art, it means that all the planning and decisions are made beforehand, and execution is a perfunctory affair. The idea becomes a machine that makes the art.” The wall drawings are prime examples of this definition in action.

Historically speaking, a visit to Mass MoCA should come after a look at the Williams College show, which has been organized by Lisa Corrin, the museum’s director, and Erica DiBenedetto, an art history student. (LeWitt would have appreciated the leveling.) But there is something to be said for seeing the wall drawings first: for just walking straight into the grand apparatus of concept and color, and letting it sing and shout and whisper around you.

After all, do you need to know the theological ideas behind the virgins and angels painted on the walls of San Marco by Fra Angelico and his anonymous assistants in order to be entranced? No. You will eventually want to know about those ideas 0f salvation and eternity, just as you will want to learn about the ideas — collaboration, generosity, the embrace of ephemerality — that underpin LeWitt’s art and make it, now more than ever, exemplary.

The ideas in Fra Angelico’s frescos are demanding and unworldly. The ideas in LeWitt’s drawings — in the monumental, abstract annunciations and visitations and sacred conversations at Mass MoCA — are exhilarating and of this moment on earth. So are we talking about Conceptual Art or spiritual art? I’d say both.

“Sol LeWitt: A Wall Drawing Retrospective” will remain on view for 25 years at Mass MoCA, North Adams, Mass., (413) 662-2111, massmoca.org. “The ABCDs of Sol LeWitt” continues through May 17 at Williams College Museum of Art, Williamstown, Mass., (413) 597-2429, wcma.org.

http://www.nytimes.com/2008/12/05/arts/design/05lewi.html?ref=arts

BARKLEY L. HENDRICKS
Slick and Styling: Provocative Poses

By KEN JOHNSON

Barkley L. Hendricks did not birth the cool — that was Miles Davis — but his suave portraits from the 1960s, ’70s and early ’80s give him the right to use “Birth of the Cool” as the title of his five-decade retrospective at the Studio Museum in Harlem.

Mixing realism, abstraction and Pop, Mr. Hendricks’s life-size paintings of beautiful black people in extravagantly fashionable outfits against flat, single-color backgrounds captured a period sensibility with uncanny acuity. They also made him famous: he was included in numerous museum exhibitions and featured in a Dewar’s Scotch magazine advertisement.

Today, with figurative art resurgent and portrait painters like Kehinde Wiley, Elizabeth Peyton and Chuck Close enjoying great popularity, Mr. Hendricks’s work is back in style. The exhibition was organized by Trevor Schoonmaker, curator of contemporary art at the Nasher Museum of Art at Duke University, where it appeared earlier this year.

Mr. Hendricks’s spirit is epitomized in a self-portrait called “Slick” from 1977, in which the bearded artist appears shirtless in a snowy-white, double-breasted suit against a matte, slightly off-white background. He wears a colorful African skullcap and a fine gold necklace with a little votive leg hanging from it, has a toothpick jutting from one side of his mouth and gazes back at us through gold-rimmed glasses with a calm, appraising mien. He is perfectly composed in all senses of the word.

Many complexities unfold from what might seem at first to be a fairly straightforward picture. The clothes bring to mind cinematic, disco-era associations: “Shaft,” “Saturday Night Fever.” The skullcap evokes the period’s surge of Afro-centric pride and the influence of African art on European Modernism.

There is the formal tension between the dimensional figure and the flat, white rectangle. Mr. Hendricks, who was born in 1945, came of age when formalist abstraction ruled, and artists like Barnett Newman, Ad Reinhardt and Robert Ryman were revered. The flat, monochrome rectangles that surround many of his figures wed the modern to the traditional. Perhaps Wayne Thiebaud’s deadpan paintings of people against blank backgrounds were an inspiration. Alex Katz’s way with figuration and abstraction was surely an influence too. And it’s not too much of a stretch to think of Kazimir Malevich’s seminal pure abstraction of 1918, “White on White.”

The first painting in this exhibition that shows clearly where Mr. Hendricks was headed is a head-and-shoulders portrait of a young African-American soldier, whose olive-green helmet and shirt harmonize with the bright-green background. It was 1968, and Mr. Hendricks was serving in the National Guard a

year after graduating from the Pennsylvania Academy of the Fine Arts and two years before he would head for Yale, where he would earn his Master of Fine Arts in 1972.

Besides its finely tuned formal qualities, the painting of the soldier is historically arresting. You can't help but think about Vietnam and the disproportionate number of African-Americans who fought and died there. It makes no explicit statement about the war; nor does it overtly comment on the racial strife at that time. But because the young soldier has his eyes meditatively closed in the shadow of his helmet's brim, and because the painting allows the viewer mental space to reflect on its implications, it has a haunting resonance.

That Mr. Hendricks was keenly aware of how paintings play in the socio-political arena is shown most conspicuously in a full-frontal self-portrait from 1977 in which he is wearing only sports socks and sneakers, some jewelry, glasses and a white leather applejack hat. The title is "Brilliantly Endowed," a double-entendre that plays on a favorable review of Mr. Hendricks's work by Hilton Kramer, then an art critic for The New York Times, who wrote that Mr. Hendricks was a "brilliantly endowed" painter. With understated economy, the painting mocks American fantasies about the black male body.

But the clothed body would be Mr. Hendricks's signature subject. His interest as a portraitist was not in private selves but in public personae. See, for example, "Sir Charles, Alias Willie Harris" (1972), whose subject, in a play on the Three Graces, appears in triplicate — facing right, left and into the background — wearing a scarlet trench coat, black suit, white turtleneck and two-tone wingtips.

Mr. Hendricks toys ambiguously with stock associations. Hollywood stereotypes of disreputable characters often played by black actors — pimp, drug dealer, gangster — come to mind. On the other hand, Sir Charles could be a magazine fashion model or a real-life dandy. So there is a provocative connection between the individual person and Pop culture — much enhanced by the unspoken background of racial craziness in America.

Some people seem more real. In "Sweet Thang (Lynn Jenkins)" the subject reclines on a couch blowing bubble gum. A young woman named Tequila in a 1978 painting has a look all her own: in loose, bright-red below-the-knee shorts, canvas basketball sneakers, striped athletic socks, a wide-collared sailor shirt, denim jacket and a long-billed cap, she poses with one fist on her hip, a cigarette in her other hand and an amused, slightly skeptical expression.

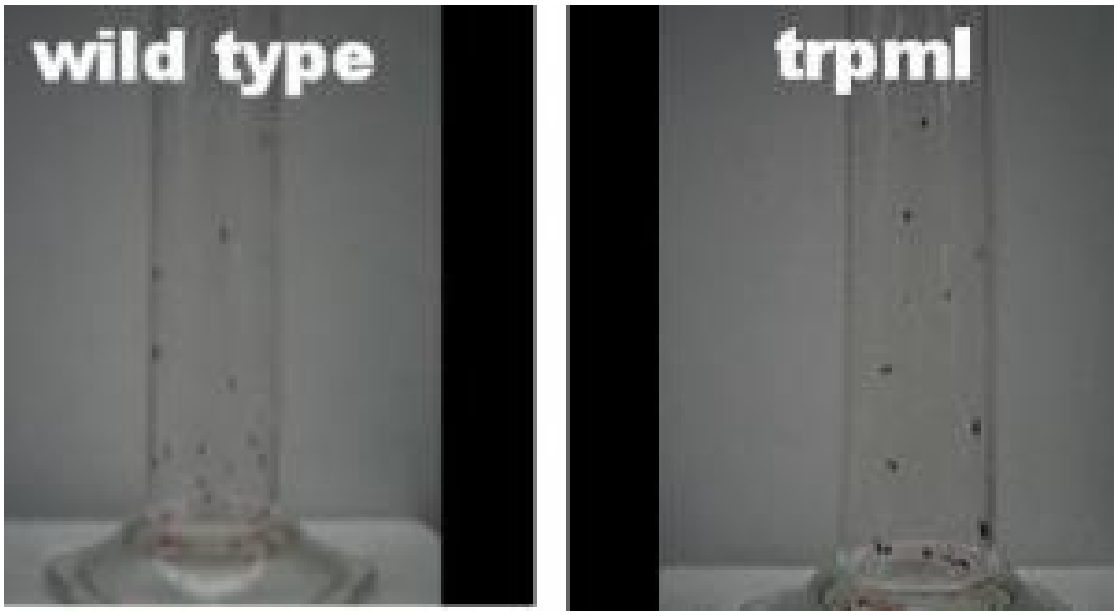
Mr. Hendricks, who has taught at Connecticut College since 1972, stopped making his large figurative paintings in the early '80s and for the next two decades devoted himself to outdoor landscape painting during vacations in Jamaica. A half-dozen of those small works on oval and lunette canvases are included, but they are not nearly as captivating as his portraits. (Excluded from this all-painting exhibition is Mr. Hendricks's considerable work in photography.)

Recently he has returned to life-size portraiture, and the exhibition includes an example from 2002. An image of the African pop star Fela Kuti performing in an orange track suit with a gold halo over his head against a golden, tapestrylike field, it has a wide, wooden frame and a collection of high-heel shoes on the floor in front of it representing the singer's 27 wives, or "queens." You can imagine a series of hagiographic tributes to other artists following from this, but for now Mr. Hendricks's most memorable achievement remains his early pictures of coolness personified.

"Barkley L. Hendricks: Birth of the Cool" is at the Studio Museum in Harlem, 144 West 125 Street, (212) 864-4500, studiomuseum.org, through March 15.

http://www.nytimes.com/2008/12/05/arts/design/05hend.html?ref=design

New Hope For Treatment Of Brain-damaging Disorder In Children



Wild type flies on the left; trplm on right. Researchers genetically modified flies to exhibit symptoms of mucolipidosis type IV (ML4), a disease in which nerve cells in the brain and elsewhere die. They discovered that the nerve cell death and progression of the disease is linked to a build-up of toxic waste in cells. (Credit: Image courtesy of Johns Hopkins Medical Institutions)

ScienceDaily (Dec. 4, 2008) — Johns Hopkins researchers have used fruit flies to gain new insights into a brain-damaging disorder afflicting children. Their work suggests a possible therapy for the disease, for which there is currently no treatment.

The researchers genetically modified flies to exhibit symptoms of mucolipidosis type IV (ML4), a disease in which nerve cells in the brain and elsewhere die. They discovered that the nerve cell death and progression of the disease is linked to a build-up of toxic waste in cells. Surprisingly, cell death is delayed by introducing normal blood cells into the flies. The work, reported in the Nov. 26 issue of Cell, suggests that bone marrow transplantation may help children affected by this disease and possibly related disorders.

"ML4 is one of 40 so-called lysosomal storage disorders which together account for the most common cause of neurodegeneration in children," says Craig Montell, Ph.D., professor of biological chemistry at the Johns Hopkins University School of Medicine.

The starting point was previous knowledge that the ML4 disease is caused by loss of the human TRPML1 protein, which works in the membranes of the garbage-collector organelles inside of cells. These organelles, lysosomes, break down damaged cellular material. The Johns Hopkins team created flies lacking the TRPML gene and then tested the effect of that "knockout" on motor skills. Healthy, normal flies naturally climb upward quickly after they are tapped down to the bottom of a tube, regardless of their age. But the researchers found that the mutant animals were unable to move up the tubes rapidly. This problem in motor activity worsened in older flies, demonstrating the same progressive loss of motor function that characterizes ML4.

Without TRPML, cells build up toxic contents and eventually die. The Johns Hopkins researchers found that the noxious contents then bust out of the dying cells and speed up the demise of neighboring cells, causing an explosion of cell death that fans the fires of neurodegeneration, intensifying the impaired motor function and retinal degeneration that are hallmarks of ML4. When the scientists put the TRPML

gene back into neurons of the mutant flies, neurodegeneration was prevented and normal climbing ability restored.

The surprise came when, in a standard control experiment, the researchers hoped to show that it was the presence of normal TRPML in nerve cells, rather than any other cell type, that restored motor function. So they put the normal TRPML gene back into non-nerve cells, in this case blood cells.

"In the control experiment, no one expected any effects, much less the dramatic improvement that we saw," Montell says. "Essentially, putting TRPML back into blood cells "rescued" the mutant flies from symptoms of the disease." According to Montell, the TRPML-containing blood cells cleared away dying nerve cells before they could release their toxic contents and kill neighboring cells, thereby preventing rapid neurodegeneration and motor problems.

"After a bit of brainstorming, we came up with the idea that if putting TRPML back into blood cells could do this in flies, maybe it could do so in other animals, including people, using bone marrow transplants to reconstitute blood cells with normal TRPML," adds Montell, whose team now is using mice engineered with ML4 to test their response to bone marrow transplantation.

"Bone marrow transplantation is an excellent idea," says Pierluigi Nicotera, M.D., Ph.D., an expert in neurodegeneration and member of the British Medical Research Council, who described the research paper as "one of the best I've seen in the past few years in this field."

"The rationale that's proposed is crystal clear. If you can even stave off the progression of this disease by clearing off dying neurons, it would be a big advance. "

Randy Yudenfriend Glaser, president of the ML4 foundation, and the mother of two children, ages 24 and 18, with the lysosomal disorder, calls the work " very exciting," but, as does Montell, cautions ML4 families "to take a deep breath" and realize that more work needs to be done before clinical application.

Says Montell, "It is exciting that the first idea for a treatment for this childhood disease came from fruit fly research. The key insight was the result of using a combination of techniques uniquely available in fly research."

The research was supported by the March of Dimes, National Eye Institute, ML4 Foundation and National Institute of Neurological Disorders and Stroke.

The lead and senior authors of the paper are Kartik Venkatachalam and Craig Montell, of the Johns Hopkins School of Medicine. Other authors are Rebecca Elsaesser and Daria Nikolaeva, also of the Johns Hopkins School of Medicine, and A. Ashleigh Long and Kendal Broadie, both of Vanderbilt University.

Adapted from materials provided by Johns Hopkins Medical Institutions, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/11/081126133311.htm

Almost Ready for the Doctoral Program Rankings

Even the harshest critics of *U.S. News & World Report* would have to give the magazine credit for one thing: There's no doubt when the rankings of colleges will come out. They appear like clockwork every fall.

Many educators who scoff at *U.S. News* cite the evaluation of doctoral programs by the National Research Council as a different category of ranking — one that is more methodologically sound and rigorous. But when it comes to timeliness, the NRC isn't winning any contests. Its last rankings were released in 1995, and the one prior in 1982. While the research council never had the goal of issuing annual reports or anything close, delays and debates have become common — especially with word that the next version is due out in February.Given the importance of doctoral programs to producing research and the next generation of professors, not to mention their high expense at a time of tight budgets, graduate deans very much want to know more about what they will feature.

On Friday, the woman overseeing the rankings project appeared at the annual meeting of the Council of Graduate Schools. Charlotte Kuh used her presentation — with mixed success — to promote the idea that universities should not focus on any one overall ranking for their various departments, but should benefit from the new way the information will be presented: it will feature several subcategories that may allow some departments to shine selectively, even if not achieving the overall top rankings many seek. Kuh appeared to succeed in that the graduate deans present seemed to take the subcategories seriously.

But there was not a general calming down of these officials, who remain anxious and in some cases critical of the coming report. Many were focused on planning public relations strategies for when the material is released. Others objected to some of the methodology and Kuh indicated that in some cases, methodology questions are still open for question, while in other cases, there is no perfect solution. (While several deans said later that they were not satisfied with the answers, the general tone of the meeting was collegial, with deans praising Kuh for her willingness to appear before them and to keep them up to date on the project's progress.)Kuh provided new details on how the NRC is constructing three "supplemental measures" that will be both part of the main rankings and available individually. Although she called them "supplemental," Kuh said that they are actually "essential measures" for doctoral programs. They are scholarly productivity, student outcomes and support and diversity.

In each of these cases, data will support the rankings, but faculty surveys have been used to weight the relative importance of different factors that make up the analyses. While the scholarly productivity measure is closest to the values that shape the overall ranking, Kuh stressed that all of these measures matter. "The quality of doctoral programs is not just about the scholarly productivity and scholarly recognition of program faculty," she said.

For each subcategory, there are further subcategories:

For scholarly productivity: Average publications per faculty member, average citations per publication, grants per faculty member, awards per faculty member.

For student support and outcomes: Percentage of graduate students with full support, average cohort completing program in six years, average time to degree, job placement of students, and availability of outcomes data.

For diversity: Percentage of professors from underrepresented minority groups, percentage of faculty members who are women, percentage of students who are from underrepresented minority groups, percentage of students who are female and percentage of students who are international.

There will be some definition shifts based on discipline. For example, on the measure of percentage of entering cohorts finishing within six years, the measure for the humanities will be eight years. Then, for each subsection of the subcategory, faculty surveys are being used to weight the various factors. So under scholarly productivity, for example, faculty members in the sciences are counting grants as a much larger share than are humanities professors.

The questions Friday didn't challenge the importance of any of the categories, but raised concerns about how they are being measured. One dean said that her agriculture science professors were bothered by the idea that grants are being counted by their number, without regard to their quality, importance or size. So a faculty member who receives $1,000 from a local agricultural producer to study some local problem is counted the same way as a faculty member who pulls down a large, peer reviewed grant from a prestigious national agency. The dean said that there was "a lot of angst" in some disciplines over such apparent flaws in the methodology.

Another dean raised a question about how success is measured in the diversity categories, and was told that the greater the diversity, the greater the score. In many of the diversity categories, that may make sense, and many departments have relatively low percentages, for example, of minority faculty members. But he said that the international students ranking was potentially deceptive under this system. The dean said that any graduate program that doesn't attract any foreign students probably deserves to go down in the rankings. But he said that a program where 95 percent of the students are international isn't necessarily better than one with 40 percent — and in fact is quite likely a worse program.

"Some of the less strong programs are overly reliant on international students," he said.

Kuh responded to that criticism by saying that "we're going to have to think about that before the report comes out." But she also said that on many issues, the panel of educators working on the rankings spent time considering alternatives, and had to pick one — not because that choice was perfect but because some choice was needed to get the project done.

Judging from the responses of deans, most accept that approach in theory, but not necessarily when the choice could make one of their programs look bad. Perhaps anticipating that they will be disappointed, many deans pushed the NRC for as much advance time as possible with the rankings before they are formally released, and asked the NRC and the graduate schools group to be assertive in providing context for reporters about what the rankings mean.

NRC officials said that they would do their best. But those involved in the rankings appeared to be trying hard to get people to understand that they won't like everything in them.

Richard Wheeler, vice provost and dean of the Graduate School at the University of Illinois at Urbana-Champaign, and a member of the panel that worked on the rankings, drew on his experience as a literary scholar for some expectations management. He noted that Henry James called many classic Russian novels "loose baggy monsters." Explained Wheeler: "That's not a bad way to think about the NRC report. But remember, it's worthwhile to read Dostoyevsky and Tolstoy."

Extending his literary comparison, Wheeler also quoted the poet Randall Jarrell, who called novels "prose narrative of a certain length that has something wrong with it." Combine the two quotations, Wheeler said, and you have the coming NRC rankings: "a loose baggy monster of considerable bulk with something wrong with it."

But he stressed that people need to be open minded. "I think it will have good things in it and be useful," he said. "But good is not to say that it will be beautiful or to say that it will be perfect." To those who question some methodological choices, he said they may well be correct. "There's just nothing in this assessment that couldn't have been done differently."

— Scott Jaschik

The original story and user comments can be viewed online at
http://insidehighered.com/news/2008/12/08/nrc.

English, Redefined, at Harvard

"Losing the Canon?" prompts a provocative subhead in a Thursday *Harvard Crimson* article.

"The simple answer to that question is no. We're not losing the canon, we're just not doing things the same way anymore," said Daniel Donoghue, a professor and director of undergraduate studies in Harvard University's English department.

"This is one of those strange disconnects, not so strange, I guess," mused Donoghue. "We went through a rather elaborate process to revise our entire undergraduate program. The immediate reception of it is we are eliminating these two longstanding, large British survey lecture courses. That was almost the beginning and end of interest in this new program."

A proposed new undergraduate English curriculum for majors (or, in Harvard's terms, concentrators) would indeed replace current requirements, including the standard historical survey courses – in major British writers and American literature — with a set of four seminars, of 25 students or less. "Part of it is the pedagogy," said Donoghue. "We're trying to move away from the large impersonal lecture courses to smaller courses that may still be lecture courses, but students have a much greater chance of getting into dialogue with the professor either in class or outside of class."

The plan, approved by the English department in a vote last week, is still pending consideration by the university-wide Educational Policy Committee, which meets in February. In the interval, professors are declining to discuss specifics of the proposed new program.

However, that same *Harvard Crimson* article includes a two-page document outlining the proposed changes. Under the plan, the four core seminars would be centered on the themes of Arrivals ("There is no such thing as writing that is indigenous or 'native' to England..."), Poets, Diffusions ("Between the seventeenth and the nineteenth centuries, English spread around the globe...") and Shakespeares. Under the current plan, the set of four seminars would replace the historical survey courses and a sophomore seminar on methodology, and students would have more space for electives.

"We are diminishing the role of chronology as the absolute, as the only organizing rubric ... to combine it with genres and with geography as equally viable ways of thinking about literature and studying literature," said Donoghue.

Asked if he still thinks of the four proposed seminars as "survey courses," he thought for a moment and then cited the breadth of content to be covered, according to the current proposal. "Let's go to Diffusions. It's highly unlikely that there would be a professor who focuses exclusively on Emily Dickinson and her legacy.... All of these courses, as we imagine them right now, would at least have the ambition of a survey, whether or not you recognize it as a survey."

Consider the written description of the proposed Arrivals course, for instance, which stipulates an expectation of "a very wide chronological range, from Anglo-Saxon poetry to Milton," and lists old standbys as possible texts — *Beowulf*, *Paradise Lost*, and *Sir Gawain and the Green Knight*. Meanwhile, the description of the Poets course states that consideration should be given to works of several centuries (and suggests, as possible readings, such canonical texts as "selected *Canterbury Tales*" and Yeats's poetry).

"We also hope that every common-ground course (not just Arrivals) will devote some attention to the ever-changing miracle behind everything we do, the English language itself," states the document's conclusion.

Rosemary G. Feal, the executive director of the Modern Language Association, said she saw links and synergies between what Harvard's English department is proposing and wider discussions in the field. She said the MLA is encouraging faculty "to ask what is our discipline today."

"The bigger frame question is how do faculty members in a discipline rethink the presentation of that discipline as time goes on? That's the meta-question that Harvard is dealing with."

Gerald Graff, a professor of English and education at the University of Illinois at Chicago who has written extensively on teaching literature (and currently serves as the MLA's president), said that there has been a movement away from the historical survey course, stemming from the 1960s.

"I know that's been greatly lamented by some traditionalists. What those who lament the demise of the survey never confront, I don't think, is that the traditional survey was often very unsuccessful — students didn't come away from the survey course often with a very sharp sense of history," said Graff. "In principle, I agree with the people who say that a thematic focus actually gives you some advantages in teaching historical perspective because you can contrast, or compare and contrast, the way medieval writers versus modern writers teach the same theme. And you often lose that sense of comparison and contrast in a historical survey."

Counting himself among the proponents of the traditional core curriculum, Christopher B. Lacaria, a senior history concentrator at Harvard, saw the proposed shift as further evidence of relativism at the university — "the fact that Harvard doesn't feel like it has any responsibility to say what ought to be learned." *The New Yorker* recently quoted Lacaria's *Crimson* op-ed on the subject in a short, tongue-in-cheek piece, "Decline of Civilization Dept.: Harvard 'Eviscerates Liberal Education.' "

"I'm sort of concerned that the [new] categories are somewhat amorphous," Lacaria said in an interview. Speaking of the proposed "Shakespeares" course as one example, "A course in *Hamlet*," he said, "would fill the same basic requirement for an English major as a course on sex in Shakespeare or something else trendy that they like to study in literature these days."

— Elizabeth Redden

The original story and user comments can be viewed online at http://insidehighered.com/news/2008/12/08/harvard.

A Widget Onto the Future

They float around on desktops, populate home pages and bulge out of Facebook profiles. They aren't exactly tangible, which is why they're called widgets, but they're real enough within the digital ether than some educators want to turn them into teaching tools.

The portable, Web-based gadgets are an ideal medium, they say, for creating interactive, individualized instructional materials that can live on a course Web site, a personal blog or even a mobile phone.

Already, some instructors are using them in their own courses, and the idea is catching on as others consider the possibilities. While widgets aren't nearly as ubiquitous in learning circles as are PowerPoint presentations or online quizzes, some educators hope the time is ripe for them to catch on. A meeting of the Northeast Regional Computing Program is already being planned on the topic for next year and professors are busy discussing and embedding widgets on their blogs.

A widget can be nearly anything — a box that streams the latest links from an RSS feed or a peek at someone's latest photos. What they all share is size (small), flexibility (they can be programmed to any specification) and compatibility (they can be adapted for many platforms). As the latest versions of course management packages adopt module-based interfaces and as colleges' Web portals cull together widget-like boxes for the latest news and e-mail, the objects are becoming more familiar to students — even if they don't realize it yet.

So while the most common widgets live as Facebook applications or on Apple's Dashboard, a time when students and professors use the gadgets in the classroom might not be too far off. They can be embedded on course Web sites, blogs or pages that aggregate many widgets and other tools.

"With a widget, you can give them more interactive chunks of Web content, more customized chunks ... and with the page aggregators, the teacher or the student can arrange it in a way that teaches [them] well," said Mark C. Marino, who teaches writing at the University of Southern California and who created a customized widget that instructs students in the use of "topoi," a Greek concept used to better understand an idea.

Marino created an entire page, hosted by the Web service Pageflakes, that serves as a kind of home base for the topic. Students can visit the page and see a collection of modules: one that explains the topoi, another that encourages students to "rip" and share the topoi widget, another that serves as a Web-based notepad, and so on. It all revolves around the widget itself, a small interactive tool that walks students through the concept and links them to videos from class.

The widget itself can be modified and pasted into other environments, like Facebook and MySpace, and Marino encourages students to use and modify the tools to match their learning styles.

"My idea was to create pages around particular learning tasks built of widgets that target different learning styles (text, video, interactivity)," he wrote in a blog post earlier this year. "Then, users can copy, cut, or change whatever doesn't work for them. Each student and faculty member can create his or her own lesson plan based on the tools they find most useful. This isn't meant to replace the classroom (a la distance learning, though it would help) — but to create a set of learning objects that people can add to their own pages or rework to suit their needs."

Marino said his widget has been viewed over 20,000 times and installed on other sites at least 75 times. Others also think he's onto something. Susan Metros, associate vice provost for technology enhanced learning and deputy chief information officer at USC, said that she has encouraged other instructors to use widgets, and that as she is "thinking about how we might combine different Web 2.0 technologies ... widgets [will] play an important role."

Those technologies could either work in concert with existing learning management software or potentially become part of a shift — small but noticeable — toward open-source solutions.

"What I see happening, as this moves away from course management systems, is [the ability to] embed a bunch of different gadgets, whether it's a discussion gadget or a calendar gadget, to create a curriculum," said Eileen McMahon, who uses widgets in one of her courses at the University of Massachusetts at Boston and is organizing the Nercomp meeting next year.

Metros stressed that in many ways, widgets embody educational theories that have been discussed for years, especially the concept of "learning objects," teaching students in a more modular, linked fashion that emulates the way they interact with the online world, rather than the linear world of books and lectures.

"I don't think it's new, I just think ... the technology kind of caught up," she said.

— Andy Guess

The original story and user comments can be viewed online at http://insidehighered.com/news/2008/12/08/widgets.

ALVIN AILEY AMERICAN DANCE THEATER
A Simple Story With a Complicated Greek Chorus

By ALASTAIR MACAULAY

The stars of "Go in Grace" — a new dance piece created for the Alvin Ailey American Dance Theater by Hope Boykin, a company member — are its musicians, the six female singers of the a cappella group Sweet Honey in the Rock. Onstage almost throughout, they are seen far more than any one of the work's six dancers, and are happy to let us know that they too are good movers. More essentially, they're good musicians, sometimes singing in close harmony, sometimes taking turns singing solo, all in a range of African-American musical idioms that stayed sweet and gentle even when the subject was anguish.

"Go in Grace," which had its premiere on Friday night at New York City Center, starts with Sweet Honey slowly walking forward in a line across the stage. When the dancers enter, we see them as background (brightly lighted) through the (part-shadowed) foreground of the singers. Ms. Boykin then gives Sweet Honey a function akin to that of a Greek chorus. These women are witnesses, confidants, advisers and changing scenery, as well as the story's words and music. They also play percussion, and one does a form of American Sign Language. They're at the perimeter of the stage, they huddle around an individual and with or without the dancers, they form vertical or diagonal lines across the stage.

Meanwhile the dancers tell a story — or rather illustrate the story that's being sung — of father, mother, brother, sister and two neighborhood boys. Nothing here is unusual. Children grow up; the father (Amos J. Machanic Jr.) and daughter (Rosalyn Deshauteurs) are close; the son (Matthew Rushing) has a rebel streak; the father dies.

The main interest lies in how music and dance connect. In one image five singers form a wall, walking across the stage: their backs are turned on the father in his hour of pain and need just before death. Yet more memorably, at the end, the singers and other dancers are a window between the daughter and her father's ghost: she feels and sees him as they do not.

If such visual poetry occurred more often, “Go in Grace” might become dance drama of importance. It tends, however, to stay literal and is further limited by an element of playacting. Though Mr. Rushing is a skilled dancer and a valuable artist, he lets us know, as the son, that he’s playing a wide-eyed boy. His adolescent problems don’t feel sincere. We come nearer psychological reality with father and daughter, but without any surprise or telling detail.

The originality of “Go in Grace” is as musical staging. Even here it could be better. During a couple of episodes depicting the girl’s adolescence the chorus women sing their “Little Girl” commentary to us while playing the role of physical support system to her. It’s all so obvious and claustrophobic that you long for her to reject these presumptuous well-meaning types. But the production’s fluidity is a real pleasure. I don’t recall ever seeing musicians so much part of the stage action in a dance before: it’s a line worth pursuing.

The first week of the company’s five-week season at City Center was otherwise dominated by revivals of dances by Ailey, its founder-choreographer. Quite right: this is the troupe’s 50th anniversary. We’ve not only seen “Blues Suite” (1958), “Reflections in D” (1963), “Night Creature” (1974) and “Memoria” (1979) as well as the classic and inevitable “Revelations” (1960) in their entirety, we’ve also seen excerpts of “Masekela Language” (1969), “Cry” (1971), “The Lark Ascending” (1972) and many more.

What all these Ailey revivals show — apart from a good deal of basic stagecraft — is just how diverse a stylist he was. He took from the dance techniques of Lester Horton, Martha Graham, José Limón and others, and he employed the idioms of jazz dance, Broadway and ballet. Often he switched voice in midwork. The range of styles in “Revelations” is part of its genius, and there’s a moment in the middle of “Night Creature” that always makes me grin, as one man and two women arrive and out of nowhere start to perform a neat, intricate, exacting kind of ballet — nonstop jumps with legs beating in the air — that’s nothing like what we’ve been watching.

This kind of variety is quintessential Ailey. On current evidence, none of his other work came close to the mastery of “Revelations,” yet even when it was thin, it seems to have been about aspects of transcendence. You think we’re solely African-Americans? We include whites. You think we dance only with our legs? Watch how much we do with our pelvises and spines. You think we can do just one kind of dance? We do many. You think we just represent America? We’re universal.

The universality of the Ailey repertory is, admittedly, not often very interesting. But it is frequently exciting: the women’s solos in “Cry” and “The Lark Ascending” are good examples of this. And appealing: witness large parts of “Night Creature.” I often like it best when Ailey addresses dance technique itself and shows how mastery of a movement can express something larger. Nobody can miss this in parts of “Revelations” like the “Fix Me, Jesus” duet (the woman’s trickiest moments often win waves of applause) and the “I Wanna Be Ready” solo.

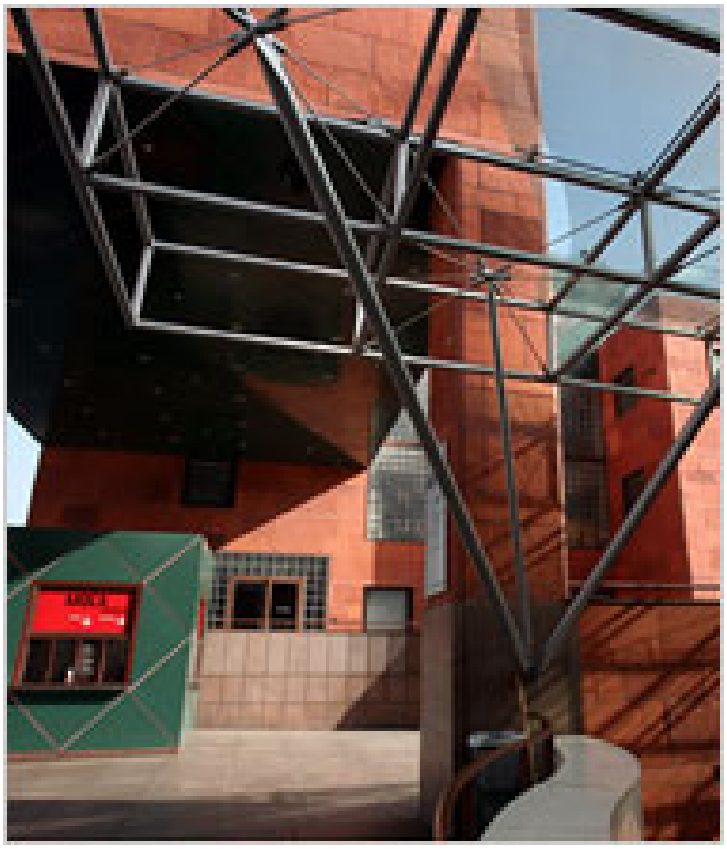
Here dance rigor becomes an expression of religious aspiration, a feat scarcely approached by any other choreographer. And my favorite parts of “Blues Suite” are where the male dancers’ slow falls (an aspect of the Horton technique in which Ailey was originally trained), staggeringly controlled through the legs, express more than one aspect of the spirit of the blues: desolation, focus and largeness at the same time.

Alvin Ailey’s season continues through Jan. 4 at New York City Center, 131 West 55th Street, Manhattan; (212) 581-1212, nycitycenter.org.

http://www.nytimes.com/2008/12/08/arts/dance/08grac.html?_r=1&th&emc=th

Here's How to Rescue a Museum at the Brink

By ROBERTA SMITH



The first thing to be said about the fiscal crisis facing the Museum of Contemporary Art in Los Angeles, horrendous as it is, is that it could be a lot worse. The museum regularly overran its budget and dipped into its endowment to cover operating costs, which is scandalously irresponsible. But let's keep some perspective. The museum needs to raise roughly $25 million and embrace a new strategy to stabilize itself. And it can do it.

This institution has to be born again, wrestled into a new phase of its marvelous history by the people who brought it into being in the first place, with help from the rest of the art world. But first there needs to be a truce. Both the siege and the bunker mentality must be suspended. People have to set aside their rage at one another and at outside critics. They should stop fretting about their reputations or grudges. Egos have to be left at the door.

Imagine the museum as a gravely ill relative deeply loved by an enormous squabbling family. Does that family really want to come together for the first time at the funeral, especially knowing that the patient could, with cooler heads, have been saved? No. Let's come together right now. The director of the museum, Jeremy Strick, has to have support and input from his museum-director colleagues about ways to restructure his staff. The directors are known to be a fairly friendly group. The museum's board, drained by writing last-minute checks to keep the wolf from the door, should sit down with collectors, former trustees and the past and present cultural leaders of Los Angeles. (Joel Wachs, who moved to New York from Los Angeles to lead the Warhol Foundation, comes to mind.)

They need to commiserate, listen to one another, draft a rescue plan and see what kind of money they can scrape together. Everyone needs to step up, including Los Angeles museum professionals, current and former trustees, artists and interested parties everywhere. But let's back up for a second. What did Los Angeles get from the Museum of Contemporary Art, despite its chronic mismanagement of money? Plenty. Mainly, the city's first — and still only — world-class museum.

Brought into existence in 1979 by a contentious group of Los Angeles collectors and artists in a touch-and-go process, the museum is known for an exhibition record that many feel is the best in the country and even the world. Its sweeping thematic-survey exhibitions reshaped our thinking about postwar art by venturing beyond the canon of American and Western European artists, beyond the limits of painting and sculpture.

The titles of those surveys broadcast their ambition: “Out of Actions: Between Performance and the Object: 1949-1979.” “A Minimal Future? Art as Object, 1958-1968.” “Reconsidering the Objects of Art: 1965-1975.” “Art and Film Since 1945: Hall of Mirrors.” Each show came with a thick innovative catalog that resonated long after the exhibition was over.These shows were in the tradition of the big exhibitions that the Museum of Modern Art once organized. They gave off sparks that challenged and inspired artists, especially those in the area. With the prodding of the Museum of Contemporary Art, Los Angeles became an incubator of new work on a par with, if not ahead of, New York. In addition there were also monographic shows like a stunningly ambitious installation by Robert Gober in 1997, or a revelatory survey of Sigmar Polke’s photographic work in 1995. Since many of those shows traveled to New York, like the outstanding show of Robert Rauschenberg combines that opened in Los Angeles in 2006, the Museum of Contemporary Art was known as one of the greatest feeder museums in the country.

Yet along the way the museum has accommodated a level of financial brinkmanship and organizational dysfunction that often seems deluded. Its founding director was Pontus Hulten, the European impresario who helped invent the notion of the star curator and the sprawling thematic survey and was often indifferent to matters financial. Richard Koshalek, who, after working beside Hulten, became director in 1982, was another visionary, known to operate by seat-of-the-pants improvisation. For better yet also worse, this museum always put curators first. Under Mr. Strick, who took over in 1999, its endowment has shrunk to $6 million from a reported $50 million as a result of further recklessness. Its board is widely reported to be pondering two rescue possibilities, neither of which is appealing although neither has been properly explained.

One is a merger with the Los Angeles County Museum of Art. (Imagine the effect on New York if MoMA or the Whitney Museum of American Art had been subsumed into the Metropolitan Museum of Art at the age of 30. For one thing P.S. 1, which has been rejuvenated by its MoMA affiliation, might no longer exist.) The other option is a $30 million bailout offered by Eli Broad, the developer, collector and serial museum trustee.

Although Mr. Broad tends to want things his way, he is hardly alone on this score; noblesse oblige is not what it used to be. And he made two salient arguments in an op-ed article last month in The Los Angeles Times: the Museum of Contemporary Art must remain an autonomous entity, and it is time for other patrons to step up to the plate — time for Los Angeles to stop being, as he put it self-flatteringly, “a one-philanthropist town.”

But perhaps there is another way. What if everyone else stopped waiting for the rich people to write all the checks? Their support will be necessary, but the larger art world can also pitch in — not just with emotional support and excitement, but with money.

The recent art boom made quite a few artists almost as rich as philanthropists. You know who you are. But the nonrich need to consider seriously the degree to which the Museum of Contemporary Art has enriched their lives, personal and professional. What is it worth to you to have this museum continue to exist? Would you give $100? $500? $1,000? Would you give $2,300? In other words, take a page from the playbook of the recent campaign of the president-elect, who harnessed small donations, grass-roots organization and a galvanizing sense of individual empowerment to sail to victory.

But first the museum’s board and director need to draft an action plan in concert with Los Angeles’s city and cultural leaders.

We’re waiting. There’s a job to be done, and the no-drama rule must apply.

http://www.nytimes.com/2008/12/08/arts/design/08moca.html?th&emc=th

Glimmer of hope for rare monkey

A new sub-population of a Critically Endangered species of monkey has been recorded in north-western Vietnam.

Biologists from Fauna and Flora International said they had found up to 20 Tonkin snub-nosed monkeys in a remote forest.

The team said the new group offered a ray of hope because it included three infants, suggesting that the monkeys were breeding and increasing in number.

Until now, fewer than 250 of the primates were thought to exist.

"When I saw the Tonkin snub-nosed monkeys, I was overjoyed," said biologist Le Khac Quyet.

"This new discovery further underlines the importance of learning more about the monkeys' range and distribution.

"There is still time to save this unique species, but with 200 or so left and the threat still strong, we need to act now," he added.

Under pressure

The IUCN Red List of Threatened Species lists the monkeys as Critically Endangered because their numbers have continued to decline as a result of intensive hunting and deforestation.

Until now, the monkeys had only been recorded in a few north-eastern areas within Vietnam, with no group exceeding 50 mature adults.

The loss of habitat and human encroachment had "dramatically restricted" the animals' distribution, the Red List warned.

It also said that the creatures' inquisitive nature also meant that they did not flee when approached by humans, increasing the risk of being shot by hunters.

However, Fauna and Flora International (FFI) hopes the discovery of the new sub-population will lead to increased efforts to protect the primates' remaining habitat.

"All recent indications suggest that we have a fantastic opportunity to secure this population and significantly increase the chances of survival of this species," explained Paul Insua-Cao, FFI's Vietnam primate programme manager.

Biologists observing the monkeys also found that they were more wary of people, issuing warning signs to each other.

The FFI team suggested that this group had associated humans with danger, perhaps as a result of ongoing threats from hunters.

A global assessment of the world's primates published in August warned that 48% of the order faced extinction.

The outlook, described as depressing by conservationists, warned that the main threat was habitat loss, primarily deforestation.

Other threats include hunting of primates for food and the illegal wildlife trade.

The FFI team hopes its work, co-funded by the UK government, with local people will ease the pressures on the Tonkin snub-nosed monkeys' habitat.

Measures including curbing the growing of crops in the area's tropical forests and confiscating hunters' guns have already been introduced since the new sub-population was first recorded in April 2008.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7767360.stm

Published: 2008/12/07 09:32:15 GMT

'Body clock gene' diabetes clue

The workings of our internal body clock appear to be directly connected to our risk of diabetes, researchers claim.

International research published in the journal Nature Genetics found faults in a key 'clock gene' were linked to blood sugar levels and type II diabetes.

Some scientists already believe that our circadian rhythms (body clock) have a role to play in the condition, which affects millions worldwide.

But one expert said more evidence was needed, before a link was proved.

Scientists say that unravelling the links between obesity, type II diabetes, and circadian rhythms could point the way towards new strategies to control or prevent the illness.

The fact that humans work on a rough 24-hour cycle, sleeping at night, and waking to be more active during the day, is controlled partly by hormones released by the body.

One, in particular, called melatonin, released by the pineal gland in the brain, is involved in drowsiness and the lowering of body temperature.

The researchers, from a variety of universities in the UK and abroad, scanned the genomes of thousands of people looking for associations between particular genetic variations and type II diabetes.

A team including scientists from Imperial College London found one genetic "variation" which appeared to be linked to a 20% increase in the risk of type II diabetes.

Another, including Oxford and Cambridge University scientists, discovered a second variation which could be linked to naturally higher blood sugar levels and diabetes risk.

However, it was the location of these variations on the human genome which suggested the connection to the internal body clock.

Both were connected to MTNR1B, a gene which helps control the action of melatonin on different parts of the body.

Bad sleepers

Professor Philippe Froguel, from Imperial College, said that the findings fitted with earlier research linking sleep problems with obesity, which increases the risk of type II diabetes.

"For example, we know that obese children tend to sleep badly and that people become more obese if they are not having enough sleep.

"Our research demonstrates that abnormalities in the circadian rhythm may partly be causing diabetes and high blood sugar levels - we hope it will ultimately provide new options for treating people."

Professor Nick Wareham, the director of the MRC Epidemiology Unit in Cambridge, said: "This observation provides important clues about the possible mechanisms linking genes to diabetes risk."

However, sleep and circadian rhythm researcher Dr Jim Horne from the Sleep Research Centre at Loughborough University said it was too early to be suggesting that problems with the body clock might actually be responsible for obesity and diabetes.

He said: "There are other explanations for the link between obesity and sleep disturbance - people who eat too much may have disturbed sleep, or be drowsy or sleep during the day, and obese people may suffer from sleep apnoea which can disturb sleep.

"The evidence linking insufficient sleep with these changes is very contentious, and we should be cautious about drawing the wrong conclusions."

Separate research by researchers at Leeds University suggests that children with diabetes living in poorer households are less likely to have their blood sugar levels under control.

They looked at blood sugar levels in 1,742 Yorkshire children, mostly with the type I form of the disease, and found that fewer than 15% were reaching National Institute for Clinical Excellence targets.

Those from lower-income families were less likely to hit the target than those from more affluent families.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7767320.stm

Published: 2008/12/08 00:51:00 GMT

'Injectable bone' helps fractures

A material that can be squirted into broken bones, where it hardens within minutes, has been developed by UK scientists.

The toothpaste-like substance forms a biodegradeable scaffold over which the body's own bone grows.

Its makers, from Nottingham University, said it could help remove the need for painful bone grafts in many cases.

They are working to start clinical trials in the UK, and expect it to be used in the US within 18 months.

The "injectable bone" won a prestigious medical innovation award last week, and is the brainchild of Professor Kevin Shakesheff, from the University of Nottingham.

Its advantage over traditional bone cements is in the hardening process.

While conventional cements give off heat as they harden, killing surrounding cells, and making them unusable in some parts of the body, this polymer does not.

The material has the texture of toothpaste at room temperature, and when it rises to body temperature, this is enough to trigger the hardening reaction.

Professor Shakesheff said it was easy to inject into the right part of the body without a surgical incision, unlike bone grafts, which use bone taken from another part of the patient's body, such as the hip, to plug a damaged gap.

"Not only does the patient need to be opened up, he or she is left with a damaged area - using this would avoid that.

"We believe we can just insert the needle, follow it to the right spot and inject the polymer, which will fill the desired area, and set as hard as the bone on either side.

"Because the material does not heat up, surrounding bone cells survive and can grow."

Some limitations remain - even though the polymer is as hard as bone within minutes, the join between itself and old bone is weaker, and a leg fracture fixed this way would still need metal pins to stop it shearing apart when the patient tried to walk.

However, he said that the lack of heat as the substance set meant that it could potentially be used in other applications where a tough scaffold was needed to support the growth of new cells.

This could one day even stretch to other damaged areas such as the heart, he said.

'Fantastic potential'

Mr. Andy Goldberg, a consultant orthopaedic surgeon at the Nuffield Orthopaedic Centre in Oxford, and a co-founder of the Medical Futures awards, which honoured the invention last week, said: "This technology has fantastic potential.

"As an orthopaedic surgeon, being able to work with a substance that is flexible, as opposed to using hard bone will make a real difference.

"The fact that it doesn't heat up when in the body, like many other injectable substances is a significant breakthrough."

Professor Shakesheff has created a biotechnology firm to help develop and market the invention, and is now working to prove its safety so that it can be used in hospitals.

He said that the swiftest route to market was in the US, where the product could be available some time in 2010.

Professor Richard Oreffo, a specialist in musculoskeletal science at the University of Southampton, said that the material had potential.

"As I understand it, the advantage it has is that the patient's own cells and growth factors can be delivered with it, and because everything happens at room temperature, they are delivered intact to the patient."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7767406.stm

Published: 2008/12/07 00:31:28 GMT

Intelligent 'have better sperm'

Men of higher intelligence tend to produce better quality sperm, UK research suggests.

A team from the Institute of Psychiatry analysed data from former US soldiers who served during the Vietnam war era.

They found that those who performed better on intelligence tests tended to have more - and more mobile - sperm.

The study, which appears in the journal Intelligence, appears to support the idea that genes underlying intelligence may have other biological effects too.

Therefore, if tiny mutations impair intelligence, they might also harm other characteristics, such as sperm quality.

Conversely, people with robust genes might be blessed with a biological "fitness factor" making them fit, healthy and smart.

Previously, scientists tended to assume that lifestyle factors were more likely to underlie any relationship between intelligence and health.

For instance, brighter people may be less likely to smoke, and more likely to take exercise, both of which are known to impact on mental performance.

Different characteristics

The latest study tested the gene theory by taking two characteristics that seemed unlikely to be associated with each other - intelligence and sperm quality.

They found a small, but statistically significant link, and were able to show that this could not be explained by unhealthy habits, such as smoking or drinking alcohol.

The study was based on 425 men who undertook several intelligence tests and provided semen samples.

The researchers found that independently of age and lifestyle, intelligence was correlated with all three measures of sperm quality - numbers, concentration, and ability to move.

Lead researcher Dr Rosalind Arden said: "This does not mean that men who prefer Play-Doh to Plato always have poor sperm: the relationship we found was marginal.

"But our results do support the theoretically important 'fitness factor' idea.

"We look forward to seeing if the results can be replicated in other data sets, with other measures of intelligence and other measures of physical health that are also strongly related to evolutionary fitness."

Dr Allan Pacey is an expert in fertility at the University of Sheffield.

He said: "The fact that it's possible to detect a statistical relationship between intelligence and semen quality in adult men probably says more about the co-development of brain and testicles when the man was in his mother's womb, and therefore how well they both function in adult life, rather than suggesting that playing Sudoku can somehow stimulate more sperm to be produced.

"The improvement in semen quality with intelligence observed in this paper is small and therefore it is unlikely to have a big impact on the ability of men of different intelligences to conceive."

The semen samples were collected in 1985 by the US Centers for Disease Control as part of a large-scale study into the health of US soldiers who served during the Vietnam Era. Some of the men in the sample had served in Vietnam, some had served in Germany, Korea and the USA.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7767877.stm

Published: 2008/12/05 16:37:57 GMT

California's Deep Sea Secrets: New Species Found, Human Impact Revealed

A whale shark photographed by Octavio Aburto-Oropeza during 2008 expedition to Gulf of California aboard DeepSee submersible. (Credit: Image courtesy of University of California - San Diego)

ScienceDaily (Dec. 8, 2008) — Scientists from Scripps Institution of Oceanography at UC San Diego returning from research expeditions in Mexico have captured unprecedented details of vibrant sea life and ecosystems in the Gulf of California, including documentations of new species and marine animals previously never seen alive.Yet the expeditions, which included surveys at unexplored depths, have revealed disturbing declines in sea-life populations and evidence that human impacts have stretched down deeply in the gulf.

In one expedition, researchers Exequiel Ezcurra (adjunct professor at Scripps Oceanography and former provost of the San Diego Natural History Museum), Brad Erisman (Scripps postdoctoral researcher) and Octavio Aburto-Oropeza (graduate student researcher) traveled on a three-person submarine to explore marine life in the Gulf of California's deep-sea reefs and around undersea mountains called seamounts.

The DeepSee submersible gave the researchers unique access to environments below 50 meters (164 feet), depths virtually unknown in the gulf because of their inaccessibility below scuba diving levels.

"Our investigation resulted in many new discoveries, which included new species of invertebrates and possibly fishes," said Erisman. "Similarly, we collected and observed species that had not been recorded in the gulf, had never been observed alive or had never been observed at such depths.""The synergistic collaboration between Scripps researchers and the San Diego Natural History Museum was the driver of this wonderful endeavor," said Ezcurra. "We were able to raise the funds for the boat and the DeepSee submersible in record time, allowing us to invite some of Mexico's top marine scientists to join the team. The long tradition of binational cooperation nurtured by the museum in its 134 years of life was instrumental in this collaborative development."

Scientists at universities in Mexico are now conducting detailed genetic and morphological (form and structure) investigations to determine the species status of various animals.

But along with the excitement of discovery came disturbing signs of human impacts in the gulf's depths, and, in particular, signals that overfishing has decimated ecosystems. Large schools of fish documented in earlier expeditions at locations such as El Bajo seamount have vanished. The researchers also say depths

at comparable areas, such as Cocos Island off Costa Rica, reveal much more marine life and healthier ecosystems than those studied in the Gulf of California that are impacted by fishing and pollution.

“The human impacts in shallow areas have been well documented, but our observations make it clear that we are reaching down deeper and modifying the deeper ecosystems and their communities as well,” said Aburto-Oropeza. “We have lots of evidence of ghost nets with trapped animals at many depths, along with pollution, including beer cans, in each deep location we studied.”

The researchers hope their findings will reach beyond scientific circles and be incorporated into conservation and management plans to restore healthy marine-life populations and promote sustainable fisheries in the gulf.Although the evidence of human encroachment was plentiful, the researchers also traveled to remote locations where sea populations thrived, destinations where human impacts are reduced or virtually non-existent. Such was the case at Las Animas, a seamount tucked halfway between Loreto and La Paz. At its location buffered from urban impacts, Las Animas suffers minimally from fishing and human activities.

There the researchers found booming fish populations, an extraordinarily rich variety of red snapper species, unique shrimp species and possibly new species of sea urchins and cucumbers.

During a separate expedition completed in October, Erisman and Aburto-Oropeza studied marine life at Cabo Pulmo, a protected national park near the southern tip of the Baja peninsula. Here again the researchers documented a “biodiversity hotspot” with thriving fish populations and a rich mix of sea life in the absence of human environmental pressures. They witnessed large tiger sharks, now a rarity in Baja California.

Erisman and Aburto-Oropeza say Las Animas and Cabo Pulmo, contrasted by the relatively depleted sea life witnessed at locations such as El Bajo, are examples of “shifting baselines,” the concept promoted by Jeremy Jackson, director of the Scripps Center for Marine Biodiversity and Conservation, and others. The term describes the deterioration of standards and failing to realize how much has changed over years and generations.

“At Las Animas and Cabo Pulmo, we have seen that if you leave areas without human pressure, the elements of the environment will allow them to rebound to a previous, more healthy ecosystem state,” said Aburto-Oropeza.“These expeditions far exceeded what we expected,” said Erisman. “From the first dive, the results escalated in success as I witnessed a hundred times more organisms than I expected. It was amazing and we are excited about the possibilities.”

The custom-built DeepSee submersible, owned by expedition co-leader Steve Drogin, a San Diego photographer and marine explorer, allowed the scientists to survey marine life with its 360-degree-view glass dome. The researchers concentrated on marine life between 50 and 300 meters (164 and 984 feet), although DeepSee is capable of reaching 475 meters (1,500 feet).

Another startling discovery came in September on a separate expedition when Drogin and his colleagues discovered a hydrothermal vent just south of Loreto at a depth of 450 feet. Drogin reported dramatic views around the vent and water temperatures reaching 266 Fahrenheit degrees (130 degrees Celsius).

“It felt to me like walking into the middle of a forest fire, with flames shooting out. It was very dramatic,” said Drogin.

Adapted from materials provided by University of California - San Diego.
http://www.sciencedaily.com/releases/2008/12/081203184926.htm

Bone Marrow-derived Stem Cells May Offer Novel Therapeutic Option For Skin Disorder

ScienceDaily (Dec. 8, 2008) — Stem cells derived from bone marrow may serve as a novel therapeutic option to treat a disease called epidermolysis bullosa (EB), a disorder characterized by extraordinarily fragile skin, according to a study prepublished online in Blood.

Epidermolysis bullosa is a disorder characterized by extraordinarily fragile skin and blistering on touch, akin to third degree burns. While the disease is often lethal in the neonatal period, more severe forms of the disease, such as recessive dystrophic EB (referred to as RDEB), can lead to years of painful blistering and mutilating scarring. The condition is caused by significantly reduced collagen type 7 protein (col7) production, a key component of the anchoring fibrils that connect the cutaneous membranes to the dermis of the skin and mucosal tissues in the gastrointestinal tract. A lack of these fibrils means the dermal-epidermal connection is very sensitive, and any action, which can include simple functions such as walking or eating, and the touch of clothing, creates friction between the skin layers that creates blisters and painful sores.

Children with RDEB, who are often referred to as “butterfly children” because their skin is said to be as sensitive as butterfly wings, develop painful skin and mucosal blistering, mutilating scarring, alopecia (hair loss), and other erosions shortly after birth. As a result of the extreme fragility of the skin and the chronic trauma of friction, RDEB patients often develop squamous cell carcinomas (a form of skin cancer). There is currently no cure for the disease, and palliative care includes complex bandaging, surgical removal of damaged tissue, and nutritional support.

“We have been looking into stem cells as viable treatment options for correction of conditions such as epidermolysis bullosa, because they can produce extracellular matrix proteins,” said Jakub Tolar, MD, PhD, of the University of Minnesota and lead author of the study. “In this condition, the skin, the largest organ in the body, can significantly benefit from a renewable source of healthy cells that can help improve the connection between the dermis and epidermis and strengthen the skin against everyday stresses.”

In this study, researchers worked with a mouse model of RDEB-infused bone marrow cells to determine if they would increase production of the col7 protein and formation of anchoring fibrils, and improve survival in the mouse recipients. The research team used bone marrow cells enriched for hematopoietic (stem cells that can develop into most blood cell types) and progenitor cells to increase the concentration of cells with the capacity to produce col7. The team tested these cells against non-enriched stem cells to determine their benefit to the treated mice.

Results of the study found that when injected into mice with RDEB, these specially selected marrow-derived stem cells diminished the disease process. They traveled to the diseased skin areas, increased protein and anchoring fibrils, prevented blister formation and extended survival. In contrast to other marrow cells, the selected cells extended the median survival time versus untreated or non-enriched marrow-treated recipients (10.0 versus 5.6 versus 6.0 days, respectively). Three of the 20 mice treated with the enriched cells benefited enough from the treatment to survive longer than the treatment period (untreated RDEB mice usually die within two weeks). Importantly, each survivor demonstrated marked improvement of new blister formation (blisters develop consistently in the areas of trauma, including footpads due to walking or in the oral cavity due to eating) with some evidence of old blisters healing.

“Our data provide the first evidence that a selected population of marrow cells can connect the epidermis and dermis in a mouse model of the disease and offer a potentially valuable approach for treatment of human RDEB and other extracellular matrix disorders. These results provide proof of principle of bone marrow transfer to repair the basement membrane defect in RDEB, and they warrant a clinical trial to assess the safety and efficacy of treatment of human RDEB by means of hematopoietic cell transplantation,” said Dr. Tolar.

Research suggests that the systemic infusion of wild-type bone marrow cells could provide benefit to other human disorders of the extracellular matrix. Efforts are underway to identify the requirements of bone marrow-derived stem cells capable of efficiently homing to wounded skin and producing an array of extracellular matrix proteins. As the principal advantage of systemic therapy is its potential to target not only the skin but also the mucosa of the mouth and gastrointestinal tract, the clinical testing of efficacy of human bone marrow for the treatment of human RDEB is underway to determine whether it is of more substantial benefit than local protein, gene, or cellular therapies currently being investigated by other researchers.

An estimated 50 in 1 million live births are diagnosed with EB. The disorder occurs in every racial and ethnic group throughout the world and affects both sexes.

Adapted from materials provided by American Society of Hematology.
http://www.sciencedaily.com/releases/2008/12/081204133556.htm

Best Treatments For Long-term Survival In Brain Tumor Patients Identified

ScienceDaily (Dec. 8, 2008) — A new Mayo Clinic study found that patients with low-grade gliomas survived longest when they underwent aggressive surgeries to successfully remove the entire tumor. If safely removing the entire tumor was not possible, patients survived significantly longer when surgery was followed by radiation therapy.

Gliomas are a type of brain tumor that form in the brain or spinal cord tissue and can spread within the nervous system. Low-grade gliomas are malignant and slow growing; overall, patients' average survival is five to seven years after diagnosis, even with treatment. Annually, about 17,000 Americans are diagnosed with a glioma. Of that total, 3,000 to 4,000 are categorized as low-grade. Mayo Clinic physicians treat more than 4,000 adults and children who have gliomas and other brain and nervous system tumors each year.

"Mayo Clinic has a long history of expertise in treating patients with brain tumors," says Nadia Laack, M.D., a Mayo Clinic radiation oncologist and lead author of this study. "This makes our study unique in terms of the large volumes of patients seen here and the extensive length of follow-up."

Dr. Laack and a team of Mayo Clinic researchers studied the records of 314 adult patients with low-grade gliomas who were diagnosed between 1960 and 1992 and had an average of 13 years of follow-up. Nearly half of the patients who underwent aggressive surgeries (gross total resection or radical subtotal resection) were free of tumor recurrence 15 years after diagnosis.

When performing aggressive surgery was not a safe option, postoperative radiation therapy nearly doubled average survival. The average survival time was three years in patients who did not receive radiation therapy, while those who had radiation therapy survived an average of six years.

"This study is exciting because it shows how well glioma patients can do after surgery," says Dr. Laack. "An average of 15 years tumor-free is better than any previously published results. It is also exciting to discover that patients can benefit from radiation therapy. It not only lengthens the time before the tumor comes back, it actually improves the length of time people live. This builds on previous Mayo Clinic data that suggested similar results from a small study published nearly 20 years ago."

According to Dr. Laack, these findings may be controversial due to common concerns about possible long-term side effects of radiation therapy. At Mayo Clinic, these potential side effects are minimized by tightly focusing radiation therapy on the tumor, she says.

Other members of the Mayo Clinic research team included David Schomas, M.D.; Ravi Rao, M.D.; Fredric Meyer, M.D.; Brian O'Neill, M.D.; Caterina Giannini, M.D., Ph.D.; and Paul Brown, M.D. Edward Shaw, M.D. of Wake Forest University Baptist Medical Center also was a collaborator in this study.

Journal reference:

1. Schomas et al. **Intracranial Low-Grade Gliomas in Adults: 30-Year Experience With Long-term Follow-up at Mayo Clinic**. *Neuro-Oncology*, 2008; DOI: 10.1215/15228517-2008-102

Adapted from materials provided by Mayo Clinic.
http://www.sciencedaily.com/releases/2008/12/081203185018.htm

Privacy Issues: Avoiding Becoming A Victim Of Online Crime

ScienceDaily (Dec. 8, 2008) — Individuals must take control of their own online identities if they are to avoid becoming victims of online crime. That is the conclusion of two studies published back-to-back this month in the International Journal of Intellectual Property Management.

Privacy is a huge concern to many citizens, customers, patients, internet users and telephone subscribers especially as the lines are being blurred between professional and private lives. However, many people are simply unaware of just how much of their personal data is being stored and processed, whether that is in the form of cookie trails that track their internet usage, video from surveillance systems, such as Closed Circuit Television (CCTV), or the purchases they make using credit cards and company loyalty cards.

Marit Hansen is the Deputy Privacy Commissioner of the Data Protection Authority (DPA) of Schleswig-Holstein, Germany and suggests that while the processing of personal data has become a part of everyday life in today's information society, this means that privacy is increasingly under threat. She suggests that conventional approaches to privacy have intensified the problem because these systems store personal and private data, such as your name and address, date of birth, mother's maiden name, and credit details online.

Hansen believes that a user-controlled approach to information management is the only way to solve the problem by allowing individuals to manage their privacy. This approach would allow individuals to create "partial identities" that separated personal data depending on the specific context and allowed the website, healthcare worker, or other interested party access only to the limited data they needed.

"User-controlled identity management systems are not a panacea for all privacy problems, but they can act as a gateway and guardian for individual privacy," explains Hansen. As such, such an approach has the potential to become a key tool for future privacy concepts.

In related work, also published this month in the IJIPM, Ronald Leenes of the Tilburg Institute for Law, Technology, and Society in The Netherlands, says user-centric identity management as an indispensable tool for privacy protection.

Leenes believes that not only is our information privacy being compromised but it is "under siege on the internet." He suggests that a person's digital persona can be used for good in the context obtaining personalised services on the internet, for instance, for bad when that persona is used to discriminate against a particular individual.

There are insufficient legal controls in place, Leenes, says, to allow internet users to control their privacy, which means that new infrastructure on the web must be implemented, based on the aforementioned user-controlled identity management, that allows individuals to control the data they are sharing with websites.

Adapted from materials provided by Inderscience, via AlphaGalileo.
http://www.sciencedaily.com/releases/2008/12/081204094555.htm

American Values Blamed For U.S Health-care Crisis

ScienceDaily (Dec. 8, 2008) — To heal our ailing health care system, we need to stop thinking like Americans. That's the message of two articles by UCLA's Dr. Marc Nuwer, a leading expert on national health care reform, published this week in Neurology, the journal of the American Academy of Neurology.

"Americans prize individual choice and resist limiting care," says Nuwer, a professor of clinical neurology at the David Geffen School of Medicine at UCLA. "We believe that if doctors can treat very ill patients aggressively and keep every moment of people in the last stages of life under medical care, then they should. We choose to hold these values. Consequently, we choose to have a more expensive system than Europe or Canada."

Consider these statistics:

- The United States boasts the world's most expensive health care system, yet only one-sixth of Americans are insured. Medical expenditures exceed $2 trillion annually, making health care the economy's largest sector, four times bigger than national defense.
- By 2015, the U.S. government is projected to spend $4 trillion on health care, or 20 percent of the nation's gross domestic product.
- An aging population will boost spending. Half of Medicare costs support very sick people in their last stages of life, and experts estimate that Medicare funds will be exhausted by 2018.
- 31 percent of U.S. health care funds go toward administration. "We push a lot of paper," Nuwer says. "We spend twice as much as Canada, which has a more streamlined health care system that demands doctors complete less paperwork."
- 10 percent of U.S. expenses are spent on "defensive medicine" — pricey tests ordered by doctors afraid of missing anything, however unlikely. "Doctors don't want to be accused in court of a delayed diagnosis, so they bend over backwards to find something — even if it's a rare possibility — in order to cover themselves," Nuwer says.

Reforming the U.S. health care system with the goal of providing universal, affordable, high-quality care will require rethinking our overall values and paying greater attention to care-related expenditures, according to Nuwer.

Part of the current problem, he says, is that doctors are oblivious to the price tags of options they're prescribing for patients. He recommends educating physicians about the costs of care, including imaging, blood tests and specific drugs.

"Does a fancy electric wheelchair cost $500 or $50,000?" Nuwer asks. "Most doctors have no clue. We need to give physicians feedback about the dollar signs behind their orders."

Nuwer's co-authors on both articles include Dr. G.L. Barkley (Henry Ford Hospital, Detroit); Dr. G.J. Esper (Emory University School of Medicine, Atlanta); Dr. P.D. Donofrio (Vanderbilt University School of Medicine, Nashville); Dr. J.P. Szaflarski (University of Cincinnati Academic Health Center); and Dr. T.R. Swift (Medical College of Georgia, Augusta).

Adapted from materials provided by University of California - Los Angeles, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/12/081204160558.htm

Winter Brings Flu, Summer Brings Bacterial Infections

ScienceDaily (Dec. 7, 2008) — In the same way that winter is commonly known to be the "flu season," a new study suggests that the dog days of summer may well be the "bacterial infection" season.

Researchers have discovered that serious infections caused by gram-negative bacteria can go up as much as 17 percent with every 10 degree increase in seasonal temperature. The findings, which were based on seven years of data from infections in a Baltimore hospital, suggest that the incidence there of some of these illnesses might be up to 46 percent higher in summer than in winter.

The cause is not known, scientists said, but the seasonal variation is clear."Gram-negative bacteria are a frequent cause of urinary tract, gastrointestinal and respiratory infections, as well as more serious things like pneumonia, wound or blood infections," said Jessina McGregor, an assistant professor in the College of Pharmacy at Oregon State University. "Everyone knows there is a seasonality to some viral infections such as influenza or the common cold, but we're now finding that some of these bacterial infections peak in the heat of summer."

Recognition of these seasonal trends, the researchers said, may improve disease diagnosis, prompt treatments and better interventions to prevent the infections in the first place.The findings were made by scientists from OSU; Dr. Eli N. Perencevich, associate professor of epidemiology and preventive medicine at the University of Maryland School of Medicine; and researchers from the University of Florida and the Research Institute of the Hospital for Sick Children in Toronto. They were just published in Infection Control and Hospital Epidemiology, a professional journal.

The study examined infections caused by several gram-negative bacteria, including E. coli, Pseudomonas aeruginosa, E. cloacae, and Acinetobacter baumannii. The greatest increases in infection due to higher temperatures were found with P. aeruginosa, a common cause of burn, external ear, urinary tract and lung infections; and A. baumannii, an opportunistic pathogen that can cause death and serious illnesses, particularly in people with compromised immune systems.The study also found that there was no apparent seasonal increase in gram-positive bacterial infections, which have a slightly different cell structure and are the source of fewer pathogenic infections in humans.

"Bacterial infections in general have been rising for some time, probably due at least in part to increased antibiotic resistance," McGregor said. "The more we can learn about what is causing them and when they are most likely to occur, the better we can treat or prevent them."There are several possible causes for the summertime increase in gram-negative bacterial infections, the researchers said, but none are proven. P. aeruginosa is an aquatic organism, and infections caused by it could be linked to more people swimming in lakes or pools during the summer. Cattle have higher bacterial shedding rates in the summer, and the peak of E. coli infections could be connected to higher consumption of ground beef or other factors during the "outdoor grill" season.

Several of these gram-negative bacteria cause urinary tract infections, and a known risk factor for that is recent sexual intercourse – the frequency of which also peaks in the summer, when there is more sunlight."Regardless of the mechanisms responsible for infections, recognition of the link between the physical environment and the incidences of pathogenic infection could aid in infection prevention interventions or the selection of optimal empirical antimicrobial therapy," the researchers wrote in their report.The link between this type of bacterial infections and heat, the study suggested, should also be considered along with the many other possible impacts of global climate change.

Adapted from materials provided by Oregon State University, via EurekAlert!, a service of AAAS.
http://www.sciencedaily.com/releases/2008/11/081126215300.htm

Climate Change Wiped Out Cave Bears 13 Millennia Earlier Than Thought

Skeleton of extinct cave bear from Warsaw Museum. (Credit: Image courtesy of Wikimedia Commons)

ScienceDaily (Dec. 7, 2008) — Enormous cave bears, Ursus spelaeus, that once inhabited a large swathe of Europe, from Spain to the Urals, died out 27,800 years ago, around 13 millennia earlier than was previously believed, scientists have reported.

The new date coincides with a period of significant climate change, known as the Last Glacial Maximum, when a marked cooling in temperature resulted in the reduction or loss of vegetation forming the main component of the cave bears' diet.

In a study published in Boreas, researchers suggest it was this deterioration in food supply that led to the extinction of the cave bear, one of a group of 'megafauna' – including woolly mammoth, woolly rhinoceros, giant deer and cave lion – to disappear during the last Ice Age.

They found no convincing evidence of human involvement in the disappearance of these bears. The team used both new data and existing records of radiocarbon dating on cave bear remains to construct their chronology for cave bear extinction.

"Our work shows that the cave bear, among the megafauna that became extinct during the Last Glacial period in Europe, was one of the earliest to disappear," said Dr Martina Pacher of the Department of Palaeontology at the University of Vienna. "Other, later extinctions happened at different times within the last 15,000 years."

Dr Pacher carried out the research alongside Professor Anthony J. Stuart of the Natural History Museum, London, and the University of Durham.

Many scientists previously claimed that cave bears survived until at least 15,000 years ago, but Dr Pacher and Professor Stuart claim that the methodology of these earlier studies included many errors in dating as well as confusion between cave bear and brown bear remains.

The pair also concluded, from evidence on skull anatomy, bone collagen and teeth, that these extinct mammals were predominantly vegetarian, eating a specialised diet of high-quality plants. Compared with other megafaunal species that would also become extinct, the cave bear had a relatively restricted geographical range, being confined to Europe, which may offer an explanation as to why it died out so much earlier than the rest.

"Its highly specialised mode of life, especially a diet of high-quality plants, and its restricted distribution left it vulnerable to extinction as the climate cooled and its food source diminished," said Dr Pacher.

The brown bear, with which Ursus spelaeus shares a common ancestor, was spread throughout Europe and much of northern Asia and has survived to the present day.

"A fundamental question to be answered by future research is: why did the brown bear survive to the present day, while the cave bear did not?" said Professor Stuart. Answers to this question may involve different dietary preferences, hibernation strategies, geographical ranges, habitat preferences and perhaps predation by humans.

Cave bears were heavily built animals, with males growing up to around 1000kg. The maximum recorded weight of both Kodiak bears and polar bears – the largest bears living today – is 800kg, with averages of around 500kg.

Scientists have recovered a large quantity of cave bear remains from many cave sites, where they are believed to have died during winter hibernation. Caves provide an ideal environment for the preservation of these remains.

Despite over 200 years of scientific study – beginning in 1794 when a young anatomist, J. Rosenmüller, first described bones from the Zoolithenhöhle in Bavaria as belonging to a new extinct species, which he called cave bear – the timing and cause of its extinction remain controversial.

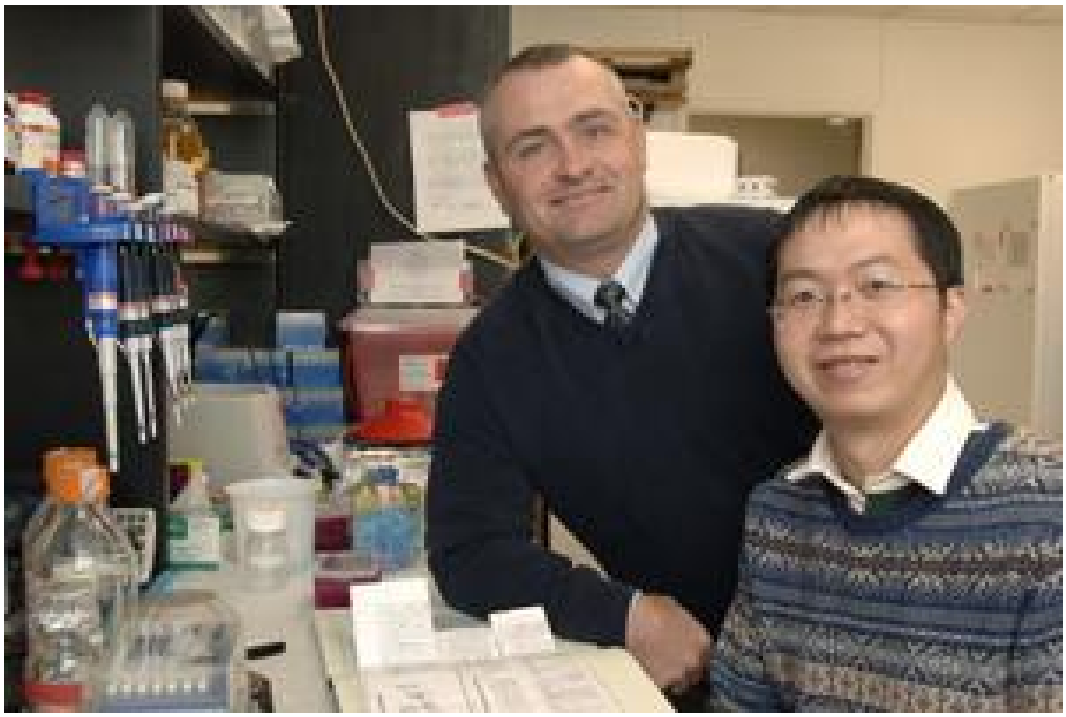
By far the best source of information on the appearance of cave bears in the flesh is to be found in red pigment cave paintings in the Grotte Chauvet in the Ardèche region of southern France. These are the only depictions in Palaeolithic art that can be attributed unambiguously to the cave bear.

Journal reference:

1. Pacher, M. & Stuart, A. J. **Extinction chronology and palaeobiology of the cave bear (Ursus spelaeus)**. *Boreas*, 2008 DOI: 10.1111/j.1502-3885.2007.00071.x

Adapted from materials provided by Wiley-Blackwell, via EurekAlert!, a service of AAAS
http://www.sciencedaily.com/releases/2008/11/081125203143.htm

Clue To Safer Obesity Drugs: Mechanism Links Serotonin With Regulation Of Food Intake



Dr. Joel Elmquist (left), professor of internal medicine and pharmacology at UT Southwestern and senior author of the study, and Dr. Yong Xu, a postdoctoral research fellows in internal medicine. (Credit: Image courtesy of UT Southwestern Medical Center)

ScienceDaily (Dec. 7, 2008) — Once hailed as a miracle weight-loss drug, Fen-phen was removed from the market more than a decade ago for inducing life-threatening side effects, including heart valve lesions. Scientists at UT Southwestern Medical Center are trying to understand how Fen-phen behaves in the brain in order to develop safer anti-obesity drugs with fewer side effects.

In a study appearing in the Nov. 25 issue of Neuron, the researchers define a circuit in the brain that explains the ways fenfluramine, a component of Fen-phen, suppresses appetite.

"Our findings provide evidence that the neural circuit we've proposed is sufficient for the neurotransmitter serotonin to regulate food intake and body weight, " said Dr. Joel Elmquist, professor of internal medicine and pharmacology at UT Southwestern and senior author of the study. "Fen-phen works directly on this pathway. Unfortunately, that drug also adversely affects peripheral tissue such as the heart."

For the current study, the researchers engineered mice in which the expression of a serotonin receptor called 5-hydroxytryptamine 2C was blocked throughout the entire body. This was previously known to produce obese mice resistant to the anorexic actions of fenfluramine. When activated by serotonin, however, this receptor is also known to suppress appetite. Using this mouse model, the authors engineered another set of mice in which the same serotonin receptor was blocked everywhere in the body except within a group of brain cells called pro-opiomelanocortin, or POMC, neurons. The POMC neurons, which are found in the hypothalamus, are also known to play an important role in suppressing appetite and inducing weight loss.

The researchers found that the animals with no serotonin 2c receptors expectedly developed obesity as well as other metabolism disorders such as increased food intake, hyperactivity and leptin insensitivity. They also were prone to spontaneous seizures, said Dr. Elmquist.

In contrast, the mice in which the serotonin receptor was re-expressed and functioning only in the POMC neurons stayed slim and responded to fenfluramine.

"The POMC-specific reactivation of the receptor only in POMC neurons normalizes the abnormal metabolism in these mice," Dr. Elmquist said. "The animals don't eat excessively. Their hyperactivity is also gone."

Previous work from the UT Southwestern group led to the hypothesis that Fen-phen worked by activating the serotonin 2c receptor in the POMC neurons in the hypothalamus. The current work provides genetic proof supporting this model.

"Conventional wisdom is that fenfluramine increases serotonin release that then activates serotonin receptors in the brain to regulate food intake and body weight, but unfortunately, this drug also causes lesions in heart valves," he said. "If you could develop a drug that would travel to both the brain and the peripheral tissues, and then give a blocker to protect the heart, it's possible that you could prevent the harmful side effects and still aid weight loss. Admittedly, that's a bit farfetched, but this mouse model could be used to test that theory."

The team's next step is to determine whether they've identified the sole circuit required to suppress appetite and induce weight loss.

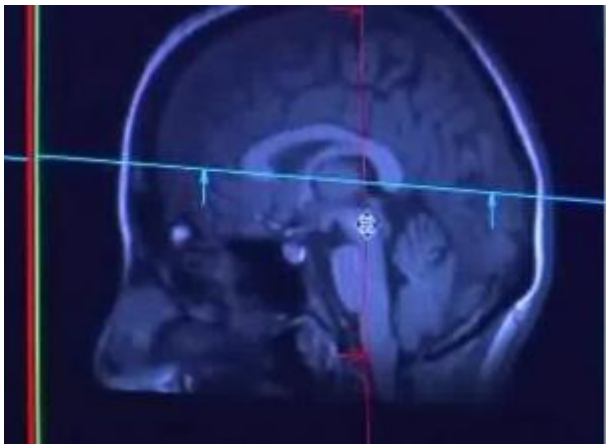
Other UT Southwestern scientists involved in the research were Drs. Yong Xu, Daisuke Kohno and Kevin Williams, postdoctoral research fellows in internal medicine; Charlotte Lee, senior research scientist; Michelle Choi, research assistant in internal medicine; Jason Anderson, student research assistant; and Dr. Jeffrey Zigman, assistant professor of internal medicine. Researchers from the University of Cambridge and Harvard Medical School also contributed.

The work was funded by the National Institutes of Health, Canadian Institute of Health, American Diabetes Association, Smith Family Foundation and Wellcome Trust.

Adapted from materials provided by UT Southwestern Medical Center.

http://www.sciencedaily.com/releases/2008/11/081125121238.htm

More Evidence The Aging Brain Is Easily Distracted



Older brains showed additional increased activation in certain regions during memory encoding failure that was not found in younger brains. (Credit: Image courtesy of Baycrest Centre for Geriatric Care)

ScienceDaily (Dec. 7, 2008) — Canadian researchers have found more evidence that older adults aren't able to filter out distracting information as well as younger adults.

In an interesting twist, this latest discovery was made because of – rather than in spite of –the noisy environment that research participants must tolerate when having their brains scanned inside a donut-shaped magnet known as a functional magnetic resonance imaging (fMRI) scanner. While the powerful technology can yield remarkable computerized images of the brain working to form a new memory, enabling scientists to determine with great precision which brain regions become active and for how long they remain active, the high powered magnet has an inconvenient quirk – it's noisy, especially if you're inside it.

Now scientists with the Rotman Research Institute at Baycrest say that annoying noise is behind their latest discovery of unique brain activity underlying memory encoding failure – that appears to occur only in older brains.

To date, few studies have looked at what's happening in the brains of people who are having difficulty with making a new memory and the underlying neural mechanisms responsible for this break down.

In the Baycrest study, 12 younger adults (average age 26) and 12 older adults (average age 70) took part in a face recognition task that involved having their brains scanned with fMRI while they were shown pictures of faces and later again when trying to recall whether they'd seen each face before. Researchers found that when younger and older adults had difficulty encoding a new memory (certain face), this was marked by decreased activity in brain regions important for encoding, such as the hippocampus. The researchers weren't surprised by this based on an abundance of scientific evidence indicating the importance of hippocampus for making memories.

But the older brains showed additional increased activation in certain regions during memory encoding failure that was not found in younger brains!

"The older brains showed increased activation in certain regions that normally should be quieter or tuned down," said Dale Stevens, who led the study as a psychology graduate at Baycrest's Rotman Research Institute, with senior scientists Drs. Cheryl Grady and Lynn Hasher, both of whom are distinguished researchers in aging, memory, attention and distraction.

"The auditory cortex and prefrontal cortex, which are associated with external environmental monitoring, were idling too high. The older brains were processing too much irrelevant information from their external environment – basically the scanner noise," said Dr. Stevens, who is now a post-doctoral fellow in the Department of Psychology and Cognitive Neuroscience at Harvard University. The younger brains did not show this abnormal high idling during their failed memory encoding.

While older adults performed as well as their younger cohorts in the number of faces correctly recognized, the older adults forgot more faces overall than younger adults. The older adults had more "misses", essentially saying "No, I didn't see this face before" for faces that were presented previously. This was likely due in part to their inability to tune out the distracting noise when they were trying to form new memories of faces, said Dr. Stevens.

How noisy is an fMRI scanner?

The noise sounds similar to a "jack hammer" – loud banging, knocking and buzzing. Research participants are given hearing protection (ear plugs and cushions around the head and ears) to block it out, but older individuals complain more often than younger ones that the noise is irritating.

The fMRI scanner is widely used for studies of the aging brain, but are aging adults at a disadvantage in memory testing because of the noise? It raises a potential confound or source of contamination in data results that all cognitive researchers should be aware of, Drs. Stevens and Grady point out.

"Not only are we reporting new brain evidence of the well known problem of distraction in aging, but we show that the fMRI might inherently make older adults' cognitive performance worse than it would be in the real world, outside the scanner," noted Dr. Grady.

This latest finding follows a landmark study by Dr. Grady, published in 2006 in the Journal of Cognitive Neuroscience. In that investigation, she identified subtle changes in brain activity that begin in middle age, which may underlie older adults' increasing vulnerability to internal distraction and weakening concentration skills. Dr. Grady found older adults have difficulty activating brain regions necessary for concentration (such as reading) and de-activating or tuning down other regions that are associated with internal thoughts (such as thinking about yourself, what you did last night). This inability to tune down internal thinking and tune up task-relevant concentration becomes more pronounced after age 65.

Dr. Stevens' study focused on external environmental distraction (from the fMRI scanner noise) and the underlying neural markers that may explain why older adults seem to be disproportionately distracted by this noise. Both scientists say their studies reinforce a cautionary message to older adults: try to reduce distractions in your external environment and make an effort to concentrate on one key attentional task at a time.

This latest study, published in the Nov. 26 issue of The Journal of Neuroscience, was supported by a Canadian Institutes of Health Research grant. Baycrest is an academic health sciences centre, internationally renowned for its care of aging adults and its excellence in aging brain research, clinical interventions and treatments, and promising cognitive rehabilitation strategies. It is affiliated with the University of Toronto.

Adapted from materials provided by Baycrest Centre for Geriatric Care.
http://www.sciencedaily.com/releases/2008/11/081125181035.htm

Secondhand Smoke Raises Odds Of Fertility Problems In Women

If you need another reason to quit smoking, consider that it may diminish your chances of being a parent or grandparent. Scientists have found that women exposed to second hand smoke, either as adults or children, were significantly more likely to face fertility problems and suffer miscarriages. (Credit: iStockphoto/Stepan Popov)

ScienceDaily (Dec. 6, 2008) — If you need another reason to quit smoking, consider that it may diminish your chances of being a parent or grandparent. Scientists at the University of Rochester Medical Center have found that women exposed to second hand smoke, either as adults or children, were significantly more likely to face fertility problems and suffer miscarriages.

An epidemiologic analysis of more than 4,800 non-smoking women showed those who were exposed to second hand smoke six or more hours per day as children and adults faced a 68 percent greater chance of having difficulty getting pregnant and suffering one or more miscarriages. The study is published online in Tobacco Control and is one of the first publications to demonstrate the lasting effects of second hand smoke exposure on women during childbearing years.

"These statistics are breathtaking and certainly points to yet another danger of second hand smoke exposure," said Luke J. Peppone, Ph.D., research assistant professor at Rochester's James P. Wilmot Cancer Center.

In the study, four out of five women reported exposure to second hand smoke during their lifetime. Half of the women grew up in a home with smoking parents and nearly two-thirds of them were exposed to some second hand smoking at the time of the survey.

More than 40 percent of these women had difficulty getting pregnant (infertility lasting more than a year) or suffered miscarriages, some repeatedly.

"We all know that cigarettes and second hand smoke are dangerous. Breathing the smoke has lasting effects, especially for women when they're ready for children," said Peppone, who analyzed information

in the Patient Epidemiology Data System, a well-studied cohort that has yielded information on a variety of cancers.

Peppone analyzed surveys collected from 4,804 women who visited Roswell Park Cancer Institute for health screenings or cancer care from 1982-1998. The 16-page survey focused on lifestyle, habits, family and personal health history, and occupational and environmental exposures. Each participant in this study reported that they had never smoked, and had been pregnant at least once or tried to become pregnant.

Participants reported whether one or both of their parents smoked and if they lived with or worked with smokers as adults. They also estimated the amount of time they were exposed to second hand smoke.

Peppone acknowledges that the data is based upon self-reporting and that is not perfect. However, he said "Women, especially mothers, have extremely accurate recall. Mothers can easily recall details like how long they breastfed, what vitamins they took during prenatal care, and childhood activities."

Many of the women in the study grew up in the 1940s and 1950s, long before the surgeon general issued the first warning about the dangers of cigarette smoking in 1964. Since then, millions of dollars were spent to study the dangers of cigarette smoking. Tobacco use contributes to more than nearly 90 percent of all deadly lung cancers and 30 percent of all cancer deaths in the U.S., and a host of other health problems

Since the mid-1960s, smoking bans and government-funded, anti-smoking campaigns have encouraged smokers to quit and discouraged others from starting using a number of passive and aggressive techniques. Smoking rates have declined, however people continue to use tobacco and suffer the health risks.

The study was funded by a National Cancer Institute grant and was previously presented at the Society for Behavioral Medicine and Society of Research of Nicotine and Tobacco conferences.

Adapted from materials provided by University of Rochester Medical Center.

http://www.sciencedaily.com/releases/2008/12/081205113932.htm

Vitreous Humor In The Eye Helps To Establish Time Of Death

ScienceDaily (Dec. 6, 2008) — A team of researchers from the University of Santiago de Compostela has proposed a new method to estimate the approximate time of death. This is based on the analysis of several substances from the vitreous humour of the eye of cadavers, according to an article published in the journal Statistics in Medicine.Using this system, scientists have developed a piece of software that makes it possible to establish precisely the post mortem interval (PMI), information that will make the work of the police and the courts of justice easier.

To apply this technique the researchers analyse initially potassium, urea and hypoxantine (a DNA metabolite) concentrations present in the vitreous humour of the eye of the human cadaver, and introduce these figures into a computer programme. The software that has been invented by these Galician scientists uses this information and is capable of establishing the time at which death occurred.“The equations we have developed now make it possible for us to estimate the PMI more precisely than before, and provide a useful and accessible tool to forensic pathologists that is easy to use” José Ignacio Munoz Barús, one of the authors of the study, explains to SINC, and who is also a specialist doctor from the Institute of Legal Medicine at the University of Santiago de Compostela.

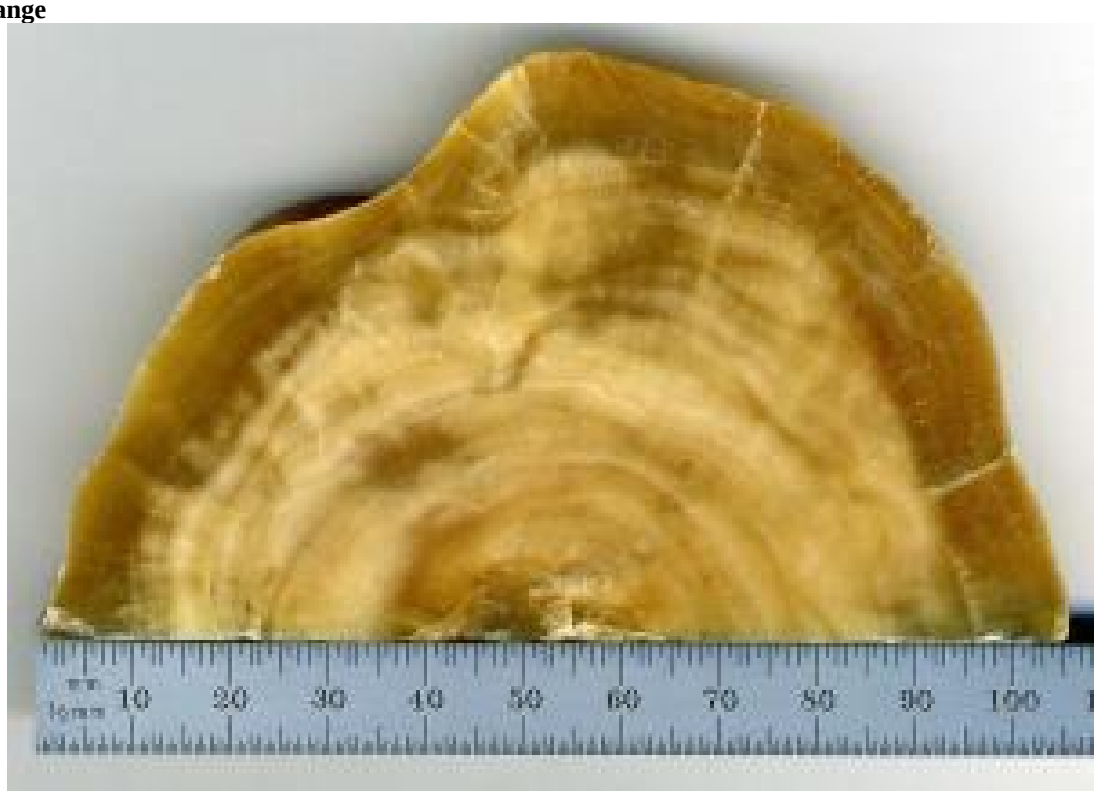
The traditional techniques for estimating the PMI are based on the study of parameters such as the rectal temperature of the cadaver or one of the organs, such as the liver, in rigor mortis, or post mortem lividity examination. These methods are complemented by biochemical analyses of the body fluids. One of these is the vitreous humour, the gelatinous liquid that is found behind the crystalline lens of the eye.Muñoz Barús points out that the study, published recently in Statistics in Medicine, suggests mathematical models that are “more flexible, useful and efficient” than those that have been applied until now. The doctor describes some of the previous techniques as “not very reproducible, not very precise and untested in the field”, such as the deterioration of DNA, immunoreaction or the traditional techniques based on the biochemistry of the vitreous humour.

In this last case the researcher specifies that previous studies used a “linear regression mathematical model” which assumes that the concentrations of potassium, hypoxantine and urea increase in a linear way that is more or less constant throughout the post mortem interval. However, the new analyses suggest that those premises are not valid and that the statistical models known as generalized additive models (GAM) or the support vector machine (SVM) models are more flexible and much more useful, since they avoid the assumption of linearity”.The precision and usefulness of these two models have been confirmed by chemical analysis in more than 200 vitreous humour samples. The doctor and the two mathematicians who have performed the study have verified that the SVM method offers more precise data, although the GAM method is more easy to assimilate to the linear model and understand graphically and numerically, “ for which reason both complement each other”.

The three scientists have incorporated all this information into the development of a free computer package (based on code “R”) which makes it possible to establish the PMI using four predictive variables: concentrations of potassium, hypoxantine and urea, and cause of death. In addition, the software makes it possible to show the results graphically. “In this way the estimation of the time of death and expert examination are made easier when attending the courts of justice”, Munoz Barús points out to SINC“The precise determination of the exact time of death has been the subject of various studies going back to the 19th century, since this information is of paramount importance in the field of legal medicine, owing to its repercussions on crime and civil society. This new method offers an important contribution to this field”, the researcher concludes.

Adapted from materials provided by Plataforma SINC, via AlphaGalileo.
http://www.sciencedaily.com/releases/2008/12/081204133857.htm

Decline Of Roman And Byzantine Empires 1,400 Years Ago May Have Been Driven By Climate Change



Growth bands are visible in a polished cross-section of a stalagmite from Soreq Cave near Jerusalem, Israel. Stalagmites form from calcite and other minerals deposited by water in caves and contain chemical signatures of the climate and other physical conditions that existed as the formation grew. Geochemical analysis of a similar stalagmite from the same cave has revealed that large climate changes in the Eastern Mediterranean 1,400 years ago, including increasingly dry weather from 100 A.D. to 700 A.D., may have contributed to the downfall of the Roman and Byzantine Empires in the region. (Credit: Image courtesy of University of Wisconsin-Madison)

ScienceDaily (Dec. 6, 2008) — The decline of the Roman and Byzantine Empires in the Eastern Mediterranean more than 1,400 years ago may have been driven by unfavorable climate changes.

Based on chemical signatures in a piece of calcite from a cave near Jerusalem, a team of American and Israeli geologists pieced together a detailed record of the area's climate from roughly 200 B.C. to 1100 A.D. Their analysis, to be reported in an upcoming issue of the journal Quaternary Research, reveals increasingly dry weather from 100 A.D. to 700 A.D. that coincided with the fall of both Roman and Byzantine rule in the region.

The researchers, led by University of Wisconsin-Madison geology graduate student Ian Orland and professor John Valley, reconstructed the high-resolution climate record based on geochemical analysis of a stalagmite from Soreq Cave, located in the Stalactite Cave Nature Reserve near Jerusalem.

"It looks sort of like tree rings in cross-section. You have many concentric rings and you can analyze across these rings, but instead of looking at the ring widths, we're looking at the geochemical composition of each ring," says Orland.

Using oxygen isotope signatures and impurities — such as organic matter flushed into the cave by surface rain — trapped in the layered mineral deposits, Orland determined annual rainfall levels for the years the stalagmite was growing, from approximately 200 B.C. to 1100 A.D.

While cave formations have previously been used as climate indicators, past analyses have relied on relatively crude sampling tools, typically small dental drills, which required averaging across 10 or even 100 years at a time. The current analysis used an advanced ion microprobe in the Wisconsin Secondary-Ion Mass-Spectrometer (Wisc-SIMS) laboratory to sample spots just one-hundredth of a millimeter across. That represents about 100 times sharper detail than previous methods. With such fine resolution, the scientists were able to discriminate weather patterns from individual years and seasons.

Their detailed climate record shows that the Eastern Mediterranean became drier between 100 A.D. and 700 A.D., a time when Roman and Byzantine power in the region waned, including steep drops in precipitation around 100 A.D. and 400 A.D. "Whether this is what weakened the Byzantines or not isn't known, but it is an interesting correlation," Valley says. "These things were certainly going on at the time that those historic changes occurred."

The team is now applying the same techniques to older samples from the same cave. "One period of interest is the last glacial termination, around 19,000 years ago — the most recent period in Earth's history when the whole globe experienced a warming of 4 to 5 degrees Celsius," Orland says.

Formations from this period of rapid change may help them better understand how weather patterns respond to quickly warming temperatures.

Soreq Cave — at least 185,000 years old and still active — also offers the hope of creating a high-resolution long-term climate change record to parallel those generated from Greenland and Antarctic ice cores.

"No one knows what happened on the continents… At the poles, the climate might have been quite different," says Valley. "This is a record of what was going on in a very different part of the world."

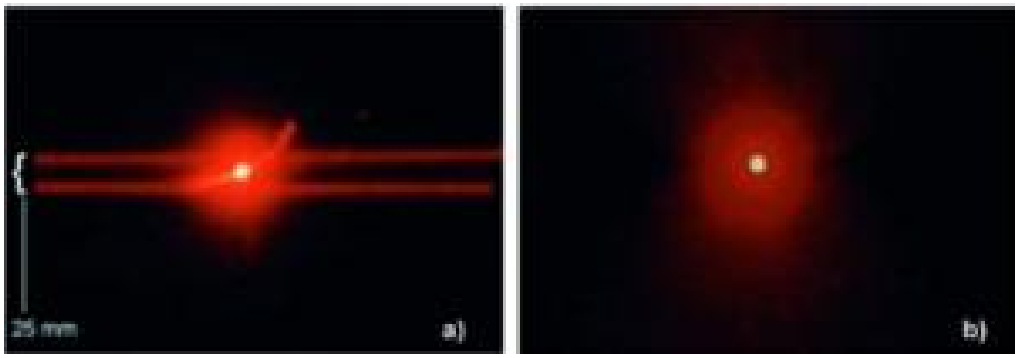
In addition to Valley and Orland, the paper was authored by Miryam Bar-Matthews and Avner Ayalon from the Geological Survey of Israel, Alan Matthews of the Hebrew University in Jerusalem and Noriko Kita of UW-Madison.

Funding for the project is from the Comer Science and Education Foundation, National Science Foundation, U.S. Department of Energy, Israel Science Foundation, Sigma Xi, and the UW-Madison Department of Geology and Geophysics.

Adapted from materials provided by University of Wisconsin-Madison.

http://www.sciencedaily.com/releases/2008/12/081205171005.htm

Technique To Differentiate Between Original And Bootleg CDs Developed



Diffracted laser light patterns for a) a burned CD and b) a pressed CD. (Credit: Image courtesy of Universidad de Granada)

ScienceDaily (Dec. 6, 2008) — A group of scientists at the University of Granada has developed a new optical technique which permits to know if a Compact Disc (CD) is original or a copy. This new technique is economical, fast and effective, and allows to detect illegal CD copies.

Optical CDs are at present the most extended physical means of distribution of digital information around the world. However, bootlegging in this sector is a serious problem which involves important economic losses and which has not been solved up to now.

Original CDs are made by printing, through a process which is profitable for large print runs. However, copies are obtained by performing a series of marks on the surface through the "burning" with laser of commercial recorders on an organic material with which a series of spiral grooves are made in a blank CD.

Through the new technique proposed by the scientists of the Department of Optics of the UGR it is possible to identify if a CD has been recorded using a method or a device different to those used in industrial processes, which allows to differentiate between original CDs and copies. This technique uses the phenomenon of light diffraction on a CD surface to appreciate the differences between original and bootleg CDs, as they generate different types of diffraction models.

DVDs too

This technique has also been tested in DVDs, where it has also been validated, and they intend to develop it for the detection of bootleg CDs for latest generation devices such as Blue-Ray or HD-DVD.

The study has been recently published in the American Journal of Physics, and a patent application has been submitted. The Group in charge of this research work is composed of members of the Department of Optics of the University of Granada (Javier Hernández Andrés, Eva Valero Benito, Juan Luis Nieves Gómez and Javier Romero Mora), and by José Fernández Dorado, a student of Physics who is now carrying out his doctoral thesis in the Centre for the Development of Sensors, Instrumentation and Systems of the Technical University of Catalonia.

Adapted from materials provided by Universidad de Granada.

http://www.sciencedaily.com/releases/2008/12/081205122941.htm

Human Approach To Computer Processing

ScienceDaily (Dec. 6, 2008) — A more human approach to processing raw data could change the way that computers deal with information, according to academics at The University of Nottingham.

Researchers in the School of Computer Science at the University's Malaysia Campus are exploring 'granular computing' — a computer paradigm that looks at groups or sets of information, called information granules, rather than the high level of detail at which data is currently processed.

By looking at data in this way, new patterns and relationships emerge — which could potentially give us access to new types of computer modelling in a range of fields, including process control and optimisation, resource scheduling and bioinformatics.

The concept of a granular approach to computing is inspired by human thought processes, according to Professor Andrzej Bargiela, Director of Computer Science at Malaysia Campus.

"Creating abstractions from detailed information is essential to human knowledge, interaction and reasoning," said Professor Bargiela. "The human brain filters the flood of information and distils knowledge subconsciously."

"We can observe such an information processing pattern not only in scientific domains but also in fine arts and in natural language conversation. When an artist paints a picture they are not focussing on photographic accuracy, they focus on the artistic message — and use brushstrokes to simplify the reality in a way that is conducive to conveying that message. We remember conversations, but we don't remember every word — the raw data — we remember the meaning, gist and nuance in other words the abstractions of the conversation. That is the basis for distilling human knowledge and understanding.

"We process a huge amount of information second by second. If we were aware of every single thing, our minds would be overloaded. The flood of information would choke us. The human mind uses the method of information abstraction to cope with the sensory overload of everyday life."

It is thought that the granular computing approach to information processing may capture this essential characteristic of human information processing and offer a breakthrough in dealing with information overload in a broad spectrum of application domains. Several PhD projects supervised by Professor Bargiela test this hypothesis in the context of varied applications, including urban traffic monitoring and control, job scheduling, timetabling and protein classification. Other applications that will be explored in the near future include environmental modelling and assessment of potential of under-utilised crops.

"Technology allows us to capture an enormous amount of information, but making most of that information represents a significant challenge," Professor Bargiela explained. "Over the last decade granular computing research has been gradually developing mathematical foundations for information granulation and granular modelling of systems. We have been part of this research development from the very nascent stages of granular computing. It is extremely exciting to see that the age-old paradigm of human information processing only just starts to be formalised as a well-founded method in computer science."

Adapted from materials provided by University of Nottingham.

http://www.sciencedaily.com/releases/2008/12/081202115421.htm

The Adjunctification of English

Without anyone paying much attention, professors have substantially been replaced by part timers and those off the tenure track when it comes to teaching English and writing to undergraduates.

That's the theme of "Education in the Balance: A Report on the Academic Workforce in English," issued Wednesday by the Modern Language Association and its Association of Departments of English.

Among the report's findings:

Only 42 percent of all faculty members teaching English in four-year colleges and universities and only 24 percent in two-year colleges hold tenured or tenure-track positions.

Part-time faculty members now make up 40 percent of the faculty teaching English in four-year institutions and 68 percent in two-year institutions. (Part timers are only a subset of those off the tenure track since, for several years now, an increasing share of the adjunct population works full time at a single institution.)

Huge gaps exist in salaries between tenured and non-tenure track faculty members teaching English, although full-time adjuncts have seen salary growth in recent years. Per-course payments for part-time instructors have been relatively flat over the last eight years.

The report places an emphasis on the educational impact of shrinking the role of tenure-track professors in English instruction. The MLA notes that professors who are fully part of campus life and who help design the curriculum should be teaching, and that those making curricular changes should be guided by actual classroom experience. And the report — while going out of its way to praise the commitment and talent of adjunct instructors — notes real differences between adjuncts and those on the tenure track.

While over 90 percent of tenured and tenure-track faculty members teaching English in four-year institutions hold a doctorate, only 25 percent of non-tenure-track faculty members do (15 percent hold an M.F.A. and 50 percent an M.A.).This educational gap could be troubling, the MLA report says, because many of these master's programs aren't necessarily designed to train people to teach college writing. The report urges further study of those programs and their role.

Rosemary G. Feal, executive director of the MLA, said in a press briefing that the use of non-tenure-track instructors to teach writing and literature is not new, nor is it a bad thing as part of balanced departments. The impetus for the report, she said, was a sense that departments were no longer in balance, and that those off the tenure track were increasingly doing the teaching, without an appropriate level of involvement from the tenure track (which would require enough tenure track positions). The shift to adjuncts has been "rapid and largely unnoticed," she said.

The MLA is recommending specific goals for the share of courses to be taught by tenured or tenure-track faculty members and the share to be taught by full-time faculty members (on or off the tenure track). For doctoral institutions, the MLA is calling for at least 45 percent of sections to be taught by tenure-track professors and 60 percent taught by those who hold full-time positions. For master's institutions, the association is urging 55 percent and 70 percent as the goals, respectively. For baccalaureate institutions, the goals would be 70 percent and 80 percent, respectively.

Data from the report show drops across the board in the use of tenured and tenure-track professors to teach various kinds of English courses. (This table is based on statistics from the report that — like many there — do not include community colleges, where the use of adjuncts to teach writing and literature is even more dominant than at four-year institutions.) Not surprisingly, baccalaureate institutions and upper division courses are the places students are most likely to encounter tenure-track professors, but even there, the declines are notable between the staffing surveys conducted by the MLA of the status of instructors in the fall of 1996 and 2006.

Percentage of Courses Taught by Tenured and Tenure-Track Faculty Members, 1996 and 2006

Type of Institution and Course	1996	2006
Doctoral		
—First-year writing	5%	4%
—Lower division	40%	30%
—Upper division	84%	75%
Master's		
—First-year writing	44%	22%
—Lower division	75%	61%
—Upper division	85%	78%
Baccalaureate		
—First-year writing	49%	43%
—Lower division	82%	62%
—Upper division	88%	78%

The data suggest that many students whose only exposure to English is a first-year writing course may never be taught by a tenured or tenure-track English professor.

Sidonie Smith, an MLA vice president who is chair of English at the University of Michigan, said that these figures point to "a systemic change in higher education," as English departments have lost the slots needed to teach writing to freshmen, and literature at a range of levels. "It's an out of balance system," she said.

Smith said that at a research institution like Michigan, part of the student experience should be learning from "a scholar/teacher" of the sort that make up the tenured faculty. She recalled attending graduation ceremonies and watching new graduates "light up" while introducing their parents to professors whose ideas and teaching made a difference.

David Bartholomae, chair of English at the University of Pittsburgh and chair of the panel that wrote the report, also said that — if the MLA's recommendations are followed — more tenure-track faculty members would be teaching writing to freshmen. While there is no specific goal offered for these courses, Bartholomae said that students would benefit and "ideally" departments would be staffed to make that possible.

The report goes out of its way to stress that current part-time or full-time non-tenure track instructors shouldn't be viewed as a problem, and should in fact receive better treatment in pay, training and benefits. Particularly for part timers, the report suggests a falling standard of living. Those paid on a per course basis were earning less in 2006, when adjusted for inflation, than in 1999 in master's and bachelor's institutions.

Per Course Average Pay for Part-Time English Instructors

Sector	1999	1999 Salary in 2006 Dollars	2006
Doctoral	$2,951	$3,571	$3,826
Master's	$2,149	$2,600	$2,560

Baccalaureate	$2,522	$3,052	$3,042

The MLA report comes a week after the release of a study by the American Federation of Teachers that also pointed to increased reliance on adjuncts and urged a reversal of the trend. MLA leaders, like AFT leaders last week, acknowledged that the economic crisis facing many colleges makes this a less than ideal time to push for more tenure-track lines, but they said that was no reason not to articulate the issues and develop plans for improvements as finances permit.

Many of those off the tenure track who teach in English departments are teaching writing — and these rhetoric and composition instructors are sometimes in subdivisions of English and other times in their own programs. The report won praise from the chair of the Conference on College Composition and Communication.

Cheryl Glenn, the chair and a professor of English and women's studies at Pennsylvania State University, noted that there were many similarities between the MLA's report and a statement adopted by the writing instructors in 1989, which lamented the "enormous academic underclass" created by the use of adjuncts to teach writing, and called for programs to rely on tenured and tenure-track professors. She said it saddened her that so little progress had been made since 1989, but that the MLA had framed the issues well.

Glenn also noted the unfortunate timing of releasing the report in such a trying economic time. "It's really a bleak day economically," she said. "Faculty searches are being canceled all over the nation. Chances are the employment picture won't change any time soon." But Glenn quickly added that this doesn't mean that there are no recommendations in the MLA report or the composition conference's report that can be acted on now.

She noted that the MLA is not calling for eliminating adjunct positions, but for being certain that they represent only part of the teaching faculty and that they receive appropriate support. Even if a college can't create many new tenure-track lines, Glenn said, its tenured faculty members who are experts in composition and rhetoric "can provide rich orientation programs that support new teachers, can design ongoing mentoring programs, and can provide opportunities for professional growth," she said. In addition, she said that they should be paid a decent wage, so they don't have to teach so many sections at so many campuses that it is difficult to do their jobs.

The assumption shouldn't be that adjuncts are poor teachers. "I see great teaching all over" by those without tenure-track jobs, she said. "But we shouldn't just be throwing them in there."

— Scott Jaschik

The original story and user comments can be viewed online at
http://insidehighered.com/news/2008/12/11/english.

With Budget Crunch Hitting IT, Time to Rethink Role?

©ISTOCKPHOTO/BEHOLDINGEYE

Information technology, the backbone of colleges' network and security operations, faces the same wave of cuts as any other line in the budget these days, at least at institutions imposing across-the-board cuts. But rather than lament the fewer resources they have to work with, some chief information officers see the latest economic downturn as an opportunity to rethink their role and, in the process, revive an ongoing debate about what exactly they should be doing to serve the mission of higher education.

As budgets tighten, some CIOs are asking themselves where, to use the economic parlance, their comparative advantage lies, and whether the cuts serve as a chance to offload services available elsewhere — by outsourcing e-mail and moving common tasks to the "cloud" of third-party, cheaply networked computers — and concentrating on developing applications specific to teaching and research.

In other words, at a time when most students come to college armed with laptops, e-mail addresses and the expectations of savvy consumers, it's worth asking — as some have been doing for years — what college CIOs should offer beyond the typical corporate IT division's responsibilities, from network administration to virus protection, and tasks like security notification and analytics that have become standard on campus.

"I think what you have is a kind of perfect storm," said Lev Gonick, the CIO and vice president for information technology services at Case Western Reserve University. "It's a confluence of technical trends that were and are being driven ... by a realization that the technology infrastructure in the cloud is becoming more robust and more reliable. As it does, it actually enables a commoditization of services,

some of which were thought to be very special and quite unique to an enterprise like a university campus."

Like their corporate counterparts, colleges across the country are facing cuts in their IT budgets. According to the latest Campus Computing Project survey, 45.4 percent of public universities saw cuts in their IT budgets for the fall, almost triple the percentage of last year. There were also cuts this year among other types of colleges, but at lower rates; 22.8 percent of private universities had reduced IT funding, while 23.5 percent of four-year colleges and 24.6 percent of community colleges saw cuts.

And despite the "expanding tent of IT," as Kenneth C. Green, the project's founding director, put it, the top priorities for CIOs this year, besides security, are financing IT and retaining staff.

Responses to these forces run the gamut from hiring freezes to delaying upgrades. Some CIOs are handling their cuts as any department would, while others are starting to act as if they're staring down the precipice.

"Now, more than ever, I think we have to focus on mission and purpose: what can, and must, IT do to ensure colleges and universities meet their academic and administrative goals?" said Warren Arbogast, the founder and president of Boulder Management Group, an IT consulting firm, in an e-mail. "I'm helping IT leaders who are dealing with all kinds of delays and freezes, things like: delayed raises, delayed project implementations, proposed job cutbacks and work furloughs, travel budget freezes, hiring freezes and spending freezes, which can often mean cancellations of much-needed large-scale implementations.

"So now is the time to be strategic and not fearful. Now's the time for innovative thinking, new ideas about re-thinking how to do IT on campus, resisting knee-jerk dollar-cutting responses that may seemingly work today but do little if anything productive down the road, and focusing first and foremost on the larger purpose of why IT is on campus in the first place: meeting the college's larger goals and mission."

Part of that discussion centers on which tasks IT should handle in-house as opposed to offsite through external vendors, a debate that's increasingly relevant as the budget calculus begins to force decisions on CIOs. E-mail is the most commonly outsourced application, handled for free by Google, Microsoft and smaller open-source providers such as Zimbra. But the scope of available functions that can be offloaded more cheaply to the cloud is much larger.

At this year's Educause conference, participants discussed outsourcing human resources applications, technology training, help desk services ... and in a few cases, even the entire IT infrastructure. In such a scenario, the college IT apparatus exists to house private data and intellectual property and to manage the various functions being handled in the cloud. Meanwhile, remaining resources can be devoted to developing applications specific to the mission of higher education, which these days can range from customized iPhone apps to specialized widgets for the Web portal.

"There were a couple points that stuck with me," said Kathy Christoph, director of academic technology in the Division of Information Technology at the University of Wisconsin at Madison, in an e-mail. "One was that several institutions that outsourced a suite of services often ultimately moved some back to campus. There seemed to be a sorting process that happened."

Of the available vendors, added Christoph, who led a discussion at Educause on outsourcing applications other than e-mail, CIOs especially liked other universities that offered particular services. UW-Madison, for example, hosts the Desire2Learn course management system for the entire 26-campus system, while Drexel University essentially serves as an IT vendor for other institutions. At the Educause session, some suggested that colleges would be more comfortable working with other institutions than with commercial vendors.

Among early adopters, CIOs argue that other services will go the way of e-mail, which just a few years ago most considered a vital function of campus information technology departments. Today, the

proportion of institutions within certain sectors of higher education that outsource e-mail is approaching 50 percent, and Boston College last month announced what may be the final step: It will no longer offer students any accounts at all, providing only aliases that will redirect to their existing addresses.

At Case Western, for example, where the IT budget started contracting in 2005 as a "canary in the coal mine" but which grew this year, Gonick said he has developed the campus's capacity for transcoding and encoding searchable video content for instruction to the point where he sees it as a "center of excellence" that he hopes will host those services for other institutions at significant cost savings.

Outsourcing isn't the only option, either. Budget concerns may accelerate ongoing discussions about whether it's more cost-effective for campuses to migrate to open-source solutions — which are free but entail start-up and administration costs as developers adapt code to institutions' needs — which are rising in popularity in certain sectors, especially for course management systems. Gonick said that colleges will ask CIOs to justify their work in open source, in particular, and that "our best answer is to be able to demonstrate that our investment of talent is focused on these value-added services" — in other words, "the things that are actually salient and special to the education, the teaching, the learning and the research mission...."

For now, Gonick thinks the so-called "shared services model" of colleges focusing on what they do best, and outsourcing the rest — possibly to each other — is a good bet for the future.

"We as a community should be ... approaching this set of challenges as opportunities to actually provide common services for one another, and ... this model of shared services has been going on for a good long time."

— Andy Guess

The original story and user comments can be viewed online at
http://insidehighered.com/news/2008/12/11/it.

Consumers Want, and Are Skeptical About, Eco-Electronics

By Joe Hutsko

But is it environmentally friendly? (Photo: Julien Jourdes for The New York Times)

Among other findings from a survey released today by the Consumer Electronics Association, an industry group representing computer and gadget manufacturers, 89 percent of consumers said that energy efficiency would be a factor in choosing their next television — even as less than half of the 960 people surveyed said they're generally able to make sense of the environmental attributes attached to electronics on the market.

"One of the greatest challenges certainly is consumer confusion about what 'green' means," said Parker Brugge, the C.E.A.'s vice president of environmental affairs.

Mr. Brugge said the lack of a universally recognized means to measure a product's "greenness" makes it difficult for consumers to find information at the point of purchase.

The survey also found that while 74 percent of consumers polled say companies should do more to protect the environment, only 17 percent feel familiar with the environmental reputation and philosophy of companies who make and sell electronics.

More than 50 percent of consumers believe some companies overstate the environmental friendliness of their products in order to sell more.

"There needs to be more consumer education and effective communication on the part of manufacturers and retailers," Mr. Brugge said.

While 25 percent of respondents said they felt comfortable with the "green" jargon attached to various electronic products, 38 percent said they were confused by the the eco-friendly messages. Roughly 51 percent of respondents said they don't always believe what they see or read about eco-friendly products.

Tim Herbert, the C.E.A.'s senior director of market research, said that although consumers are confused by the green credentials of various electronics, "the key takeaway is the growing importance of 'green' in consumers' purchasing decisions."

http://greeninc.blogs.nytimes.com/2008/12/10/consumers-want-and-are-skeptical-about-eco-electronics/?th&emc=th

Unraveling a 15th-Century Whodunit

By MICHAEL KIMMELMAN

FRANKFURT — Here at the Städel Museum “The Master of Flémalle and Rogier van der Weyden” is an old-fashioned whodunit. Almost exhaustingly erudite, it mixes up very great Netherlandish paintings of the 15th century with a few not so great ones to unravel perennial questions from galaxy academe about which artist painted what.

Why should we care? For the same reason film buffs debate if Howard Hawks was the real director behind “The Thing From Another World,” the sci-fi classic from 1951 he produced, rather than Christian Nyby, the credited director, or whether the 1943 thriller “Journey Into Fear,” for which Norman Foster is listed as director, was taken over by Orson Welles, who played a Turkish police detective in it and whose other movies it partly resembles.

We should care because, commerce and the usual scholarly nitpicking aside, the debate is itself an excuse for looking closer, and because piecing together any great artist’s legacy is a bit like composing a novel, every chapter part of the artist’s grand narrative, without all of which the story is incomplete. And, well, also because good mysteries beg to be solved.

With 500-year-old Netherlandish paintings, their solution boils down to connoisseurship, an unfashionable term in universities for years, an art of human frailty that science and history now often miraculously supplement but still can’t replace. Like all forms of art, connoisseurship contrives its own logic to provide answers to questions about who did what, but it ultimately accepts doubt and ambiguity in the bargain, qualities which likewise separate theater from agitprop, “The Rules of the Game” from “Deuce Bigalow: European Gigolo,” literature from bank statements or grocery lists. Not coincidentally, writers like Tolstoy, Baudelaire and Zola used to love to write about art. The Goncourt brothers embraced Watteau, Proust took up Chardin. This exhibition virtually calls for a Borges or a Pirandello — or a Welles. Jochen Sander is its curator. On a recent afternoon he was standing before the “Crucified Thief,” attributed to the Master of Flémalle, a picture that is at once opulent and fairly revolting. Against a gold backdrop, two figures attend the badly mangled victim. In a corner of the picture a receding landscape abuts the backdrop, like a stage set running into the proscenium curtain, realism clashing with artifice.

Jan van Eyck and then Rogier van der Weyden, following his lead, would shortly usher in pictures conjuring up more believable spaces, where natural light suddenly bathed bejeweled scenes of everyday life, miraculously. Rogier's portrait of a young woman in a starched white linen bonnet and fur-lined dress, a painting from Berlin, was hanging in the next gallery. Her face, lighted from the side, leaped as if into the room, across the centuries, doe-eyed and expectant. Hands resting modestly, one on top of the other, peering slightly off into the distance (the gaze is tricky to fix), she looks calm, solid and unassailable.

But nothing is really certain here.

Mr. Sander smiled. In 1849 the museum acquired three paintings, large panels from a collector in Aachen, Germany. They were hanging near the "Crucified Thief." In one, the young Mary nursed Jesus. In another, the aged Veronica held up her veil. In the third, an illusion of a sculpture in a niche, God the Father supported the dead Jesus on whose shoulder perched a dove representing the Holy Ghost.

The paintings bear no signature. The rest of the great altarpiece to which they probably all must have belonged is now missing, unknown. The man who sold the pictures said they came from the Abbey of Flémalle, near Liège.

And so the anonymous artist was named the Master of Flémalle.

But it soon emerged that there never was an abbey in Flémalle. Johann David Passavant was a great scholar working at the Städel during the 19th century, and he decided that the Master of Flémalle was actually Rogier van der Weyden the Younger — after an old theory claiming there had been two Rogiers. But this also proved to be a fiction. On further inspection the paintings revealed themselves not to be the work of one artist, but several.

From a different quarter a solution seemed to arise. Mr. Sander pointed toward a group of smaller, slightly stiff and pokey paintings. In France financial documents belonging to a 15th century abbot at a monastery in Arras described four works by an artist named Jacques Daret. The documents were destroyed during World War II and are known now only through copied notes. But the paintings from Arras bore a striking resemblance to parts of the Frankfurt panels.

So Daret came to be regarded as one of the artists linked to the Master of Flémalle. But more important, during the 1420s, when the Frankfurt panels seem to have been painted, Daret was a pupil in the studio of Robert Campin, a better artist, someone more worthy of these works. The implication was that Campin was the Master of Flémalle.

And that's what the books tend to say. But that's not the end of the story, Mr. Sander said. Campin, in his day, had a solid reputation, although nothing like Rogier van der Weyden's. How could his work be confused with Rogier's? And Daret was not the only artist working for Campin. Another was none other than Rogier — the one and only Rogier — which is to say that Rogier might after all have been among those who painted at least parts of these Frankfurt pictures while in the employ of Campin, who in retrospect was every bit as great as Rogier.

Meanwhile even the most famous of all paintings said to be by Rogier, his "Deposition" at the Prado in Spain, a cornerstone in the great edifice of art history (it's not here), has been attributed by at least one scholar to Campin, Mr. Sander said. Documents from the 15th century name Rogier as the painter of many paintings, none of which survive, he added. No documents, on the other hand, definitively link him to any painting that does exist, not even to the "Deposition."

So Rogier is nearly as mysterious a figure as the Master of Flémalle. The great edifice turns out to be something of a house of cards.

Mr. Sander stood before the original panel paintings. The Master of Flémalle, named after a nonexistent abbey, and who is not Rogier van der Weyden the Younger (who was a nonexistent artist), was in fact not one artist but several. And based on documents that no longer exist either, he has now come to be associated with Robert Campin, in whose studio was the great Rogier van der Weyden, who may also have been, in part, the Master of Flémalle.

And yet.

Some things are clear. The weary, aged face of Veronica looks deeply, memorably human. The young woman from Berlin is heartbreakingly beautiful. Elsewhere, a painting of a stout man who at first looks identical to a second portrait is built up from layers of paint that subtly absorb light and give weight and density to the face. Max J. Friedländer, the eminent historian, many years ago attributed the portrait to the Master of Flémalle, then later wondered if it wasn't by Rogier.

The curators here think maybe it was. But maybe not. Dendrochronological tests, to measure the dates of trees, have estimated the age of the wood panels on which it and other pictures were painted; spectrographs and X-rays have provided proof of under-drawings, pentimenti and erasures. The famous Mérode Altarpiece from the Cloisters in New York, long attributed to the Master of Flémalle, turns out to be partly copied, it seems, from a picture in Brussels, long thought to have been a copy of the altarpiece.

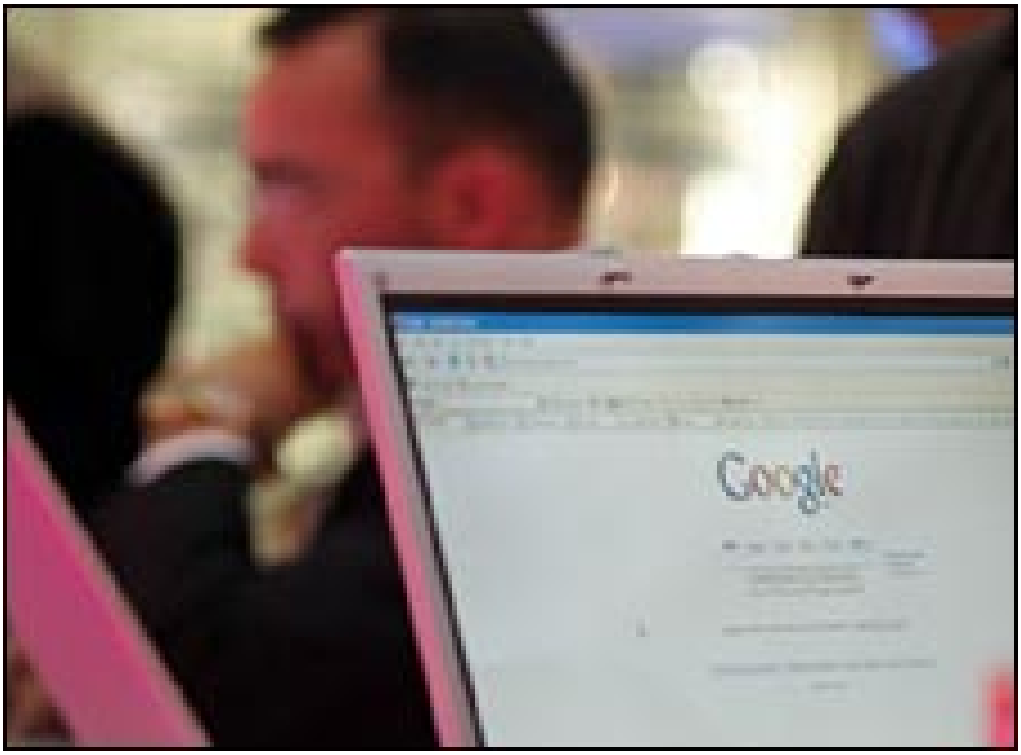
That's nice to know. But in the end the story of this exhibition is that beauty resides not just in the pictures (of course) but in doubt itself. That art of such profound and unprecedented verisimilitude, which took such pains to record the minutest details of the world, should remain shrouded in such a fog is both a paradox and healthy reminder of a basic truth.

Great art is always a mystery.

http://www.nytimes.com/2008/12/11/arts/design/11abroad.html?_r=1&th&emc=th

Google tells us what we look for

What do Sarah Palin, Facebook and Euro 2008 have in common?



They are all on the list of the top 10 fastest-rising queries on Google during 2008.

The search engine has published its year-end Zeitgeist, the tool which reveals what internet users are searching for.

The most searched term for Google users in the UK was Facebook while the BBC came second and its iPlayer service was the fastest rising query.

The list also reveals what global preoccupations are and this year the US election candidates and the Beijing Olympics figure high.

The things people around the globe have in common are a strong interest in socialising and politics, according to Marissa Mayer, vice-president of search at Google.

"Social networks comprised four out of the top 10 global fastest-rising queries while the US election held everyone's interest around the globe," she wrote on Google's official blog.

Popular politicians

The economic crisis has made an impact on UK searchers with "money saving expert" and "hot uk deals" making the top 10 finance-related searches.

Gordon Brown will be pleased to hear that he beat David Cameron into second place on the list of most popular politicians among UK searchers.

Barack Obama made it into third place with rival John McCain coming in seventh.

Foodies were interested in recipes for cupcakes, meatballs, lemon posset and pork belly, while the hottest tickets in the UK went to Oasis and Leonard Cohen (first and second respectively).

Popular music

While news and weather tend to be the most searched for terms globally there are still plenty of country-specific quirks, according to Ms Mayer.

"Russians elected Dmitri Medvedev as their president but a couple of popular music acts got more attention from Google searchers," she wrote.

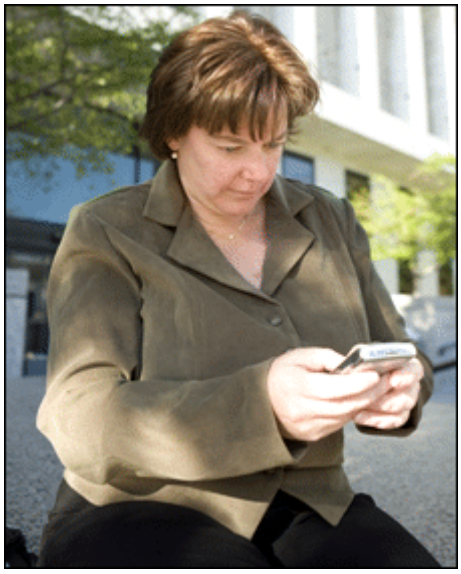
In Poland the fifth fastest-rising term was Jozin z Bazin, the title of a 1978 Czech song which has been popular on YouTube.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/technology/7775344.stm

Published: 2008/12/10 13:49:10 GMT

Don't be 404, know the tech slang

A study of new slang terms entering English finds that technology is driving and perpetuating them.



For instance, "404" - the error message given when a browser cannot find a webpage - has come to mean "clueless".

Slang lexicographer Jonathon Green says that some such terms and abbreviations come about because of the limited speed and space afforded by text messaging.

However, an Australian study found that reading "textese" takes more time and results in more mistakes.

A study conducted by the telecommunications arm of the Post Office has searched out the terms that are not yet in wide use but may be soon.

"What we're seeing is the influence of technology coupled with current events and, inevitably of the young, who in many cases drive language," says Mr Green.

"It's focused on this world of mobile phones - these abbreviations are perfectly suited to those little screens."

And the very act of text messaging can throw up new terms: predictive text tends to choose "book" when users type the letters for "cool". Solution? Book now means cool.

Oyster pearls

Of the more unlikely slang sources identified in the Post Office research is the Oyster system, a card-based payment scheme on the London Underground. The card readers show the number 35 if the card has run out of credit. As a result, "Code 35" has come to mean penniless.

Similarly, if you're behind the times, you might be "Code 11" - Oyster's way of signifying an out-of-date card.

While these might seem London-centric, Mr Green says that slang is inherently an urban phenomenon, and London has ruled the invention and propagation of slang since as far back as the 16th Century.

Other terms from the study are of a more topical bent; the economic downturn has given rise to "GOOD job" - an acronym for Get Out Of Debt, the kind of job that many of the cash-strapped formerly employed may be on the lookout for.

Other examples are simple abbreviations, the technologically driven equivalents of FYI or TBC. Such consonant-heavy shortcuts are well-documented, but new examples are creeping in. "I love you" can take the shortened form of 143 - for the number of letters in each word.

Such labour-saving is nothing new; as another fairly fiddly mode of communication, the telegraph had its own rich collection of abbreviations. But the sheer number of mobile users compared to the number of telegraphers in their heyday means that these abbreviations and terms will spread further and last longer.

Hrd 2 rd

According to a study by psychologist Nenagh Kemp at the University of Tasmania, however, such shortcuts benefit only the sender, not the recipient.

A group of 55 students was asked to send and read out text messages either in standard English or its vowel-impoverished cousin "textese".

While writing in textese was significantly faster across the board, nearly half the students took twice as long to read messages aloud as compared to standard English versions.

Contrary to the idea that shortenings and deliberate misspellings are dulling our language skills, Dr Kemp argues that expertise with phonetics and grammar is directly tied to the ability to decipher messages in textese.

The development of this technologically savvy (or lazy) branch of language is a natural part of our language's evolution, argues Mr Green.

"It's just another form of the Queen's English - not better, not worse," he says.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/technology/7775013.stm

Published: 2008/12/10 12:11:12 GMT

Gene 'triggers unhealthy eating'

People who carry a gene variant linked to obesity eat an average of 100 extra calories per meal, research suggests.

The key variant of the FTO gene is thought to be carried by 63% of people.

The New England Journal of Medicine study, by the University of Dundee, carried out eating tests on 100 children aged four to 10.

Those with the gene variant chose foods with more sugar and fat, suggesting they were instinctively drawn to them rather than healthy options.

Each child in the study took part in three eating tests, offering a range of different food types.

The researchers found that the gene variant had no impact on the speed at which the body broke down food, or on how active people were.

There was also no evidence that those who carried it had any trouble registering when they were full up and should stop eating.

However, they did seem to be instinctively attracted to more calorific foods.

Lead researcher Professor Colin Palmer said: "This work demonstrates that this gene does not lead to obesity without overeating and suggests that obesity linked to this gene could be modulated by careful dietary control.

"What it effectively shows is that the people with the relevant variants on the gene have a trait which may lead them to eat more unhealthy, fattening foods."

Professor Palmer said the findings also reinforced the idea that soaring obesity rates were closely linked to the widespread availability of cheap, calorie-packed foods.

For people carrying the relevant gene variant, these may simply be too tempting to resist.

Research has shown that people carrying one copy of the key FTO variant (49% of the population) have a 30% increased risk of obesity, while for those carrying two copies the increased risk is almost 70%.

'Get smarter'

Professor Palmer said it was likely that many different genes were involved in obesity.

Dr Ian Campbell, medical director of the charity Weight Concern, said: "Given that half of us have the FTO gene, making us more prone to eating fatty, sugary foods, this must surely help us to understand how difficult it can be for individuals to simply use will-power to change their behaviour and adopt a healthier diet when their genetic make-up is telling them to do the opposite.

"If we are to tackle this problem adequately, we need to get smarter and start dealing with all the underlying forces that influence our choices.

"We need to find ways to make a healthier lifestyle a more attractive and, therefore, an easier option."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7773146.stm

Published: 2008/12/11 01:03:24 GMT

Taking One (Percent) for the Team

At Brandeis University, faculty are considering whether to voluntarily forgo 1 percent of their salaries next year to prevent possible layoffs of support staff.

"It's not painless for us, but it's not a huge hit to take," said William Flesch, the Faculty Senate chair and a professor of English literature.

Lawyers are still vetting the details of the proposal but, in short, interested faculty would contribute to the cause either by forgoing 1 percent of their paychecks, or via a charitable contribution to a reserved Brandeis fund. Faculty would volunteer individually and anonymously ("only the payroll office would know," Flesch said), without any cuts to their listed base pay. And, to avert concerns about freeloading, contributions would kick in only if there is a critical mass of willing faculty — if those who volunteer collectively earn at least 30 percent of the total faculty salary pool within the College of Arts and Sciences.

"The dean and I worked out that if we do get to 30 percent of the faculty volunteering to decline to take 1 percent of their salary next year, that would probably save two or three full-time jobs or four to six half-time jobs," said Flesch, who sits on a college committee that has identified which staff positions would be the first slashed if economic conditions don't improve. When asked what sorts of staff jobs are vulnerable, Flesch said that members of the committee have interviewed chairs to discuss administrative staffing and duties within departments.

In other words, to Flesch, the possibilities for staff layoffs are anything but abstract. And, he believes, any bait and switch on the part of the administration would be apparent. "We already know where the cuts will be if the money doesn't come in," he said. "As the dean puts it, it's basically as transparent as it could be without actually publicizing personnel rankings and personnel decisions."

In a phone interview, Flesch stressed that the proposal was entirely faculty-generated. In fact, he said that while several top administrators have pledged to participate in the proposed giveback, "To tell you the truth, I'm not sure the senior administration is very happy about this.

"Brandeis is not asking us to do this and they don't want anyone to think they're asking us to do this. Things are under control at Brandeis, they're not great, but they're not great anywhere.

"The really important thing is things are under control and this is just a question of tweaking things to make it a little less harsh for a few members of the staff."

Dennis Nealon, Brandeis's executive director of media and public affairs, described the proposal as one of a number of ideas on the table. "Like all colleges and universities, Brandeis is actively looking at ways to cut costs and to do that, it's going to gather proposals and ideas from across the community. Yes, the administration has actively invited students, staff, faculty to go ahead and submit proposals with an eye toward, yes, cutting costs," said Nealon. He added that while layoffs are a possibility, "Nothing is cast in stone at this point."

"Brandeis, like other schools, like other colleges and universities, is keeping a close eye on what the economy's really going to do and that's going to dictate in large measure how far cuts will go."

Speaking in a broader context, Ernst Benjamin, general secretary of the American Association of University Professors, said that similar issues arose at last weekend's meeting of collective bargaining chapters. Should faculty volunteer to take pay cuts or renegotiate contracts (albeit in other cases at their administrations' request or even demand)?

"On the one hand, there was a lot of feeling that faculty should be careful before assuming that there is a genuine need for it, and the university is in as much trouble as it presents itself as being," said Benjamin. At the same time, he said, "I wouldn't necessarily think it's a bad idea. Obviously the faculty who are there are in the best position to make a determination whether it's (a) necessary and (b) better than the possible alternatives.

"A lot of it depends on the particular circumstances. Faculty often have a pretty good idea of whether they can view the administration as reliable."

Concerns voiced about the Brandeis proposal at a recent faculty meeting reflect, at least in part, questions of trust. According to Flesch's account, and an account in the student newspaper, some faculty raised concerns that the foregone pay would be used for purposes other than shielding staff, and, more philosophically, that the administration would see the move as a concession suggesting that faculty could be paid less in the future.

Flesch said he's uncertain of whether they'll reach the 30 percent threshold set. Under the current plan — again, still being vetted by lawyers — professors would respond to a still-to-be-sent e-mail with their individual verdicts by next Friday, December 19.

— Elizabeth Redden

The original story and user comments can be viewed online at http://insidehighered.com/news/2008/12/10/brandeis.

Poor countries 'need carbon cuts'

By Richard Black
Environment correspondent, BBC News, Poznan, Poland

People in developing countries will need to make big cuts in greenhouse gas emissions if "dangerous" climate change is to be avoided, a report warns.

Researchers at the Third World Network calculate that even if rich nations make deep cuts, the developing world will face per-capita reductions of 60%.

It suggests this would pose challenges to these countries' development.

Meanwhile, another report warns that current proposals for cutting developed world emissions do not go far enough.

The Global Climate Network, an alliance of research groups, says that current pledges by the EU and by US President-elect Barack Obama will not put the world on track to halving emissions by 2050.

Both reports have been under discussion here at the United Nations Framework Convention on Climate Change (UNFCCC) conference in Poznan, Poland.

Growth curve

"The figures are very grim," said Martin Khor, director of the Malaysia-based Third World Network.

"They're grim if we go for a 50% [global] cut by 2050, and we may need more - I think we only went for a 50% figure so as not to scare politicians."

Halving global emissions by 2050 (relative to a 1990 baseline) would mean that they are unlikely to rise more than 2.5C above the pre-industrial average, according to calculations by the Intergovernmental Panel on Climate Change (IPCC).

Further IPCC analyses suggest this would avoid some of the most serious potential climate impacts.

The leaders of the G8 major industrialised nations endorsed the global target at their summit this year in Japan.

A number of countries, including the UK, want to keep their own emissions in 2050 80% below the 1990 baseline.

If the entire industrialised world took on this commitment, the Third World Network calculates, developing nations would have to cut their emissions by 23% in order for the world to hit its 50% target.

But because the populations of developing countries are growing, this 23% figure translates to a per-capita cut of 60%.

If the developing world made a more modest commitment, to keep its per-capita emissions constant at 1990 levels, population growth would still mean that the total emissions from these countries would double by 2050, scuppering any chance of a global 50% cut.

Although some developing countries have established plans for improving energy efficiency and curbing the rate at which their emissions are rising, there is no appetite within the bloc for an actual cut, and industrialised nations are not pressing them to take on firm targets.

Without such a commitment, this report suggests, there is little chance of avoiding temperature rises that are likely to bring major impacts, if the IPCC is right.

Cooking up

Ewah Eleri, executive director of the International Centre for Energy, Environment and Development based in the Nigerian capital, Abuja, said there were some obvious easy ways for the poorest developing countries to reduce emissions.

One would be to replace traditional open wood-burning stoves with more efficient models.

"Being able to introduce efficient wood stoves is not rocket science," he told BBC News.

"But it holds a lot of promise in terms of reducing the health hazard to men, women and children who work in the kitchen."

Making the switch across Nigeria could probably reduce the country's emissions by 20-30%.

Globally, he said, about two billion people use wood as their primary fuel; and switching them all to locally-made efficient stoves would cost about $6bn.

Mr Eleri said that although developing countries could do more, the lead has to be taken by the West.

The EU has staked a claim to that lead by vowing to cut its emissions by 20% by 2020, or by 30% if there is a global deal.

Mr Obama has proposed a more modest goal - bringing US emissions down by 2020 to the level they were at in 1990.

The analysis by the Global Climate Network suggests these pledges are not enough to halve global emissions by 2050, even if they are implemented.

There is, it says, a "mitigation gap".

"We have got to unlock emissions growth in developing countries," said the organisation's co-ordinator Andrew Pendleton, who is based at the Institute for Public and Policy Research (IPPR) in London.

"But we have got to find an equitable way of doing that."

The clear message from putting these two reports together was, he said, that richer nations will have to get finance and clean technology into the developing world if they want to turn the goal of a 50% cut into reality.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/europe/7773799.stm

Published: 2008/12/09 18:26:06 GMT

Black hole confirmed in Milky Way

By Pallab Ghosh
Science correspondent, BBC News

There is a giant black hole at the centre of our galaxy, a 16-year study by German astronomers has confirmed.

They tracked the movement of 28 stars circling the centre of the Milky Way, using two telescopes in Chile.

The black hole, said to be 27,000 light years from Earth, is four million times bigger than the Sun, according to the paper in The Astrophysical Journal.

Black holes are objects whose gravity is so great that nothing - including light - can escape them.

According to Dr Robert Massey, of the Royal Astronomical Society (RAS), the results suggest that galaxies form around giant black holes in the way that a pearl forms around grit.

'The black pearl'

Dr Massey said: "Although we think of black holes as somehow threatening, in the sense that if you get too close to one you are in trouble, they may have had a role in helping galaxies to form - not just our own, but all galaxies.

"They had a role in bringing matter together and if you had a high enough density of matter then you have the conditions in which stars could form.

"Thus the first generation of stars and galaxies could have come into existence".

The researchers from the Max Planck Institute for Extraterrestrial Physics in Germany said the black hole was 27,000 light years, or 158 thousand, million, million miles from the Earth.

"Undoubtedly the most spectacular aspect of our 16-year study, is that it has delivered what is now considered to be the best empirical evidence that super-massive black holes do really exist," said Professor Reinhard Genzel, head of the research team.

"The stellar orbits in the galactic centre show that the central mass concentration of four million solar masses must be a black hole, beyond any reasonable doubt."

Observations were made using the 3.5m New Technology Telescope and the 8.2m Very Large Telescope (VLT) in Chile. Both are operated by the European Southern Observatory (Eso).

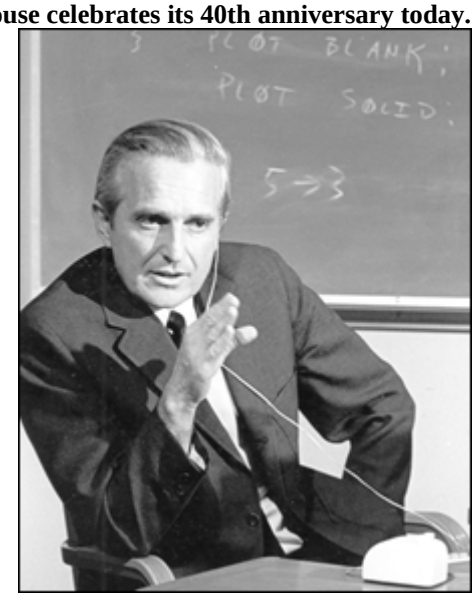
Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7774287.stm

Published: 2008/12/09 20:45:38 GMT

The mouse hits 40-year milestone

By Mark Ward
Technology correspondent, BBC News

The humble computer mouse celebrates its 40th anniversary today.



On 9 December 1968 hi-tech visionary Douglas Engelbart first used one to demonstrate novel ways of working with computers.
The first mouse that Dr Engelbart used in the demo at the Fall Joint Computer Conference (FJCC) was made of wood and had one button.
Much of the technology shown off in the demo inspired the creation of the hardware and software now widely used.
"It was a good show, but it was all real," said Dr Jeff Rulifson, now director of Sun's VLSI research group but in 1968 architect and lead programmer for the software shown off at the FJCC.

Rob Skitmore of the London Science Museum predicts the mouse will remain a dominant force despite new technologies such as touch screens.

Pioneering work
A day of celebration is planned in California to mark the 40th anniversary; with many of the researchers behind the original demo reunited to mark the event.
The mouse, which was built by Bill English, helped Dr Engelbart demonstrate how text files could be clipped, copied and pasted as well as showing ways of using computer networks to collaborate on projects or co-edit documents.
Dr Rulifson joined the group that Dr Engelbart assembled at the Stanford Research Institute in California after meeting the charismatic engineer while attending the FJCC in 1965.

"I met Doug and got thoroughly enchanted," Dr Rulifson told the BBC.
"I really understood what he was after. I was blown away by the ideas."
Dr Engelbart wanted computers to act as helpers that augmented human intelligence and enabled people to operate far more efficiently and productively than they would without such tools.
The 1968 demonstration showed off the computer system, called NLS, developed to put these ideas into practical form.
Most of this, said Dr Rulifson, had to be invented by the team at SRI.
"There were bits and pieces all around," he said. "There was no completely unique set of ideas but we pulled it all together."

Although the mouse was central to what NLS could do, said Dr Rulifson, there was more to what Dr Engelbart wanted to achieve.
"I think people get fixated on the mouse," he said. "It's a symbol they can hang on to but the idea behind it was this idea of putting text into NLS and giving it an entirely new flexibility."
"We had full text editing and hyperlinks - the mass of what we use today," said Dr Rulifson.
In the 1968 demo Dr Rulifson was at the SRI Lab and appeared on screen in Brooks Hall auditorium while helping Dr Engelbart to show how co-workers could use NLS to collaborate.
The demo was so far ahead of other uses of computers at the time and the technology on show was so powerfully convincing that one attendee later likened Dr Engelbart's efforts to "dealing lightning with both hands".

Command set

Not only did NLS impress the audience at the FJCC, but it also became the first program scheduled to be used across the fledgling Arpanet that was just being built. NLS is mentioned in the first RFC - the technical documents that describe the workings of what we know today as the internet.

How the mouse got its name

In 1969 SRI, along with UCLA, was one of the two ends of the first link in the network that became Arpanet - and ultimately the internet.
Sadly, said Dr Rulifson, NLS did not win enough people over to become the essential tool that Dr Engelbart envisioned.
"I think what happened was that Doug was very focused on extremely powerful systems for extremely highly-trained people," he said. "NLS had 500 single key commands."
Learning how to use NLS was a formidable task that few took on - despite its potential.
Many of the people that worked with Dr Engelbart at SRI went on to Xerox Parc - another legendary lab in California where many contributed directly to the technologies that led to the personal computer revolution and the world wide web.
Only now is Doug Engelbart's vision starting to be realised, said Dr Rulifson, and the world has yet to catch up with the ideas first aired in 1968.
"Half the vision has come along," said Dr Rulifson. "We could see the day when these things would be small enough to carry about.
"But," he added, "Doug was very frustrated with the stuff that grew up around the PC, because it's too static and paper-like."

http://news.bbc.co.uk/2/hi/technology/7768481.stm

Vitamins 'do not cut cancer risk'

Taking vitamin C or E does not reduce the risk of prostate cancers - or other forms of the disease, two large US studies suggest.

Both trials were set up following some evidence that taking supplements might have a positive effect.

But one study of 35,533 men, and a second of 15,000 doctors, found no evidence that cancer rates were any lower in those taking supplements.

Both studies feature in the Journal of the American Medical Association.

A number of trials had suggested that taking vitamins could cut the risk of certain cancers by boosting levels of beneficial antioxidants which work to minimise damage in the tissues, but the results were mixed.

The latest studies set out to come up with more definitive results, by involving large numbers of volunteers.

In the first study, researchers from University of Texas and the Cleveland Clinic Lerner College of Medicine gave healthy men either the trace mineral selenium, vitamin E, both or a dummy pill.

The team intended to monitor all the participants for at least seven years but the trial was stopped early because the results were so disappointing.

The researchers found there were no statistically significant differences in the numbers of men who developed prostate cancer in the four groups.

In all cases the proportion of men diagnosed with prostate cancer over a five-year period was 4% to 5%.

In the second study, researchers at Boston's Brigham and Women's Hospital tested the impact of regular vitamin E and C supplements on cancer rates among 14, 641 male doctors.

Over eight years, taking vitamin E had no impact at all on rates of either prostate cancer, or cancer in general. Vitamin C had no significant effect.

No substitute

Dr Jodie Moffat, of the charity Cancer Research UK, said: "There are a lot of studies looking at whether vitamin and mineral supplements can reduce the risk of cancer but many of them, like this one, don't support a link.

"This new research means it is even less likely than we previously thought that supplements can protect against prostate cancer.

"Supplements don't substitute for a healthy diet and some studies have shown that they may actually increase the risk of cancer."

She added that eating a diet high in fruit and vegetables was still the best way to get the required vitamins and minerals.

John Neate, of The Prostate Cancer Charity, described the findings as "disappointing".

"Diet does seem important in the development of prostate cancer and we recommend reducing the amount of saturated fat eaten, keeping weight under control, and increasing the intake of fruit and vegetables," he said.

Dr Pamela Mason, scientific advisor to the Health Supplements Information Service, said all three nutrients were essential for human health.

But she added: "Vitamins and trace elements are not intended to be used like drugs. They are intended for health maintenance and for making up dietary gaps in the population."

Research published earlier this year suggested Vitamin C supplements may substantially reduce the benefit from a wide range of anti-cancer drugs.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7771221.stm

Published: 2008/12/10 00:01:32 GMT

Warning of nut allergy 'hysteria'

Measures to protect children with nut allergies are becoming increasingly absurd and hysterical, say experts.

A peanut on the floor of a US school bus recently led to evacuation and decontamination for fear it might have affected the 10-year-old passengers.

Such extreme steps to reduce exposure to nuts are not isolated and are fuelling fear and anxiety, reports the British Medical Journal Online.

A UK allergy expert said a similar "epidemic" was present in Britain.

'Gross over-reaction'

Professor Nicolas Christakis, a professor of medical sociology at Harvard Medical School, told the BMJ there was "a gross over-reaction to the magnitude of the threat" posed by food allergies, and particularly nut allergies.

In the US, serious allergic reactions to foods cause just 2,000 of more than 30 million hospitalisations a year and comparatively few deaths - 150 a year from all food allergies combined.

In the UK there are around 10 deaths each year from food allergies.

Professor Christakis said the issue was not whether nut allergies existed or whether they could occasionally be serious. Nor was the issue whether reasonable preventative steps should be made for the few children who had documented serious allergies, he argued.

"The issue is what accounts for the extreme responses to nut allergies."

He said the number of US schools declaring themselves to be entirely "nut free" - banning staples like peanut butter, homemade baked goods and any foods without detailed ingredient labels - was rising, despite clear evidence that such restrictions were unnecessary.

"School entrances have signs admonishing visitors to wash their hands before entry to avoid [nut] contamination."

He said these responses were extreme and had many of the hallmarks of mass psychogenic illness (MPI), previously known as epidemic hysteria.

Fuelling fear

Often seen occurring in small towns, schools and other institutions, outbreaks of MPI involve healthy people in a flow of anxiety, most often triggered by a fear of contamination.

Being around individuals who are anxious heightens others' anxiety, leading to a self-perpetuating cycle which can spiral out of control.

"Well intentioned efforts to reduce exposure to nuts actually fans the flames, since they signal to parents that nuts are a clear and present danger," said Professor Christakis.

John Collard, nurse consultant and clinical director of Allergy UK, said people in Britain were also going overboard in their reaction to allergies.

"I heard a similar story in the UK about a school making children wear gowns over their clothing during meal times so there would be no contamination fear from milk.

"There is a tendency to go over the top.

"Food allergies can be deadly, and every death is clearly a tragedy so we need to do what we can to prevent them. But you have to balance that against the impact on the quality of life of everyone else.

"The risk has been blown out of all proportion."

He said most people with diagnosed food allergies had only mild reactions. Also, many cases labelled as food allergy were simply intolerance to food and posed no health threat, he argued.

Food labelling is also to blame for fuelling fear, according to Mr Collard.

"People read on food labels that a product has been made in a factory with nut-based products and it creates the impression that nuts are everywhere."

He said some parents avoided taking their children to birthday parties and restaurants because they were worried about triggering an allergy.

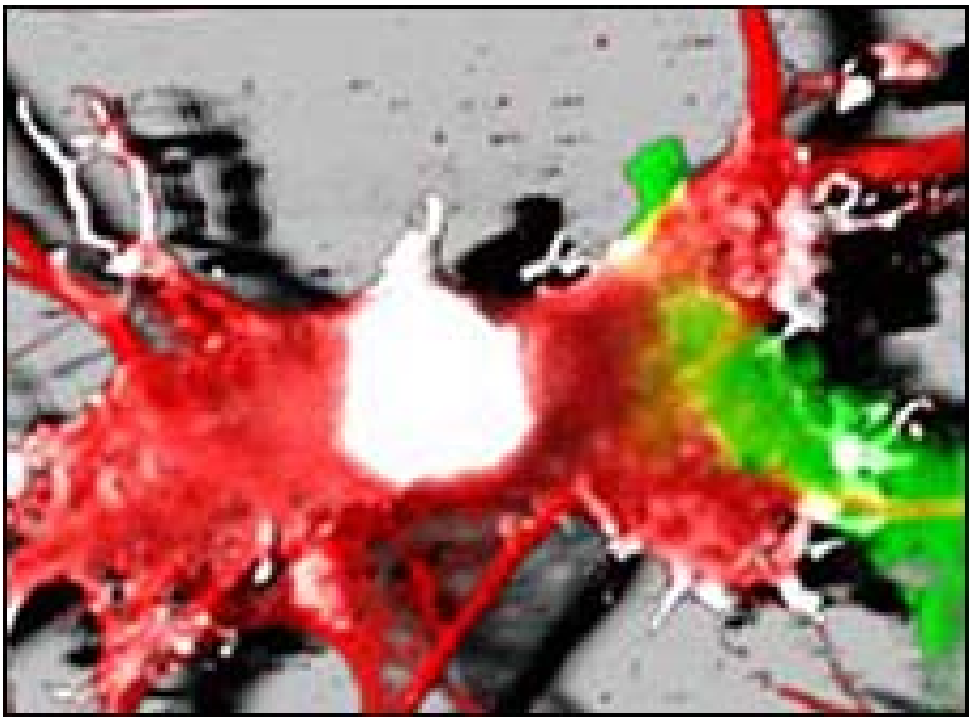
However, a recent study has suggested that early exposure to peanuts actually reduces, rather than increases the risk of allergy.

Mr Collard said this might well change the current advice to avoid eating nuts for the first years of life.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7773210.stm

Published: 2008/12/10 00:02:28 GMT

Brain cell hope for hearing loss



Ependymal cells may help restore hearing

Scientists believe a transplant of brain cells may one day be able to reverse a common form of hearing loss.

Damage to hair cells in the inner ear due to ageing and overstimulation causes hearing problems in 10% of people worldwide.

The cell loss is irreversible, but US scientists believe it may be possible to replace them with stem cells from a region of the brain.

The study appears in Proceedings of the National Academy of Sciences.

“There might be questions as to whether taking cells from the brain to replace inner ear hair cells would prove clinically acceptable”

Professor Andy Forge
UCL Ear Institute

The key ependymal cells come from the lining of the lateral ventricle of the brain.

They share characteristics with inner ear hair cells - but crucially, unlike them, they have the ability to reproduce.

The researchers, led by Dr Dongguang Wei, from the University of California at Davis, believe the brain cells could potentially be transplanted from a person's brain into their ear, where they would take on the role of hair cells, and restore hearing.

Nerve cells

Loss of inner ear hair cells often also leads to breakdown of the nerve cells along which the signals they generate are transmitted to the brain.

The researchers believe these spiral ganglion cells can also be replaced - this time by stem cells from another area of the brain's lateral ventricle.

Their conclusions are based on a detailed analysis of the structure, chemistry and role of the brain cells.

Tests of the theory are already underway in the laboratory.

And they believe the cells also hold out hope for use in the treatment of diseases of the nervous system.

Professor Andy Forge, of the University College London Ear Institute, said previous work had suggested that the inner ear might have a small number of stem cells of its own which might be able to replace damaged hair cells.
Others are working on using embryonic stem cells to achieve the same effect.
The latest paper raised the possibility of a third potential source of cells.
Professor Forge said: "The present paper identifies a possible single tissue source for both the elements that may be lost from the damaged sensory tissues of the inner ear.
"However, there might be questions as to whether taking cells from the brain to replace inner ear hair cells would prove clinically acceptable."
Dr Mark Downs, of the charity RNID, said nine million people in the UK alone were deaf or hard of hearing, but much work was underway into developing restorative treatments.
He said: "There is a long way to go. This research is still at a very early stage and but the future looks increasingly brighter for people with hearing loss."

http://news.bbc.co.uk/2/hi/health/7770665.stm

New Class Of Anti-inflammatory Drugs Developed

Pharmacists at Goethe-University have found a new class of anti-inflammatory drugs which promise to be more effective and to cause fewer side effects than aspirin. (Credit: Uwe Dettmar)

ScienceDaily (Dec. 11, 2008) — In the treatment of pain, inflammation and fever, non-steroid anti-rheumatic drugs (NSAR) such as acetylsalicylic acid - more commonly known as Aspirin - or Ibuprofen have always been popular choices. However, had they been tested using today's stringent criteria, many of these drugs would not have passed the clinical trial stage, due to the potential risks and side effects they entail.This suggests the need for more innovative thinking in this area of drug therapy. One such new approach has been developed in Manfred Schubert-Zsilavecz's laboratory at the Goethe University, using chemical substances belonging to the dual mPGES-1/5-LO-Inhibitors. Oliver Werz's group at Tübingen has characterized the substances at the molecular/pharmacological level. Their research results now form the basis of a joint patent application, and a publication in the renowned "Journal of Medicinal Chemistry" (Koeberle et al, J Med Chem (2008), Nov 19. [Epub ahead of print]).

Aspirin and the related NSAR drugs act on the arachidonic acid biosynthesis cascade, which plays a central role in the onset of pain and inflammation. They thus prevent the synthesis of specific prostaglandins, which are essential for vital bodily functions. When the drugs are taken over a long period of time, the unselective inhibition of this essential pathway may result in unwanted side effects on the gastrointestinal tract and the cardiovascular system. As Schubert-Zsilavecz explains: "By comparison, our class of drugs/substances acts on a later stage in the arachidonate cascade, and is more selective. We therefore can expect it to have considerably fewer side effects."A further advantage of this new class of drugs is that they not only specifically target the biosynthesis of prostaglandin, but also of leukotrienes, which are metabolites in the second important branch of the arachidonate cascade and play a central role in allergic and inflammatory reactions. This double attack promises more effective results for these new substances.Gerd Geisslinger, Speaker of the LiFF-Initiative and President of the Center for Drug Research, Development and Safety (ZAFES) explains: "This is a most important success for our newly established Lipid Signalling Research Centre, which was established only a short time ago under the LOEWE initiative, funding research in the German state Hesse."

Adapted from materials provided by Goethe University Frankfurt, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/12/081210112755.htm

Palm Pilots Bridge Communication Gap Between Therapists And Patients

ScienceDaily (Dec. 11, 2008) — Palm Pilots already perform a variety of functions, and in the future, they may be used as a therapeutic tool that benefits people with personality disorders. In a new study, a University of Missouri researcher used Palm Pilots as electronic diaries to record and analyze mood variability in patients with borderline personality disorder (BPD) and found that the devices helped bridge an important communication gap between therapists and patients.

"In the clinical setting, patients are not good at assessing their mood retrospectively," said Tim Trull, professor of psychology in the MU College of Arts and Science. “Previously, we asked BPD patients to recall and describe when a mood change occurred. This description could vary greatly depending on the patient’s current state of mind and how comfortable the patient felt with the therapist. Electronic diaries help solve this problem by requiring that the patient reflect on and rate the degree to which a specific mood is present at that moment. At the same time, the device does not require that the individual makes a decision about when a mood change has occurred.”

In the study, patients carried electronic diaries for one month and were prompted randomly to rate their mood on a scale of 1 to 5 up to six times each day. One group of patients had BPD and the other group of patients had depressive disorders. Researchers found that patients with BPD did not have significantly different overall levels of positive or negative moods. However, the patients with BPD displayed significant variability in their positive and negative moods throughout the month, demonstrated more instability, and reported more extreme changes across successive occasions.

“We may not have known the extent of the mood variability in the BPD patients without the assistance of the Palm Pilots, and the potential use of the device in psychological therapy is very exciting,” Trull said. “Eventually, programmed Palm Pilots may act as proxy therapists and provide patients with advice on coping skills and other therapeutic interventions, as problems occur in patients’ natural environment.”

According to the National Institute of Mental Health, BPD is more common than schizophrenia or bipolar disorder and is estimated to affect 2 percent of the population. It is characterized by pervasive instability in moods, interpersonal relationships, self-image and behavior, and can lead to suicidal behavior, substance abuse and failed relationships. People with BPD experience mood shifts of depression, irritability, anger, anxiety and fear that can last from a few hours to a few days.

Trull's study “Affective Instability: Measuring a Core Feature of Borderline Personality Disorder with Ecological Momentary Assessment,” was published in the Journal of Abnormal Psychology.

Adapted from materials provided by University of Missouri-Columbia.

http://www.sciencedaily.com/releases/2008/12/081201144727.htm

Acoustic Phenomena Explain Why Boats And Animals Collide

A behavioral audiogram plots the hearing sensitivity of trained manatees under very quiet conditions. In this photo, Stormy the manatee was trained to position his head in an underwater hoop where a hydrophone monitored all sound levels near his ears. Stormy stayed in the hoop and listened. After a strobe light flashed, he left the hoop and pushed a "tone" paddle if he heard a sound or the "no tone" paddle if he did not hear a sound. (Credit: Image courtesy of Florida Atlantic University)

ScienceDaily (Dec. 11, 2008) — Researchers at Florida Atlantic University have laid the groundwork for a sensory explanation for why manatees and other animals are hit repeatedly by boats. Last year, 73 manatees were killed by boats in Florida's bays and inland waterways. Marine authorities have responded to deaths from boat collisions by imposing low speed limits on boats.

In spite of manatee protection policies that have been in effect for nearly two decades to slow down boats passing through manatee-protection habitats, the number of injuries and deaths associated with collisions has increased and reached record highs.

In an effort to reduce manatee deaths and injuries from boats, Dr. Edmund Gerstein, director of marine mammal research and behavior in FAU's Charles E. Schmidt College of Science, set out in 1991 to investigate what might be the underlying cause for these collisions. Gerstein disagreed with the unsubstantiated assumptions, which wildlife officials had relied upon, that manatees could hear boats, but they were just too slow and could not learn to avoid boats.

"Manatees have the cognitive prowess to learn and remember as well as dolphins and killer whales," said Gerstein. "Furthermore, when startled or frightened, manatees explode with a burst of power and can reach swimming speeds of up to 6.4 meters per second in an instant."

Given that manatees have the cognitive ability to recognize danger and the physical prowess to evade boats, Gerstein sought to explore the answers to some simple questions. "After a manatee has been hit

more than once (some have been hit up to 50 different times) why doesn't the animal learn to get out of the way?" "Is it possible that manatees are not aware or cannot hear the sounds of an approaching boat?"

Gerstein and his colleagues conducted rigorous, controlled underwater psychoacoustic (audiometric) studies to understand what sounds manatees can hear in their environment. After a comprehensive series of hearing studies, his research revealed that manatees cannot hear the dominant low frequency sounds of boats and that those sounds do not transmit well in shallow water. Furthermore, ambient noise in manatee habitats can conceivably mask the perception of many kinds of signals. Unlike dolphins, which can use active sonar to navigate and detect objects in the environment, manatees are passive listeners restricted to listening to their auditory landscape.

"It is ironic that slow speed zones result in quieter and lower frequency sounds which manatees can't hear or locate in Florida's murky waters," said Gerstein. "Slow speed zones make sense in clear water where the boater and the manatee can see each other and therefore actively avoid encounters. However, in turbid waters where there is no visibility, slow speeds actually exacerbate the risks of collisions by making these boats inaudible to manatees and increasing the time it takes for a boat to now travel through manatee habitats thereby increasing the risk and opportunities for collisions to occur."

With these issues in mind, Gerstein and his colleagues developed an acoustic alerting device specifically tailored to exploit the manatees' hearing ability. The environmentally friendly device is narrowly focused in front of the boat so that only manatees in its direct path are alerted.

"The alarm emits a high-frequency signal which isn't loud, doesn't scare or harm manatees and doesn't disturb the marine environment," said Gerstein.

Gerstein has been testing this alarm in a NASA wildlife refuge where controlled studies are possible. He has reported that 100 percent of the controlled approaches toward manatees by a boat with the alarm have resulted in the manatees avoiding the boat up to 30 yards away. Without this alarm, only three percent of the manatees approached by the same boat moved to avoid the boat.

Manatees aren't the only animals that collide with boats. Other passive-listening marine mammals, including great whales, are vulnerable to collisions when near the surface, where the risk of collisions with ships and boats is greatest or in shallow water. Gerstein and his colleagues are using the findings from their studies to help understand and reduce collisions in the open seas where great whales are regularly injured and often killed by large ships.

Adapted from materials provided by Florida Atlantic University.

http://www.sciencedaily.com/releases/2008/12/081210151154.htm

Thrombosis Patients Face Greater Risks Than Previously Believed

ScienceDaily (Dec. 11, 2008) — Deep venous thrombosis (DVT), the formation of blood clots in the lower limbs, is the third-most common vascular disease in North America after heart attack and stroke, and is a frequent complication in hospitalized patients.

DVT is a potentially serious condition that can lead to rapid death from pulmonary embolism if untreated, and has become such a serious health concern that the U.S. Surgeon General and the Canadian Safer Healthcare Now! coalition both recently issued highly publicized calls to action to reduce the number of cases of DVT in high risk groups, in part by improving the adoption of preventative measures like the early administration of blood thinners.

However, researchers at McGill University and the affiliated Jewish General Hospital – along with colleagues from Université de Montréal, McMaster University and other institutions – warn that, beyond the well-known risks of pulmonary embolism, DVT patients also face postthrombotic syndrome (PTS), a poorly understood, long-term complication not addressed by traditional treatment approaches like blood thinners. Their conclusions, derived from a large, multicentre Canadian study, were published in the November issue of the Annals of Internal Medicine.

The study followed 387 patients at eight hospital centres in Quebec and Ontario for two years, the researchers said, the first multicentre study of PTS ever undertaken in North America.

"Incredibly, we found as many as 43 per cent of the patients developed postthrombotic syndrome, and one-third of those had moderate to severe cases," said McGill's Dr. Susan R. Kahn, lead author of the study. "The syndrome is characterized by persistent leg pain and swelling, and in severe cases, patients can develop painful leg ulcers which are very difficult to treat.

"Contrary to popular belief, DVT doesn't just affect older people, it can affect adults of all ages," explained Kahn, an associate professor at McGill's Faculty of Medicine and Director of the Thrombosis Program and Associate Director of the Centre for Clinical Epidemiology & Community Studies at the JGH. "Developing postthrombotic syndrome and similar complications have been shown to lead to significant disability, lost workdays and very poor quality of life."

In addition to simply documenting the incidence of PTS, Kahn and her colleagues also attempted to identify risk factors that made certain patients more likely than others to develop it. They discovered that older patients, patients who had suffered a previous bout of DVT and patients with larger blood clots at the time of diagnosis faced a greater risk of developing PTS. Moreover, they also discovered that the risk of developing PTS was far higher in patients still experiencing leg symptoms one month after DVT was first diagnosed and treated.

"This suggests that physicians can predict if a patient is likely to develop chronic PTS as early as one month after DVT diagnosis," Kahn said. "Our results show that current modalities to treat acute DVT are not effective in preventing chronic complications of DVT, and emphasize the need for additional research in the prevention and treatment of PTS."

Adapted from materials provided by McGill University.

http://www.sciencedaily.com/releases/2008/12/081202153527.htm

Insecticides Or Genetically Modified Crops? Non-Target Insects Affected More By Insecticides Than By Crops Engineered To Make Insect-specific Toxins

New studies show that non-target insects are probably affected more by conventional insecticides than by modified crops, such as corn, that have added genes from the soil bacterium Bacillus thuringiensis. (Credit: Photo by Doug Wilson)

ScienceDaily (Dec. 11, 2008) — Non-target insects are probably affected more by conventional insecticides than by crops that contain genes from the soil bacterium Bacillus thuringiensis (Bt), according to the findings of a study by Agricultural Research Service (ARS) scientists and cooperators.

Bt crops such as maize and cotton are genetically engineered to produce insect-specific toxins. They target specific insect pests, but the researchers wanted to determine how these crops influence non-target insects in the environment.

To find out, scientists from ARS collaborated with researchers at the University of Nebraska at Omaha, Iowa State University and the U.S. Environmental Protection Agency. Steven Naranjo, a research leader at the ARS Arid Land Agricultural Research Center in Maricopa, Ariz., and Jonathan Lundgren, an entomologist at the ARS North Central Agricultural Research Laboratory in Brookings, S.D., contributed to the work.

The scientists compared the abundance of groups of non-target insects. They first compared the abundance of these insects in Bt crops and non-Bt crops without any insecticides. They also compared the insect populations in both types of crops treated with insecticides. And they compared the non-target insect populations in Bt crops without insecticides versus the populations in non-Bt crops treated with insecticides.

They formed these groups of non-target insects with data drawn from a modified version of a public database created by Santa Clara University biologist Michelle Marvier and colleagues. The toxins examined included Cry1Ab and Cry3Bb in maize, Cry3A in potato and Cry1Ac and Cry1Ab in cotton.

The researchers observed considerable variability in the effects of Bt cotton and maize crops on non-target insects. However, the data within the groups were fairly consistent. The most influential factor was the insecticide applied. Collectively, insecticides such as pyrethroids, organophosphates, carbamates and neonicotinoids had larger negative impacts on non-target insects than did the Bt crops.

The researchers concluded that when it comes to killing non-target insects, no treatment at all has the least impact. Bt crops have considerably less impact on non-target insects than do conventional insecticides. Also, insecticides affect insect populations uniformly, regardless of whether they're in Bt or non-Bt crop fields.

The findings were published recently in Public Library of Science ONE.

Adapted from materials provided by USDA/Agricultural Research Service.

http://www.sciencedaily.com/releases/2008/11/081129151957.htm

To Contract Or Not: A Key Question For The Uterine Muscles In Pregnancy

ScienceDaily (Dec. 11, 2008) — During pregnancy, the muscles of the uterus are relatively inactive. A switch to an activated state capable of strong contractions is therefore essential prior to the onset of labor.

Kathleen Martin and colleagues, at Dartmouth Medical School, Lebanon, have now provided new insight into the events that prime the uterine muscles for contraction, something that they hope might have implications for the development of therapies for preterm labor (i.e., labor that occurs before 37 weeks of pregnancy), the most serious complication of pregnancy in developed countries.

In the study, when the protein IP on the surface of muscle cells in human uterine tissue strips obtained from pregnant women undergoing Caesarean delivery prior to the onset of natural labor was stimulated by agonist chemicals, it induced the upregulation of proteins involved in muscle contraction. Further, the same chemicals increased the contraction of these tissue strips in response to the hormone oxytocin.

The authors therefore conclude that the molecule that normally binds IP in vivo, prostacyclin, primes the muscles in the human uterus, allowing for strong contractions during labor.

As Michael Taggart, at Newcastle University, United Kingdom, and colleagues discuss in an accompanying commentary, these data might be viewed by many as contentious, because prostacyclin is a smooth muscle relaxant. However, they do provide an explanation for the paradoxical observation that one of the major signaling molecules produced by the uterus just prior to labor is prostacyclin.

Journal references:

1. Fetalvero et al. **Prostacyclin primes pregnant human myometrium for an enhanced contractile response in parturition**. *Journal of Clinical Investigation*, 2008; DOI: 10.1172/JCI33800
2. Taggart et al. **Possible dual roles for prostacyclin in human pregnancy and labor**. *Journal of Clinical Investigation*, 2008; DOI: 10.1172/JCI37785

Adapted from materials provided by Journal of Clinical Investigation, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/11/081120171321.htm

Tropics No Longer Museum Of Plant Biodiversity

The risk of extinction for plants is higher in countries close to the equator than previously thought. (Credit: iStockphoto/Dean Turner)

ScienceDaily (Dec. 10, 2008) — Researchers at the University of Calgary have found the biodiversity picture in the region known as the "lungs of the Earth" contradicts commonly held views relating to extinction in that area.

A paper published in PLoS One by Jana Vamosi and Steven Vamosi outlines that the risk of extinction for plants is higher in countries close to the equator than previously thought.

"The tropics contain many ancient species of plants, leading many to consider tropical species as less susceptible to extinction -- but our study indicates that quite the opposite is, in fact, the case," says Steven Vamosi, an assistant professor in the Department of Biological Sciences at the U of C.

"The extinction risk for plants is high in countries close to the equator and even higher on islands, even after we take into account factors related to human activities and their use of the natural resources."

Previous studies on biodiversity in the tropics have focused on beetles, birds, mammals and molluscs. The Vamosi study mined worldwide databases for the number of plant species at risk in each country of the world, from Falkland Islands in the south to Greenland in the north, and looked at human factors such as GDP, population density and deforestation. Vamosi concentrated on data from vascular plants (ferns, conifers, and flowering plants), which includes such threatened species as the Canada Hemlock, Western Prairie Fringed Orchid, and Desert Lily, among many others.

Vamosi says he was surprised that human activity was not the primary cause of the increasing risk of extinction in the equatorial regions.

"Our findings differ from previous ones in that factors tightly linked to human activity were not particularly important in determining how many plant species were threatened with extinction. Instead, the most important factor seemed to be simply latitude. So, extinction dynamics may be very different between plant and animal species. Plant species near the equator may persist at naturally low population sizes or have small ranges, making them intrinsically more susceptible to a given amount of disturbance."

He adds that he would like to see the findings spur other researchers to bring more data to bear on this issue, given that most attention to date has focused on vertebrates.

Does this study put human disturbance off the hook? Vamosi says: No.

"This is not to say that human activities are not underlying contemporary risk of extinction; instead, it implies that plant species in a tropical country will, on average, be more sensitive to a given amount of human disturbance than those in a temperate country," he says.

Vamosi says that it is estimated that 20 to 45 per cent of species in the tropics are at risk. As a point of reference, in Canada, roughly 2 to 3 per cent are vulnerable to extinction.

Tropical ecosystems are considered the lungs of our planet as 60 per cent of the Earth's plant species are found in tropical rain forests, despite this area containing only 12 per cent of the Earth's land mass. The tropics are an important source of pharmaceuticals as well as food. The area is also habitat for a disproportionate percentage of the Earth's fauna, including butterflies, primates, birds, bats, and losses of tropical plants will often have disastrous consequences for such species. Because of the interconnectedness of the Earth's ecosystems, species loss near the equator can have significant effects on countries thousands of kilometers away.

Journal reference:

1. Vamosi et al. **Extinction Risk Escalates in the Tropics**. *PLoS ONE*, 2008; 3 (12): e3886 DOI: 10.1371/journal.pone.0003886

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

http://www.sciencedaily.com/releases/2008/12/081209221705.htm

Unique Archaeological Discovery In Balkan: World's First Illyrian Trading Post Found

The archaeologists found many artifacts including more than 30 Illyrian boats, fully-laden with Roman amphorae. One of the big questions is why none of the wine amphorae are whole. They are all in fragments. (Credit: University of Mostar)

ScienceDaily (Dec. 10, 2008) — There is jubilation at the Museum of Cultural History at the University of Oslo i Norway. Marina Prusac, Associate Professor in the department of archaeology, has just returned home after conducting excavations in the border area between Croatia and Bosnia-Herzegovina. In the course of several weeks of intense digging this autumn, her archaeological team found the very first traces of an Illyrian trading post that is more han two thousand years old.

The Illyrians were an ancient people who lived by hunting, fishing and agriculture. They were known as warriors and pirates. Not only did they fight Greek colonists and Roman occupants, the various tribes also feuded among themselves. However, the archaeological finds show that the Illyrians also had peaceful trade connections with the Romans.

"The find is unique in a European perspective. We have concluded that Desilo, was the place is called, was an important trading post of great significance for contact between the Illyrians and the Romans," Marina Prusac tells the research magazine Apollon at University of Oslo.

Surprisingly large finds have been made in a short period of time. The archaeologists have discovered the ruins of a settlement, the remains of a harbour that probably functioned as a trading post, as well as many sunken boats, fully-laden with wine pitchers – so-called amphorae – from the first century B.C.

The archaeologist Adam Lindhagen, who has a PhD from the University of Lund and has specialised in Roman wine amphorae, says that this is the most important find of all time from the Illyrian areas.

"There is much to suggest that far more is hidden in the mud. We've only scraped the surface so far," he points out.

Pirate theory

It all started in spring 2007 when Professor Snjezana Vasilj of the University of Mostar found 16 Illyrian boats in Desilo, fully-laden with Roman wine amphorae. The find was speedily interpreted as proof that the Illyrians were pirates and that the ships had been sunk by the Romans. Although the pirate theory received considerable attention from the press in many parts of Europe, Marina Prusac and Adam Lindhagen did not believe this interpretation.

"There certainly were pirate activities along the coast, but we thought it rather odd that the pirates were so far inland and so near the important Roman colony of Narona. In our opinion Desilo might have been a trading centre."

Desilo is located 20 kilometres from the coast on an alluvial plain by the River Neretva. The river is the only traffic artery along the entire Croatian coast that runs into the Balkan mountains. It is broad and free-flowing for the first 30 kilometres or so, after which its course becomes narrow.

Near Desilo there are also ancient traffic arteries on land in the direction of both Narona, which was first a Greek trading post and then a Roman colony, and the Illyrian settlement of "Daorson" – the present-day Osanic.

"Desilo is situated at the innermost point of a quiet bay where it was natural to transfer goods to smaller boats, so the place is perfect for an inner trading harbour. We knew that if we found a harbour it would represent a rare example of a meeting point in this impenetrable landscape. And we found it!" a delighted Ms Prusac tells us.

The harbour

Over the past two thousand years the river has repeatedly changed its bed in the delta. The archaeologists found the remains of the Illyrian trading post under several metres of mud and ooze when the land-owner put his excavator at their disposal. It appears that parts of the wall that stuck up from the mud by the water's edge may have functioned as one of the many quays at the trading post. The wall is 20 metres long and 60 centimetres wide, and is built as a polygonal structure.

"The wall was solid and stable. The other side was not so well constructed and most likely functioned as a dam. There were a number of mooring holes placed at the same height on the wall, almost like a horizontal band."

And as if this was not enough, the archaeologists from the University of Oslo also discovered that there were at least twice as many boats as those that had already been registered. The boats, which the Romans called Lembi, were well known for their fast manoeuvrability.

The many pieces of pottery found indicate that this was a major trading post. And last but not least: about a hundred metres from the harbour site they found an Illyrian settlement. Moreover, in collaboration with the land-owner and along with master's degree student Jo-Simon Frøshaug Stokke, the recently graduated archaeologists Lene Os Johannessen and Ole Christian Aslaksen discovered terrace formations in the mountainside.

"This find can only be interpreted as indicating the presence of a settlement that presumably existed for several hundred years or even longer before the trade between the Illyrians and the Romans started."

Some graves – older than the other finds – were previously discovered close to the settlement. A number of individual finds have also been made in the area: anchor parts, lance tips and fibula, and metal buckles for fastening clothes.

"Thanks to the clay and the fresh water the objects are surprisingly well preserved. Salt water would have destroyed the wood."

Wine

On the sea bed, together with the boats, archaeologists from Moster found hundreds of pieces of wine amphorae and as many as 700 lids from these pitchers.

"Imports from the Roman colony Narona must therefore have been far more extensive than we previously thought," Adam Lindhagen points out.

He has analyzed the pottery to find out where the amphorae came from. He can now say that they were exclusively produced along the Dalmatian coast – from where wine was exported to the entire Roman Empire.

"In exchange for wine the Romans may have bought salt, metal, leather and slaves. The price could have been the same as in the north. According to Julius Caesar (100-44 B.C.), the Gauls were happy to swap a slave for a 25-litre amphora of wine."

While Professor Vasilj was of the view that all the boats were sunk at the same time in a Roman campaign against Illyrian pirates, the Norwegian archaeologists have found indications that the boats were sunk over a period of almost a hundred years. Their evidence is based on the dating of the wine amphorae.

Ritual

One of the big questions is why none of the amphorae are whole. They are all in fragments.

"We don't know why the boats were sunk and the pitchers destroyed. It's absurd to think that the Romans sank almost a thousand amphorae containing their own wine. The amphorae may have been dumped when they'd been emptied. But animal bones, horse teeth, Illyrian pottery and weapons like axes and spear tips have also been found in the sea. So it's possible that they made ritual offerings to the sea – a well-known phenomenon in Scandinavia during the Iron Age. If we can confirm that this is the case, then this is the first example we have heard of from the Illyrian area."

Cultural identity

Archaeological research on the Illyrians was used politically as the culture-historical glue of the various groups in the former Yugoslavia. Today the focus is more on the differences between the Illyrian peoples.

"The neutral term 'Illyrian' was applied to all ethnic groups in the former Yugoslavia. The Illyrians have been described as warriors, and little focus has been placed on peaceful connections between the Illyrians and the Romans. So it's important to be able to reveal peaceful relations and to show that the Illyrians had come a long way in their cultural contact with other nations, at the same time as there were great differences between the Illyrian tribes. Our discovery is therefore important for understanding cultural identities in the Balkans in ancient times," Marina Prusac tells us.

Adapted from materials provided by University of Oslo.

http://www.sciencedaily.com/releases/2008/12/081208092151.htm

Eye Disorders Linked To Statin Drug Use In Some Patients

ScienceDaily (Dec. 10, 2008) — Statin medications are used to lower patients' cholesterol levels, thus helping prevent coronary heart disease, stroke and other deaths related to high cholesterol levels. Statin use has grown rapidly since 1992, and seems likely to increase in light of the recent, widely-reported Jupiter Study on statin benefits in patients with low cholesterol but elevated C-reactive protein. Eye disorders related to statins are rare, occurring in about 0.1 percent of patients (0.5 to 2.5 percent when gemfibrozil, another type of cholesterol-lowering drug, is taken simultaneously).

A new study led by F.W. Fraunfelder, MD, of the Casey Eye Institute, Oregon Health & Science University, is the first to systematically report on the association of eye disorders with statin use. The study appears in the Dec. 1 issue of Ophthalmology, the journal of the American Academy of Ophthalmology.

Dr. Fraunfelder's group analyzed statin-associated reports of double vision (diplopia), drooping of the upper eyelid (ptosis), and loss of full range of motion of the eyes (ophthalmoplegia) in the databases of the National Registry of Drug-Induced Ocular Side Effects, the World Health Organization, and the Food and Drug Administration. Since statins were known to cause skeletal muscle disorders in some patients, a similar affect was plausible in the eye muscles.

The average patient age was 64.5 years, and the case reports included 143 males, 91 females, and 22 persons with gender unspecified. The average statin dose of patients who exhibited one or more eye disorder was within ranges recommended by drug manufacturers, and the average time from beginning of therapy to developing an adverse drug reaction (ADR) was 8.3 months. There were 23 cases of loss of eye range of motion, 8 cases of ptosis, and 18 cases of ptosis in conjunction with double vision; disorders in all patients apparently resolved completely when statins were discontinued.

From the ADR reports, the researchers could not determine precisely which eye muscles were involved, or time needed to full recovery after statin discontinuation, for individual cases.

"We advise physicians prescribing statins to be aware that these eye disorders may result, and that medications should be discontinued if so. When a patient has one of these eye disorders, he should be rigorously evaluated to determine the cause, and statin use should be taken into account," Dr. Fraunfelder concludes.

Adapted from materials provided by American Academy of Ophthalmology, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/12/081202182232.htm

Robust Watermarking Offers Hope Against Digital Piracy

ScienceDaily (Dec. 10, 2008) — Watermarks have been used for centuries to prove the authenticity of bank notes, postage stamps and documents. Now European researchers are considering them as a new tool in the fight against digital piracy and to authenticate and verify the integrity of digital media.

With millions of illegally copied songs and videos winging their way across file-sharing networks, artists and producers have been sent scrambling for ways to protect their content. Digital Rights Management (DRM) systems that prevent copying have raised fair use issues, however, because they not only block pirates but also prevent legitimate consumers from making back-up copies. Watermarking, in contrast, does not prevent copying, but depending on the application, can let consumers and producers know what content is authentic and what is fake, and can help authorities trace illegal copies.

“I foresee watermarking playing a very important role in protecting digital rights, a growing industry because of piracy,” says Bart Preneel, a professor at Katholieke Universiteit Leuven in Belgium. Other uses, he notes, include authenticating information and ensuring data integrity, as well as making content easier to identify and find.

Preneel coordinated the EU-funded ECRYPT project, which set up a network of researchers across Europe to deepen research into cryptography, and, through one so-called ‘virtual lab’ called WAVILA, to study methods and applications for digital watermarking and perceptual hashing.

Though not a new concept, digital watermarking is starting to gain favour among content producers as one of several emerging anti-piracy measures. Earlier this year, for example, record companies Sony and Universal started embedding anonymous watermarks into songs not protected by other DRM methods. That will allow them to trace the origins of illegally copied material, potentially generating important empirical evidence on the scale of the piracy problem as they seek tighter copyright protection laws.

What the record companies are doing is one application of imperceptible and robust watermarks, which are hidden to the user and are not eliminated if the content is tampered with, such as being compressed or reformatted in the case of a song, video or photograph. Such watermarks are difficult, though not impossible to remove, and the WAVILA researchers wanted to gain a better understanding of how someone would go about trying to crack the watermarking algorithms.

Break our watermarking systems

“We organised competitions in which we invited researchers from around the world to try to remove watermarks from pictures without damaging the images,” explains Christian Kraetzer, the assistant coordinator of the WAVILA virtual lab at Magdeburg University in Germany. “The competitions were not intended to prove how well a specific watermarking technique performs. Instead, they gave us a better understanding of the impact of disparate attacks, some of them unknown before the contest.”

Combined with the WAVILA team’s theoretical breakthroughs in the watermarking domain, such information will all but certainly prove invaluable to researchers looking to develop new ways to protect digital content.

“As with cryptography in general, you create an algorithm, have others test it, and when it gets cracked you improve it or start fresh,” Kraetzer says.

Perceptual hashing, an offshoot of the digital watermarking field, was another potential DRM application studied by the WAVILA researchers. Also known as digital fingerprinting, perceptual hashing uses software to identify, extract and compress characteristic components of a video, song or picture to create

a unique and easily identifiable fingerprint. Not only does that allow digital content to be compared and verified relatively quickly and easily, but it creates new methods for searching digital content.

“By using a snippet of a video with a perceptual hash you could search a database to retrieve the full movie,” Kraetzer notes. “By broadening the search parameters it could also be used to find similar videos.”

Preneel suggests that movie producers and record companies could use it to find copyrighted content on the web. They could, for example, use digital fingerprinting to identify snippets of videos on video sharing websites, such as YouTube, or to find copyrighted songs that have been used to compile so-called mash-up music tracks.

With companies dedicating increasing amounts of time and money to fighting digital piracy, technologies, such as digital watermarking and perceptual hashing, will all but certainly find their way into new commercial applications over the coming years. However, because of the fear among companies that disclosing applications publicly makes them easier to crack, it will be hard to know where and how they are being used.

“Watermarking today is where cryptography was in the 1960s and 1970s, there is still a lot of secrecy. And in some ways it is facing an even more complex challenge,” Preneel notes.

The ECRYPT project received funding under the ICT strand of the EU’s Sixth Framework Programme for research.

This is part two of a two-part series on ECRYPT.

Adapted from materials provided by ICT Results.

http://www.sciencedaily.com/releases/2008/12/081208092114.htm

Surface-Level Ozone Pollution Set To Reduce Tree Growth 10% By 2100

Portland, Oregon. Researchers have found that modern day concentrations of ground level ozone pollution are decreasing the growth of trees in the northern and temperate mid-latitudes. (Credit: iStockphoto/Tom Wald)

ScienceDaily (Dec. 10, 2008) — Modern day concentrations of ground level ozone pollution are decreasing the growth of trees in the northern and temperate mid-latitudes, as shown in a paper publishing December 9 in Global Change Biology. Tree growth, measured in biomass, is already 7% less than the late 1800s, and this is set to increase to a 17% reduction by the end of the century.

Ozone pollution is four times greater now than prior to the Industrial Revolution in the mid-1700s; if modern dependence on fossil fuels continues at the current pace, future ozone concentrations will be at least double current levels by the end of this century with the capacity to further decrease the growth of trees.

The study is the first statistical summary of individual experimental measurements of how ozone will damage the productivity of trees, including data from 263 peer-reviewed scientific publications.

Ozone is the third strongest greenhouse gas, directly contributing to global warming, and is the air pollutant considered to be the most damaging to plants. But more importantly, it has the potential to leave more carbon dioxide, ranked as the first strongest greenhouse gas, in the atmosphere by decreasing carbon assimilation in trees. Ozone pollution occurs when nitrogen oxides have a photochemical reaction with volatile organic compounds.

“This research quantifies the mean response of trees to ozone pollution measured in terms of total tree biomass, and all component parts such as leaf, root and shoot, lost due to ozone pollution,” said Dr. Victoria Wittig, lead author of the study. “Looking at how ozone pollution affects trees is important

because of the indirect impact on carbon dioxide concentrations in the atmosphere which will further enhance global warming, in addition to ozone's already potent direct impact."

In addition to ozone pollution reducing the strength of trees to hold carbon in the northern temperate mid-latitudes by reducing tree growth, the research also indicates that broad-leaf trees, such as poplars, are more sensitive to ozone pollution than conifers, such as pines, and that root growth is suppressed more than aboveground growth.

"Beyond the consequences for global warming, the study also infers that in mixed forests conifers will be favored over broad-leaved trees, and that the decrease in root size will increase the vulnerability to storms," said Wittig.

Journal reference:

1. Wittig V.E., Ainsworth E. A., Naidu S.L., Karnosky D. F., Long S.P. **Quantifying the impact of current and future tropospheric ozone on tree biomass, growth, physiology and biochemistry: A quantitative meta-analysis**. *Global Change Biology*, DOI: 10.1111/j.1365-2486.2008.01774.x

Adapted from materials provided by Wiley - Blackwell, via AlphaGalileo.

http://www.sciencedaily.com/releases/2008/12/081209085628.htm

Complex Decision? Don't Think About It

When faced with a difficult decision, we try to come up with the best choice by carefully considering all of the options, maybe even resorting to lists and lots of sleepless nights. So it may be surprising that recent studies have suggested that the best way to deal with complex decisions is to not think about them at all—that unconscious thought will help us make the best choices. (Credit: iStockphoto/Willie B. Thomas)

ScienceDaily (Dec. 10, 2008) — When faced with a difficult decision, we try to come up with the best choice by carefully considering all of the options, maybe even resorting to lists and lots of sleepless nights. So it may be surprising that recent studies have suggested that the best way to deal with complex decisions is to not think about them at all—that unconscious thought will help us make the best choices.

Although this may seem like an appealing strategy, new research in Psychological Science, a journal of the Association for Psychological Science, cautions that there are limitations in the efficacy of unconscious thought making the best decisions.

Duke University researchers John W. Payne, Adriana Samper, James R. Bettman and Mary Frances Luce had volunteers participate in a lottery choice task, where they had to pick from four various options, each with a different, but close, payoff. The volunteers were divided into three groups for this task: one group was instructed to think about the task for a given amount of time, another group was told to think about the task for as long as they wanted and the last group was distracted before making their selection (thus, unconsciously thinking about the task). A second experiment was similarly set up, except that there were substantial differences in the payoffs of the different options.

The researchers found that there are situations where unconscious thought will not result in the best choice being selected. The findings showed that in some instances (when the payoffs were similar), thinking about the task for as only as long as it takes to make a decision was as effective as unconscious thought, resulting in the most profitable options being chosen. However, when there were large differences in the amount of money to be won, mulling over the decision at their own pace led the volunteers to larger payoffs than unconscious thought.

The volunteers who were told to consciously think about the decision for a specific amount of time performed poorly in both experiments. The authors explain that those volunteers had "too much time to think" about the task and suggest that their attention shifted "to information of lesser relevance," resulting in less profitable decisions.

These results suggest that although unconscious thought may help us make the right decision in some instances, it is often better to rely on self-paced conscious thought and really focus on the problem at hand.

Adapted from materials provided by Association for Psychological Science.

http://www.sciencedaily.com/releases/2008/12/081209154941.htm

YouTube Usage Decoded

Increased attention in social systems like the YouTube community follows particular, recurrent patterns that can be represented using mathematical models, a new study has found. (Credit: YouTube)

ScienceDaily (Dec. 10, 2008) — Why are certain videos on YouTube watched millions of times while 90 percent of the contributions find only the odd viewer? A new study reveals that increased attention in social systems like the YouTube community follows particular, recurrent patterns that can be represented using mathematical models.

The Internet platform YouTube is a stomping ground for scientists looking to investigate the fine mechanism of the attention spiral in social systems. How is it possible, for example, that one YouTube video of a previously unknown comedian from Ohio can be viewed over ten million times in the space of two weeks and 103 million times during its total two-year running time? The video was aired on the most popular television networks in America and the comedian Judson Laipply has meanwhile become a YouTube star. Social scientists, economists, mathematicians and even physicists are fascinated by this “herding”, as the herdlike behavior in social networks is often termed, on YouTube.

Epidemic-like diffusion

Until two years ago, Riley Crane had been researching supraconductors at the University of California. More specifically, he was examining critical phenomena in quantum systems where, under the right conditions, minor interference can change the whole system. Similar phenomena can also be observed in social systems. This is what Crane now focuses on as a postdoctoral fellow at ETH Zurich’s Chair of Entrepreneurial Risks in the Department of Management, Technology and Economy (D-MTEC). In the latest edition of the scientific publication PNAS, he and his Professor Didier Sornette describe how the “herding” of YouTube users can be represented in simple mathematical models. Crane tracked viewer statistics for five million videos on YouTube for two years with the aid of systems he had programmed himself. In doing so, he was primarily interested in the films that had attracted the most attention, meaning the ones that had been viewed at least 100 times a day. Only 10 percent fell into this category.

Crane then subdivided these into three sub- categories: The first is “junk” videos, which generate a lot of attention unexpectedly, albeit only for a short period of time and which are of no interest as they do not trigger a self-organized development, a “herd instinct”, within the YouTube community; the second category, “viral” videos, is a different story. These videos spread across expansive social networks in an

epidemic-like fashion, for example through recommendations via email, blogs and Internet links. In the PNAS publication, Crane cites a trailer for a Harry Potter film that enjoyed an enormous amount of attention through word-of-mouth advertising on the Internet alone as a prime example of this. The third category of videos, the "quality" videos, is not unlike the viral video group. Instead of a gradual rise to popularity, however, they cause a sudden burst of attention on account of their "quality", their popularity spreading rapidly before gradually ebbing away. The videos of the tsunami in Southeast Asia in 2004 are prime examples of such videos.

Social processes according to physical laws

Crane compared the viewer statistics for "quality" and "viral" videos at the height of their public attention to the total number of viewers over the period of observation. "We illustrated the figures in diagrams and discovered that the graphs for the increase and decrease in viewers had a very characteristic form for both kinds of videos. The capacity of a video to become a mass phenomenon within the YouTube community can therefore be ascertained from the shape of the graph," explains Crane. For example, he discovered that the fading of attention for viral videos can be described with the mathematics used to model aftershocks in earthquakes, so-called "Epidemic Type Aftershock" models. "I find it fascinating that a social system ostensibly works according to particular rules, just like a physical system, and therefore becomes mathematically comprehensible," says Crane describing his interest in "sociophysics". He used deterministic power laws to mathematically reproduce the phenomena observed on YouTube. These are scale-independent, meaning that the function's basic properties also remain unchanged despite changes to the scale. His model can therefore be used singly to recognize developments that could lead to a mass phenomenon using tendencies in the system – in the case of YouTube, an increase in viewers for a particular video. And all this even before the development has been realized by a critical mass of individuals.

Recognizing potential "blockbusters" early

Crane's results are especially interesting for marketing purposes. His model could be used, for example, to monitor online book sales in real time. By constantly comparing data, marketing experts could recognize which book has the makings of a blockbuster early on based on the sales graph. The critical point, the so-called "tipping point", where a viral effect begins and a book's potential actually leads to a blockbuster, could therefore be consciously provoked with the necessary marketing measures.

In actual fact, Crane and Didier Sornette, Professor of Entrepreneurial Risks in the Department of Management, Technology and Economics, are currently in negotiation with the Internet book seller "Amazon" to integrate their own system in the Internet platform. As the next step, the two scientists are looking to couple their model with existing mathematical ones from the field of epidemiology and thus hone and expand its significance. In the medium term, the two scientists have a kind of trend-monitoring center for the Internet in mind. This would enable phenomena in social systems on different web platforms to be recognized early. "Naturally, we would also eventually like to be able to explain why certain products make the tipping point in social systems whilst others do not. This is still a long way off, however," admits Crane.

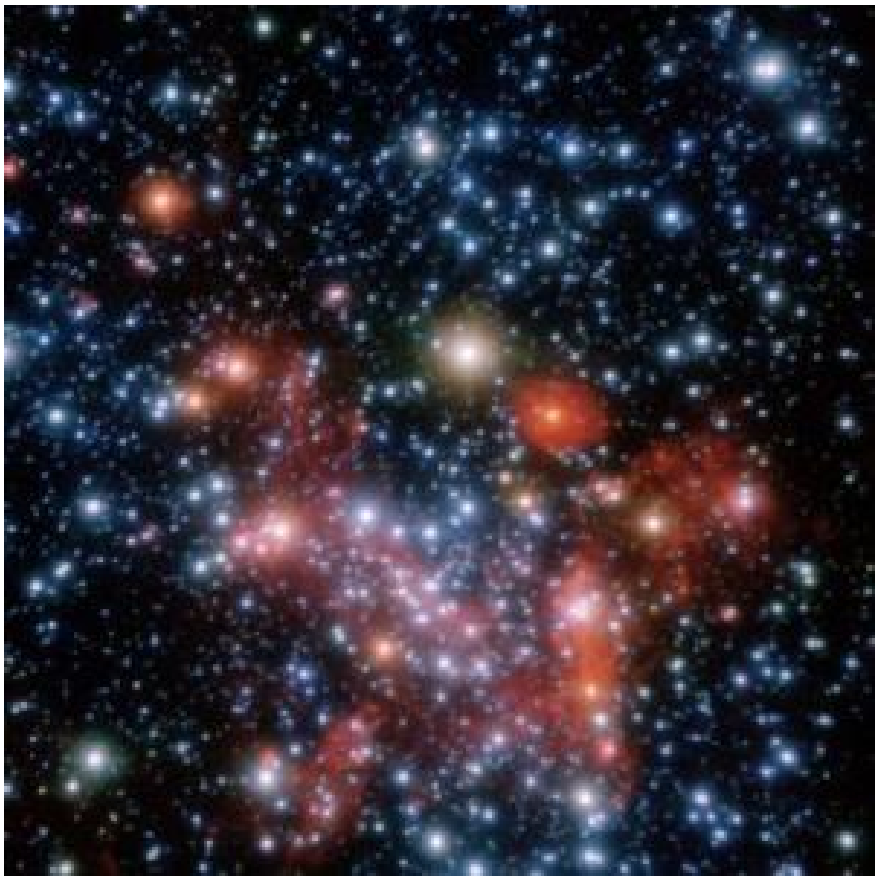
Journal reference:

1. Crane R, Sornette D. **Robust dynamic classes revealed by measuring the response function of a social system**. *Proceedings of the National Academy of Sciences*, 2008; 105 (41): 15649 DOI: 10.1073/pnas.0803685105

Adapted from materials provided by ETH Zurich. Original article written by Samuel Schläfli.

http://www.sciencedaily.com/releases/2008/11/081129173718.htm

Unprecedented 16-year-long Study Tracks Stars Orbiting Milky Way Black Hole



This is the central parts of our galaxy, the Milky Way, as observed in the near-infrared with the NACO instrument on ESO's Very Large Telescope. By following the motions of the most central stars over more than 16 years, astronomers were able to determine the mass of the supermassive black hole that lurks there. (Credit: ESO/S. Gillessen et al.)

ScienceDaily (Dec. 10, 2008) — By watching the motions of 28 stars orbiting the Milky Way's most central region with admirable patience and amazing precision, astronomers have been able to study the supermassive black hole lurking there. It is known as "Sagittarius A*" (pronounced "Sagittarius A star"). The new research marks the first time that the orbits of so many of these central stars have been calculated precisely and reveals information about the enigmatic formation of these stars — and about the black hole to which they are bound.

"The centre of the Galaxy is a unique laboratory where we can study the fundamental processes of strong gravity, stellar dynamics and star formation that are of great relevance to all other galactic nuclei, with a level of detail that will never be possible beyond our Galaxy," explains Reinhard Genzel, leader of the team from the Max-Planck-Institute for Extraterrestrial Physics in Garching near Munich.

The interstellar dust that fills the Galaxy blocks our direct view of the Milky Way's central region in visible light. So astronomers used infrared wavelengths that can penetrate the dust to probe the region. While this is a technological challenge, it is well worth the effort. "The Galactic Centre harbours the closest supermassive black hole known. Hence, it is the best place to study black holes in detail," argues the study's first author, Stefan Gillessen.

The team used the central stars as "test particles" by watching how they move around Sagittarius A*. Just as leaves caught in a wintry gust reveal a complex web of air currents, so does tracking the central stars show the nexus of forces at work at the Galactic Centre. These observations can then be used to infer important properties of the black hole itself, such as its mass and distance. The new study also showed that at least 95% of the mass sensed by the stars has to be in the black hole. There is thus little room left for other dark matter.

"Undoubtedly the most spectacular aspect of our long term study is that it has delivered what is now considered to be the best empirical evidence that supermassive black holes do really exist. The stellar orbits in the Galactic Centre show that the central mass concentration of four million solar masses must be a black hole, beyond any reasonable doubt," says Genzel. The observations also allow astronomers to pinpoint our distance to the centre of the Galaxy with great precision, which is now measured to be 27 000 light-years.

To build this unparalleled picture of the Milky Way's heart and calculate the orbits of the individual stars the team had to study the stars there for many years. These latest groundbreaking results therefore represent 16 years of dedicated work, which started with observations made in 1992 with the SHARP camera attached to ESO's 3.5-metre New Technology Telescope located at the La Silla observatory in Chile. More observations have subsequently been made since 2002 using two instruments mounted on ESO's 8.2 m Very Large Telescope (VLT). A total of roughly 50 nights of observing time with ESO telescopes, over the 16 years, has been used to complete this incredible set of observations.

The new work improved the accuracy by which the astronomers can measure the positions of the stars by a factor of six compared to previous studies. The final precision is 300 microarcseconds, equivalent at seeing a one euro coin from a distance of roughly 10 000 km.

For the first time the number of known stellar orbits is now large enough to look for common properties among them. "The stars in the innermost region are in random orbits, like a swarm of bees," says Gillessen. "However, further out, six of the 28 stars orbit the black hole in a disc. In this respect the new study has also confirmed explicitly earlier work in which the disc had been found, but only in a statistical sense. Ordered motion outside the central light-month, randomly oriented orbits inside – that's how the dynamics of the young stars in the Galactic Centre are best described."

One particular star, known as S2, orbits the Milky Way's centre so fast that it completed one full revolution within the 16-year period of the study. Observing one complete orbit of S2 has been a crucial contribution to the high accuracy reached and to understanding this region. Yet the mystery still remains as to how these young stars came to be in the orbits they are observed to be in today. They are much too young to have migrated far, but it seems even more improbable that they formed in their current orbits where the tidal forces of the black hole act. Excitingly, future observations are already being planned to test several theoretical models that try to solve this riddle.

"ESO still has much to look forward to," says Genzel. "For future studies in the immediate vicinity of the black hole, we need higher angular resolution than is presently possible." According to Frank Eisenhauer, principal investigator of the next generation instrument GRAVITY, ESO will soon be able to obtain that much needed resolution. "The next major advance will be to combine the light from the four 8.2-metre VLT unit telescopes – a technique known as interferometry. This will improve the accuracy of the observations by a factor 10 to 100 over what is currently possible. This combination has the potential to directly test Einstein's general relativity in the presently unexplored region close to a black hole."

Adapted from materials provided by ESO.

http://www.sciencedaily.com/releases/2008/12/081209221707.htm

Epilepsy Drug Shows Potential For Alzheimer's Treatment

ScienceDaily (Dec. 10, 2008) — A drug commonly used to treat epilepsy could help clear the plaques in the brain associated with Alzheimer's disease, according to researchers at the University of Leeds. The plaques are known to lead to the progressive death of nerve cells in the brain linked to many forms of dementia.

Sodium valproate - which is marketed as the anti-seizure drug Epilim - has been shown by scientists at the University of Leeds to reactivate the body's own defences against a small protein called amyloid beta peptide, which is the main component of the brain plaques characteristic in Alzheimer's.

"The fact that we've been able to show that a well-established, safe and relatively inexpensive drug could help treat Alzheimer's is an extremely exciting development," says lead researcher Professor Tony Turner from the University's Faculty of Biological Sciences. "We hope colleagues will be able to progress this research with clinical trials in the near future."

Alzheimer's disease is the most common form of dementia and has no cure. In the UK today there a half a million people living with Alzheimer's – and this is likely to double within a generation unless new treatments are found.

Sodium valproate has been used for many years to suppress epileptic seizures and the many sufferers of epilepsy have been taking the drug for decades with few side effects.

The development of Alzheimer's is widely believed to be caused by the gradual accumulation in the brain of amyloid-beta peptide which is toxic to nerve cells. This is thought to be caused by a key enzyme called neprilysin or NEP gradually switching off in later life. One of NEP's roles is to clear the toxic peptide from the brain, and plaques begin to form as it gradually switches off, leading to the death of the brain's nerve cells.

The research team examined changes in chromatin – the 'packaging' that genes are contained within - and surmised that these changes might be involved in switching off NEP. The team found clear differences (acetylation) in key proteins within the chromatin when they compared normal nerve cells against those that failed to produce NEP.

"From there it was relatively simple to stimulate the expression of NEP with sodium valproate, which was seen to prevent the acetylation," says Professor Turner. "We were elated when we saw the results."

This work was funded by the Medical Research Council.

Professor Tony Turner, together with former colleague Dr John Kenny, first discovered NEP in the brain. His current research team comprises Dr Nikolai Belyaev, Dr Natalia Nalivaeva and Natalia Makova.

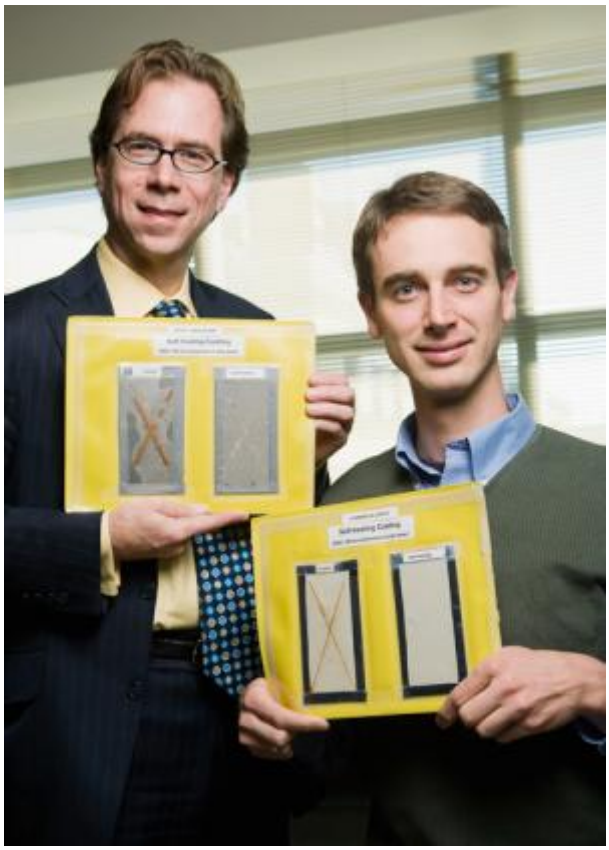
Journal reference:

1. Belyaev et al. **Neprilysin gene expression requires binding of the amyloid precursor protein intracellular domain to its promoter: implications for Alzheimer disease**. *EMBO Reports*, Dec 5, 2008; DOI: 10.1038/embor.2008.222

Adapted from materials provided by University of Leeds.

http://www.sciencedaily.com/releases/2008/12/081208092110.htm

New Polymer Coatings Prevent Corrosion, Even When Scratched



Illinois researchers Paul Braun, right, and Scott White have created self-healing coatings that automatically repair themselves and prevent corrosion of the underlying substrate. (Credit: Photo by L. Brian Stauffer)

ScienceDaily (Dec. 10, 2008) — Imagine tiny cracks in your patio table healing by themselves, or the first small scratch on your new car disappearing by itself. This and more may be possible with self-healing coatings being developed at the University of Illinois.

The new coatings are designed to better protect materials from the effects of environmental exposure. Applications range from automotive paints and marine varnishes to the thick, rubbery coatings on patio furniture and park benches.

"Starting from our earlier work on self-healing materials at the U. of I., we have now created self-healing coatings that automatically repair themselves and prevent corrosion of the underlying substrate," said Paul Braun, a University Scholar and professor of materials science and engineering. Braun is corresponding author of a paper accepted for publication in the journal Advanced Materials, and posted on its Web site.

To make self-repairing coatings, the researchers first encapsulate a catalyst into spheres less than 100 microns in diameter (a micron is 1 millionth of a meter). They also encapsulate a healing agent into similarly sized microcapsules. The microcapsules are then dispersed within the desired coating material and applied to the substrate.

"By encapsulating both the catalyst and the healing agent, we have created a dual capsule system that can be added to virtually any liquid coating material," said Braun, who also is affiliated with the university's

Beckman Institute, Frederick Seitz Materials Research Laboratory, department of chemistry, and Micro and Nanotechnology Laboratory.

When the coating is scratched, some of the capsules break open, spilling their contents into the damaged region. The catalyst and healing agent react, repairing the damage within minutes or hours, depending upon environmental conditions.

The performance of the self-healing coating system was evaluated through corrosion testing of damaged and healed coated steel samples compared to control samples that contained no healing agents in the coating. Reproducible damage was induced by scratching through the 100-micron-thick polymer coating and into the steel substrate using a razor blade. The samples were then immersed in a salt solution and compared over time.

The control samples corroded within 24 hours and exhibited extensive rust formation, most prevalently within the groove of the scratched regions, but also extending across the substrate surface, the researchers report. In dramatic contrast, the self-healing samples showed no visual evidence of corrosion even after 120 hours of exposure.

"Our dual capsule healing system offers a general approach to self-healing coatings that operates across a broad spectrum of coating chemistries," Braun said. "The microcapsule motif also provides a delivery mechanism for corrosion inhibitors, antimicrobial agents, and other functional chemicals."

With Braun, the paper's co-authors are U. of I. aerospace engineering professor and Beckman researcher Scott White, and former Beckman and materials science graduate student Soo Hyoun Cho. A company formed by Braun, White and other U. of I. researchers is exploring commercialization of the self-healing coatings technology.

The work was funded by Northrop Grumman Ship Systems, the U.S. Air Force Office of Scientific Research, and the Beckman Institute.

Adapted from materials provided by University of Illinois at Urbana-Champaign.

http://www.sciencedaily.com/releases/2008/12/081209125929.htm

Plastic Made To Conduct Electricity

A plastic-metal hybrid as a granulate or a strand. In the next step the conductive material can be plasticized (softened) again and applied as a printed circuit board. (Credit: Copyright Fraunhofer IFAM)

ScienceDaily (Dec. 10, 2008) — Plastic that conducts electricity and metal that weighs no more than a feather? It sounds like an upside-down world. Yet researchers have succeeded in making plastics conductive and cutting production costs at the same time.

You could hardly find greater contrasts in one and the same team. Plastic is light and inexpensive, but insulates electric current. Metal is resilient and conducts electricity, but it is also expensive and heavy. Up to now, it has not been possible to combine the properties of these two materials. The IFAM in Bremen has devised a solution that combines the best of both worlds without requiring new machinery to process the components.

The greatest challenge for the researchers was getting the plastic to conduct electricity, for plastic-metal hybrids are to be used in the very places where plastic components are equipped with printed circuit boards, for instance in cars or aircraft. Until now, this was only possible via the roundabout route of punching and bending metal sheets in an elaborate process in order to integrate them in a component.

The new solution is simpler: a composite material. The different materials are not merely slotted together or bonded, but mixed in a special process to form a single material. This process produces a homogeneous and fine-meshed electrically conductive network. The composite possesses the desired chemical stability and low weight, coupled with the electrical and thermal conductivity of metals. As it will no longer be necessary in future to integrate metal circuit boards and the components will soon be able to be produced in a single work step, the production costs and the weight of the material are drastically reduced.

Automobile and aircraft manufacturers, in particular, will benefit from this development. The headlamp housings on a car, for example, are made of plastic. Until now, punched metal sheets have been installed in order to illuminate the headlamps. If the housings were fitted with circuit boards made of the conductive plastic-metal hybrids, they could be produced more efficiently and at lower cost than ever before. Many components of an aircraft, such as the fuselage, are partly made of carbon fiber composites (CFC). However, they lack the ability to conduct electricity. A stroke of lightning would have fatal consequences. A plastic-metal hybrid would be a good alternative for discharge structures on components.

Adapted from materials provided by Fraunhofer-Gesellschaft.

http://www.sciencedaily.com/releases/2008/12/081209111514.htm

Boy-girl Bullying In Middle Grades More Common Than Previously Thought

ScienceDaily (Dec. 10, 2008) — Much more cross-gender bullying – specifically, unpopular boys harassing popular girls – occurs in later elementary school grades than previously thought, meaning educators should take reports of harassment from popular girls seriously, according to new research by a University of Illinois professor who studies child development.

Philip C. Rodkin, a professor of child development at the U. of I.'s College of Education, said that while most bullies are boys, their victims, counter to popular conception, are not just other boys.

"We found that a lot of male bullies between fourth and sixth grade are bullying girls – more than people would have anticipated – and a substantial amount of that boy-girl, cross-gender bullying goes unreported," he said.

Rodkin, who along with Christian Berger, a professor at the Universidad Alberto Hurtado in Santiago, Chile, published the paper "Who Bullies Whom? Social Status Asymmetries by Victim Gender" in the most recent issue of the International Journal of Behavioral Development, said cross-gender bullying hasn't been fully explored because of the ways researchers have thought about the social status dynamic of bullying in the past.

"Bullies are generally more popular than their victims, and have more power over their victim, whether it's physical strength or psychological power," Rodkin said. "Researchers have taken it for granted that a bully will also have a higher social status than their victims. Based on our research, that's not necessarily the case."

The classic bullying paradigm follows what Rodkin calls the "whipping boy" syndrome: the powerful, popular bully tormenting an unpopular victim. (Think Biff Tannen bullying George McFly in "Back to the Future.")

Over the course of his research, which included surveys of 508 fourth and fifth graders from two elementary schools in the Midwest, Rodkin found that boys who bullied other boys fit the classic pattern. But he also found a number of cases where an unpopular boy bullied a popular girl.

"In those cases where it was a boy picking on a girl, the bullies were regarded by their classmates as being quite unpopular," Rodkin said. "They were not alpha males, and they were probably more reactive in their aggression compared to the classic bully."

Could the explanation for the high proportion of boys bullying girls simply be that it's part of the clumsy transition we all make into adolescence?

"You could say it's normal behavior for kids – what's been called 'push-and-pull courtship' – a result of learning about the birds and the bees," Rodkin said. "But the fact that these unpopular boys were very aggressively targeting girls subtracts from the idea that it's normal."

Despite being perceived by their classmates as being "popular," bullies also are nominated by their peers as being among those liked the least.

"Bullies are always aggressive, and they're never likeable," Rodkin said. "For a generation of research, being popular was equated with being liked. Popularity is an extremely important dimension of social life in any social structure, whether it's kids or adults, but ultimately it's a gauge of whether others think you have social influence, not if you're likeable. Popularity doesn't necessarily translate into what kind of person you want your child to become."

Paradoxically, a bully's victims are also disliked.

"Both bullies and victims are highly disliked by their peers," Rodkin said. "There's a stigma attached to being aggressive, as well as to being weak. Both qualities are looked down upon."

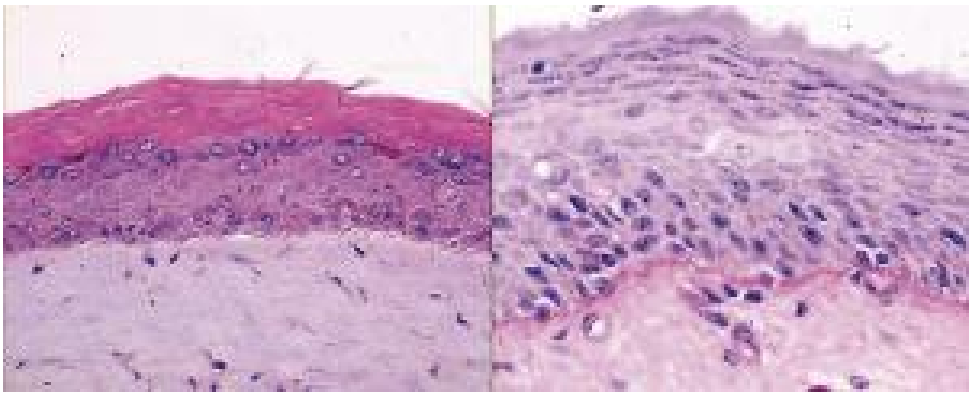
Rodkin believes that exploring the bully-victim social dynamic is fruitful in that it will allow for a more complete representation of children's social environments for parents and educators.

"Just because a kid is popular," he said, "doesn't mean that they're problem-free or nothing bad is going on. There are a lot of dangers for girls and boys over middle childhood and adolescence, dangers that could continue in relationships between men and women later in life."

Adapted from materials provided by University of Illinois at Urbana-Champaign.

http://www.sciencedaily.com/releases/2008/12/081209221711.htm

Production Line For Artificial Skin



Cross-section through artificial skin (left) compared to section through human skin (right). Both the natural and the artificial skin are made up of three layers. (Credit: Copyright Fraunhofer IGB)

ScienceDaily (Dec. 10, 2008) — A fully automated process is set to improve the production of artificial tissue: medical scientists can perform transplants with skin produced in the laboratory. This tissue is also suitable for testing chemicals at a low cost without requiring animal experiments.

Some patients wish they had a second skin – for instance because their own skin has been burnt in a severe accident. But transplanting skin is a painstaking task, and a transplant that has to cover large areas often requires several operations. Medical scientists have therefore been trying for a long time to grow artificial tissue. This "artificial skin" would allow them to treat these patients better and faster.

Tissue engineering has been at the focus of research for many years, and tissues such as cartilage or skin are already being cultured in numerous biotechnology laboratories. But the researchers at the Fraunhofer Institute for Interfacial Engineering and Biotechnology IGB in Stuttgart plan to go a step further than that. They are aiming to enable fully automated tissue production. "Until now, methods of culturing tissue like that used for skin transplants have been very expensive," says IGB head of department Professor Heike Mertsching.

"Most of the steps are carried out manually, which means that the process is not particularly efficient." The researchers have therefore elaborated a novel conceptual design in collaboration with colleagues from the Fraunhofer Institutes for Production Technology IPT, Manufacturing Engineering and Automation IPA, and Cell Therapy and Immunology IZI. First of all, a biopsy – that is, a sample of human tissue – is checked for sterility. A gripper arm then transports the biopsy into the automated device where the individual steps are performed: The machine cuts the biopsy into small pieces, isolates the different cell types, stimulates their growth, and mixes the skin cells with collagen. A three-dimensional reconstruction of the different skin layers is produced with the aid of a special gel matrix – and the skin is ready. In the final step, the machine packages the cells for shipment.

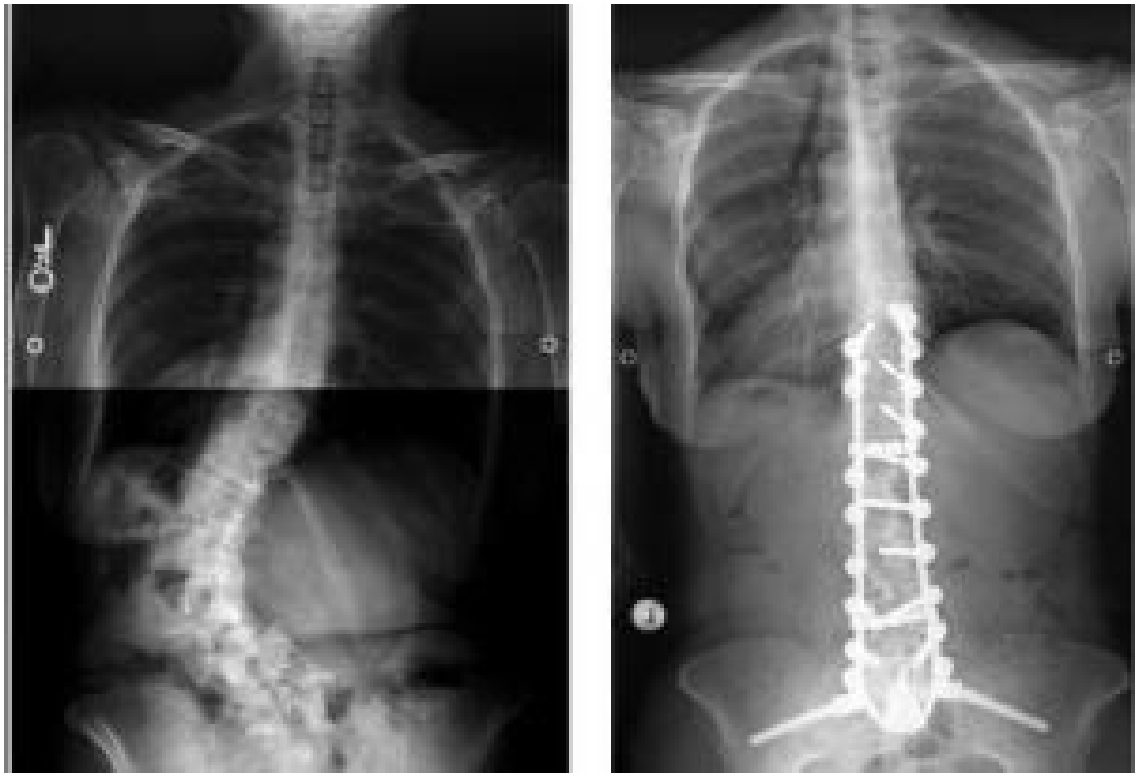
Alternatively, the tissue can be cryopreserved – that is, deep-frozen and stored for later use. "It was important for us that the entire mechanical process is divided into separate modules," says Mertsching. "This enables us to replace or modify individual modules, depending what is needed for the production of different tissue types." The method opens up almost unlimited new possibilities for the medical scientists. One of their upcoming projects is to produce intestinal tissue for resorption tests.

Adapted from materials provided by Fraunhofer-Gesellschaft.

http://www.sciencedaily.com/releases/2008/12/081209100838.htm

New Classification Of Spinal Deformity Defines Range Of Normalcy

ScienceDaily (Dec. 10, 2008) — A University of Cincinnati (UC) neurosurgeon who has spent his career helping people with severe spine problems stand up straight has spearheaded the creation of a new spinal deformity classification system. The system, published this fall in the journal Neurosurgery, defines deformity in relation to the healthy, normal curve of the spine.



"What we've done is define spinal deformity and its manifestations throughout the course of a lifetime, based on a systematic approach to the spine, from the head to the pelvis," says Charles Kuntz IV, MD, an associate professor in UC's neurosurgery department and director of the division of spine and peripheral nerve surgery at the UC Neuroscience Institute. "Defining deformity with this degree of precision allows us to provide optimal treatment."

Kuntz, who practices at the Mayfield Clinic, and his co-authors defined spinal deformity by synthesizing published literature that describes normal neutral upright spinal alignment in asymptomatic juvenile, adolescent, adult and geriatric volunteers. The researchers used a total of 38 angles and displacements to define neutral upright spinal alignment, compiling their data over a period of five years.

The spine is a "dynamic organ that changes during the course of a lifetime," Kuntz says, with normal curves increasing with age.

An estimated 1.5 percent of the population has some degree of spinal deformity, which can take many forms. Abnormal curvatures can occur from side to side, as in scoliosis; they can involve an abnormal forward curve of the spine, known as kyphosis, or hunchback; and they can involve an abnormal posterior curve of the lower spine, known as lordosis, or swayback.

Spinal deformity, depending on its severity, can cause pain, disability and a reduction in quality of life.

Kuntz, whose spinal reconstructions can take as long as 10 to 15 hours over a period of two days, strives for optimal spinal alignment with the finest cosmetic symmetry, even in the most severely disabled patients.

“Some physicians may feel that the result doesn’t have to be perfect,” Kuntz says. “But I do. It’s a big deal when you have a patient who can’t stand up straight, who can’t look you in the eye, who’s embarrassed to go out. It’s a big deal when you help him or her become a person who’s not only attractive to others but also attractive to himself or herself.”

Other co-authors of the spinal classification are Linda Levin, PhD, and David Pettigrew, PhD, of UC; Atiq Durrani, MD, formerly of UC; Christopher Shaffrey, MD, of the University of Virginia; Stephen Ondra, MD, of Northwestern University; and Praveen Mummaneni, MD, of the University of California at San Francisco.

Adapted from materials provided by University of Cincinnati.

http://www.sciencedaily.com/releases/2008/12/081209154953.htm#

Old and Happy? It's a Matter of Attitude

Researchers find that as people age, declining health and declining mental function don't make people any less happy. But having the right attitude seems to matter a lot.

By: Lee Drutman | December 02, 2008

It's not easy getting old. The body starts to break down, and the mind begins to fade. These things, it is often thought, will leave us depressed and unhappy. As researchers are finding out, however, they actually don't.

These ravages of time, as it turns out, have very little to do with one's happiness. Actually, older people report being just as happy, if not happier, than their younger compatriots. Researchers who study aging and happiness have dubbed this the "paradox of well-being."

But why? What's going on?

Last summer, four researchers in the University of Virginia psychology department — professors Shigehiro Oishi and Timothy A. Salthouse, along with Ph.D. candidates Karen L. Siedlecki (the lead investigator on the project and now a postdoc at Columbia) and Elliot M. Tucker-Drob — decided to try to understand a little more about what is behind this apparent paradox.

They started from the premise that there is a lot of literature out there already on the different things that might make people feel better or worse about their lives, including their health and their mental functioning. But are these determinants of "subjective well-being" (the term favored by the researchers) the same across all ages? Do certain things matter more as people get older? Do certain things matter less?

The researchers surveyed 818 people aged 18 to 94. They asked a battery of questions trying to get at the underlying correlates of life satisfaction: How healthy were these people? Were they depressed, anxious

or neurotic generally? How good were they at various cognitive processing tasks? And what about their general knowledge and experiences?

By including all these factors and surveying people from all ages, the researchers thought they could produce the most comprehensive study to date. Their findings are reported in *The Journal of Positive Psychology*.

Some of what they found was expected. For example, people who were generally anxious, depressed or neurotic (or, in the parlance of the psychologists, people who had a high "negative affect") were significantly less happy. Interestingly, the effect was roughly the same across all ages.

Once the researchers controlled for this "negative affect," however, the big surprise was that healthier people were not really any happier. "Our prediction was that health should be strongly associated with well-being among older people because health seems to be such a huge concern," Oishi said. "We didn't find that, so that was surprising."

One possibility is that people who generally keep a positive disposition do not get thrown off by health problems. Rather, as Oishi explained, people are very good at rationalizing their circumstances and, if they are generally upbeat, can fairly easily convince themselves that whatever health problems they have are not that bad — somebody, after all, is probably worse off. On the other hand, people who are generally pessimistic might dwell on even the smallest problems.

This lack of correlation between age and well-being was true across all ages studied, though Siedlecki does suggest a little caution — the population the researchers interviewed was generally healthy, and the measure of health used was self-reported health. "It's hard to be definitive," she said. "But it's clear the correlation is fairly small, and if there is any relationship, it is minimal. What's important is that negative affect is a much stronger predictor of life satisfaction."

Likewise with intelligence, older people who were slower at mental tasks were no less happy than those who were faster, controlling for everything else. But the younger and middle-aged people who were slower mentally did report less life satisfaction.

In assessing cognitive functioning, the researchers were testing for two kinds of intelligence, fluid and crystallized. Fluid intelligence is the basic stuff of cognitive processing — reasoning, abstraction, making inferences. Crystallized intelligence is what you have learned — your memories, your experiences. Psychologists think these two types of intelligence are largely distinct.

Generally, crystallized intelligence did not have much of an effect on life satisfaction once everything else was controlled for. But fluid intelligence — which degrades much faster as people age — was a positive predictor of subjective well-being only for younger and middle-aged people. For older people, a loss in one's mental sharpness was not associated with a decline in happiness.

The researchers speculate that this has something to do with the fact that fluid intelligence tends to help people be more successful in their jobs and that people who are more successful in their jobs are generally happier. Once people retire, however, they focus on different things. "Our research suggests a shift in values as we grow older, and it may be that there is a shift towards emotional regulation and personal relationships as we grow older," Siedlecki said.

Additionally, perhaps when retired people have more time on their hands, the same analytical skills that they once channeled into the workplace instead get turned inward.

"When you start analyzing yourself, the literature shows that ruminations and things like that are predictors of depression," Oishi said. "So perhaps if you don't have to perform high-cognitive-function

tasks and your day just consists of your conversation with your spouse, perhaps it is better not to think and reason all that much."

None of the researchers, however, suggests that people shouldn't spend time doing crossword puzzles or playing mental games in order to keep their minds sharp, as long as they enjoy those things in the first place and thus are made happy. But, Oishi noted, "I guess I just wouldn't be overly concerned about it. It's not worth spending too much time and energy, since social relations are always the strongest predictor of well-being."

In a separate (forthcoming) study, Oishi and colleagues found that adults who retired in places where they had larger social networks (as well as easier transportation and more access to medical services) were generally happier than those who retired to places based on cultural and recreational opportunities (that is, they "overstated the importance of the novelty factors," according to the researchers).

So what advice does this research offer people seeking to stay happy as they age? Since how one perceives one's circumstances seems to have much more to do with happiness than the actual circumstances, this strongly suggests that what matters most is attitude. Good health and an active mind are nice, but if you're depressed, anxious or neurotic all the time, you're just simply not going to enjoy their benefits.

"Cognitive abilities tend to decline with age, but self-rated reports of subjective well-being don't decline with age," Siedlecki said. "Therefore, even though successful aging is often considered in terms of cognitive and physical functioning, perhaps people should also consider how satisfied they are with their life as being an important component of successful aging."

http://www.miller-mccune.com/article/old-and-happy-it%E2%80%99s-a-matter-of-attitude

For I. M. Pei, History Is Still Happening

By NICOLAI OUROUSSOFF

DOHA, Qatar

I CAN'T seem to get the Museum of Islamic Art out of my mind. There's nothing revolutionary about the building. But its clean, chiseled forms have a tranquillity that distinguishes it in an age that often seems trapped somewhere between gimmickry and a cloying nostalgia.

Part of the allure may have to do with I. M. Pei, the museum's architect. Mr. Pei reached the height of his popularity decades ago with projects like the East Building of the National Gallery of Art in Washington and the Louvre pyramid in Paris. Since then he has been an enigmatic figure at the periphery of the profession. His best work has admirers, but it has largely been ignored within architecture's intellectual circles. Now, at 91 and near the end of a long career, Mr. Pei seems to be enjoying the kind of revival accorded to most serious architects if they have the luck to live long enough.

But the museum is also notable for its place within a broader effort to reshape the region's cultural identity. The myriad large-scale civic projects, from a Guggenheim museum that is planned for Abu Dhabi to Education City in Doha — a vast area of new buildings that house outposts of foreign universities — are often dismissed in Western circles as superficial fantasies. As the first to reach completion, the Museum of Islamic Art is proof that the boom is not a mirage. The building's austere, almost primitive forms and the dazzling collections it houses underscore the seriousness of the country's cultural ambition.Perhaps even more compelling, the design is rooted in an optimistic worldview, — one at odds with the schism between cosmopolitan modernity and backward fundamentalism that has come to define the last few decades in the Middle East. The ideals it embodies — that the past and the present can co-exist harmoniously — are a throwback to a time when America's overseas ambitions were still cloaked in a progressive agenda.

To Mr. Pei, whose self-deprecating charm suggests a certain noblesse oblige, all serious architecture is found somewhere between the extremes of an overly sentimental view of the past and a form of historical amnesia.

"Contemporary architects tend to impose modernity on something," he said in an interview. "There is a certain concern for history but it's not very deep. I understand that time has changed, we have evolved. But I don't want to forget the beginning. A lasting architecture has to have roots." This moderation should come as no surprise to those who have followed Mr. Pei's career closely. I recall first hearing his name during construction on his design for the Kennedy Library in Boston in the mid-1970s. The library, enclosed behind a towering glass atrium overlooking the water, was not one of Mr. Pei's most memorable early works, nor was it particularly innovative, but the link to Kennedy lent him instant glamour.

The building's pure geometries and muscular trusses seemed at the time to be the architectural equivalent of the space program. They suggested an enlightened, cultivated Modernism, albeit toned down to serve an educated, well-polished elite. Completed 16 years after the assassination of John F. Kennedy, the library's construction seemed to be an act of hope, as if the values that Kennedy's generation embodied could be preserved in stone, steel and glass.

In many ways Mr. Pei's career followed the unraveling of that era, from the economic downturn of the 1970s through the hollow victories of the Reagan years. Yet his work never lost its aura of measured idealism. It reached its highest expression in the National Gallery of Art's East Building, a composition of angular stone forms completed in 1978 that remains the most visible emblem of modern Washington.

Since that popular triumph Mr. Pei has often seemed to take the kind of leisurely, slow-paced approach to design that other architects, no matter how well established, can only dream of. When first approached in 1983 to take part in a competition to design the addition to the Louvre, he refused, saying that he would not submit a preliminary design. President François Mitterrand nevertheless hired him outright. Mr. Pei then asked him if he could take several months to study French history.

"I told him I wanted to learn about his culture," Pei recalled. "I knew the Louvre well. But I wanted to see more than just architecture. I think he understood immediately." Mr. Pei spent months traveling across Europe and North Africa before earnestly beginning work on the final design of the glass pyramids that now anchor the museum's central court.

In 1990, a year after the project's completion, he left his firm, handing its reins over to his partners Harry Cobb and James Ingo Freed so that he could concentrate more on design. More recently he has lived in semi-retirement, sometimes working on the fourth floor office of his Sutton Place town house or sketching quietly in a rocking chair in his living room. He rarely takes on more than a single project at a time.

Such an attitude runs counter to the ever-accelerating pace of the global age — not to mention our obsession with novelty. But if Mr. Pei's methods seem anachronistic, they also offer a gentle resistance to the short-sightedness of so many contemporary cultural undertakings. Many successful architects today are global nomads, sketching ideas on paper napkins as they jet from one city to another. In their designs they tend to be more interested in exposing cultural frictions — the clashing of social, political and economic forces that undergird contemporary society — than in offering visions of harmony.

Mr. Pei, by contrast, imagines history as a smooth continuous process — a view that is deftly embodied by the Islamic Museum, whose clean abstract surfaces are an echo of both high Modernism and ancient Islamic architecture. Conceived by the Qatari emir and his 26-year-old daughter, Sheikha al Mayassa, it is the centerpiece of a larger cultural project whose aim is to forge a cosmopolitan, urban society in a place that not so long ago was a collection of Bedouin encampments and fishing villages. The aim is to recall a time that extended from the birth of Islam through the height of the Ottoman Empire, when the Islamic world was a center of scientific experimentation and cultural tolerance.

"My father's vision was to build a cross-cultural institution," said Sheikha al Mayassa, who has been charged with overseeing the city's cultural development, during a recent interview here. "It is to reconnect the historical threads that have been broken, and finding peaceful ways to resolve conflict."

Mr. Pei's aim was to integrate the values of that earlier era into today's culture — to capture, as he put it, the "essence of Islamic architecture."The museum's hard, chiseled forms take their inspiration from the ablution fountain of Ibn Tulun Mosque in Cairo, as well as from fortresses built in Tunisia in the eighth and ninth centuries — simple stone structures strong enough to hold their own in the barrenness of the desert landscape.

In order to create a similar sense of withdrawal from the world, Mr. Pei located his museum on a small man-made island, approachable from a short bridge. Seen from a distance, its blocklike forms are a powerful contrast to the half-finished towers and swiveling construction cranes that line the waterfront. Stepped on both sides, the apex of the main building is punctuated by a short tower with an eye-shaped opening that masks an interior dome.

From certain angles the structure has a flat, chimeric quality, like a stage set. From others it seems to be floating on the surface of the water — an effect that recalls Santa Maria della Salute, the imposing Baroque church that guards the entry to the Grand Canal in Venice.As one approaches the building, the full weight of the structure begins to bear down, and the forms become more imposing. The bridge, flanked by rows of tall palm trees, is set diagonally to the entry, which makes the stacked geometric forms appear more angular and the contrast between light and shadow more extreme.

Soon a few traditional details begin to appear: the two small arched windows over the entry; a covered arcade that links the museum to an education center. These touches seem minor, but they provide a sense of scale, so that the size of the building can be understood according to the size of the human body.

The blend of modern and Islamic themes continues inside, where Mr. Pei draws most directly from religious precedents. The hemispherical dome, an intricate pattern of stainless steel plates pierced by a single small oculus, brings to mind the geometric patterns used in Baroque churches as well as in ancient mosques. The weight of the interior's chiseled stone forms, with the dome resting on a faceted drum and square base, evokes both classical precedents and the late works of Louis Kahn, whose fusion of modern structure with a timeless monumentality was a turning point in Modernist history.

Mr. Pei's design lacks the depth and cohesion of Kahn's greatest work. The structural system that supports the dome, for instance, is not particularly elegant; on one side the drum that supports it rests on slender three-story-tall columns, on the other it extends down to meet a wall that encloses a floor of offices before resting on a series of shorter columns, upsetting the room's natural symmetry.

Nonetheless the meaning of the space is clear. Mr. Pei has created a temple of high art, placing culture on the same pedestal as religion. His aim is both to create a symbol of Islamic culture and to forge a common heritage for the citizens of Qatar and the region.

The grandeur of the atrium is only a prelude to the real climax: the galleries, which are as intimate as the atrium is soaring. Objects are encased in towering glass cabinets set on tables, giving them an accessibility rare in a major museum. There is also just the right amount of space between the objects — enough to let them breathe without being isolated.

And like the building itself, the collections are a reflection of the notion that Modernity and Islamic culture are not in opposition, but woven out of the same historical thread. There are dazzling scientific objects here, including a display of astrolabes, as well as priceless works of calligraphy. (Philippe de Montebello, the director of the Metropolitan Museum of Art, which owns one of the world's premier collections of Islamic Art, put it best when I spoke to him at the museum's inaugural gala: "Many of the pieces I've bid on over the past 10 years, they got.")

Yet the most moving works are those that underscore the cosmopolitan values that are at the core of this museum: the notion that the free, open exchange of ideas is what builds great — and tolerant —

civilizations: a matrix of Spanish Corinthian columns with Islamic flourishes; early translations of classical texts that formed the hinge between antiquity and the European Renaissance; a silk tapestry of a couple in front of a tent, illustrating the Islamic fable “Laila and Majnun” that is likened to Romeo and Juliet.

These are the moments that Mr. Pei’s architecture is meant to embody. His museum reminds us that building a culture, as much as a political or social agenda, can be an act of healing. Like all great art, it requires forging seemingly conflicting values into a common whole.

http://www.nytimes.com/2008/12/14/arts/design/14ouro.html?_r=1&th&emc=th

Snapshots From the American Road

By PHILIP GEFTER

WHILE his dark, penetrating eyes still radiate intensity, Robert Frank, at 84, is not as mobile as he used to be, shuffling in slow motion around a modern one-bedroom apartment in a high-rise on the Lower East Side of Manhattan. His wife, the artist June Leaf, explained that they rent the apartment because it is harder for him these days to navigate the nondescript three-story house where they have lived, a few blocks away, since the 1970s.

The living room is spare, a white box with just a few pieces of well-worn furniture — a lived-in couch, some old chairs and the old wooden table where Mr. Frank recently sat for an interview, near a bank of windows yielding an unobstructed view of Midtown, the Empire State Building and the Chrysler Building off-center in the frame.

No one has had a greater influence on photography in the last half-century than the Swiss-born Mr. Frank, though his reputation rests almost entirely on a single book published five decades ago. While he has produced other volumes over the years and made 31 films and videos, all roads in his career lead back to this masterpiece, “The Americans,” an intimate visual chronicle of common people in ordinary situations drawn from several trips he made through his adopted country in the mid-1950s.

He didn’t seem interested in reflecting on why the book continues to have such an afterlife or why it has become a cultural touchstone, but chose instead to explain why it is still meaningful to him. “I’m very proud of this book because I followed my intuition,” he said, speaking with the clipped inflections of his native Swiss accent. He added that the idea of making a photographic chronicle of America wasn’t simply to take one picture at a time; it was a larger endeavor, “a matter of putting a book together the way I saw it.”

Whether he welcomes the public attention, activities are swirling around the 50th anniversary of the English-language publication of “The Americans.” In January a comprehensive publication, “Looking In: Robert Frank’s ‘The Americans,’ ” will accompany a major exhibition in Washington at the National

Gallery of Art, where all 81 contact sheets (out of the 767 rolls of film) from "The Americans" will be presented. The exhibition will travel to the San Francisco Museum of Modern Art and the Metropolitan Museum of Art later in the year. And Mr. Frank was not averse to making a trip to Germany to approve proofs for an anniversary edition of "The Americans," recently published by Steidl and the National Gallery.

Until Mr. Frank came along, the hallmarks of good documentary photography were sharp, well-lighted, classically composed pictures, whether serious war coverage, social commentary or homespun Americana. Life magazine photographers like Margaret Bourke-White, Alfred Eisenstaedt and W. Eugene Smith had been setting a standard for the picture essay, though Magnum, the photography collective founded in 1947 by, among others, Henri Cartier-Bresson and Robert Capa, was challenging that standard with a more candid approach to topical or socially conscious material.

When Grove Press first published "The Americans" in 1959, a chorus of critical disdain rose from the few who bothered to write about photography at the time. Popular Photography magazine derided Mr. Frank's black-and-white pictures of isolated individuals, teenage couples and groups at funerals for their "meaningless blur, grain, muddy exposures, drunken horizons and general sloppiness."

Critics considered the book an indictment of American society, and his pictures did strip away the veneer of breezy optimism reflected in magazines, movies and television programs of the period. Mr. Frank, who was 23 when he moved to the United States in 1947, said he found America, during his travels cross-country, to be a much harsher place than Europe. "Here it seemed that everyone was sort of alone more," he said, in contrast with the more social Europe he remembered, where everyone was friendlier. "I didn't think it was a sad experience, but it was different than Europe."

He noted the difficulty people had just making a living in this country. "There wasn't that much sunshine, even in California," he said. "They have to work harder to have an existence that's above the minimum."

Still, the social critique he was thought to level at America was essentially a romantic quest to honor what was true and good about the nation. "I thought I was qualified to make a picture of America, and people thought I hated America," he said, adding that the responses he was most proud of "came from young people who said that it's a good book."

Photographers, critics and scholars have long since concluded that Mr. Frank liberated the photographic image from the compositional tidiness and emotional distance of his predecessors. The ordinary, incidental moments captured in his pictures — and their raw, informal look — paved the way for photographers like Diane Arbus, Lee Friedlander and Garry Winogrand a decade later. Today Mr. Frank is viewed as a pioneer of the snapshot aesthetic, a term coined in the late 1960s to denote the spontaneous style and modest subject matter that came to dominate black-and-white photography of that period.

Twenty years after "The Americans" was published Gene Thornton wrote in The New York Times that "The Americans" ranks "with Alexis de Tocqueville's 'Democracy in America' and Henry James's 'The American Scene' as one of the definitive statements of what this country is about."

When Mr. Frank arrived in New York from Zurich, he had been an apprentice for several design and photography studios and was well tutored in the visual ideas that defined Modernism in Europe between the world wars. He said he emigrated because he felt that Switzerland was "too closed, too small." Sarah Greenough, curator of photographs at the National Gallery and the author of "Looking In: Robert Frank's 'The Americans,' " writes that "like so many others of his time, his philosophical and moral stance was also deeply affected by existentialism."

Mr. Frank's first photographic assignment in New York came from Alexey Brodovitch, the legendary art director of Harper's Bazaar. He urged Mr. Frank to discard the formal aspects of Modernism that he had

been taught in Switzerland in favor of a more emotional, spontaneous style. In the early '50s Mr. Frank cultivated relationships with Edward Steichen, then director of photography at the Museum of Modern Art, and Walker Evans, then picture editor at Fortune magazine, who encouraged him to apply for the Guggenheim fellowship that would finance his cross-country trips.

Living on East 11th Street in Manhattan, Mr. Frank became friends with Willem de Kooning, Franz Kline and Allen Ginsberg. "I didn't know any people in Europe that lived like that," he said. "They were free, and that impressed me. They paid no attention to how you dressed or where you lived. They made their own rules. They didn't belong to bourgeois society which I come from in Europe."

Abstract Expressionism defined the artistic climate in which Mr. Frank produced the photographs for "The Americans." Jackson Pollock and de Kooning, among others, set a precedent for the Beat writers and poets, whose improvisational style aimed for authenticity and spontaneity. In "Looking In" Ms. Greenough writes that artists of the period were "inspired by the idea that art was an expression not of fact but of experience and that what they created was a record of their confrontation with the canvas."

Setting out across America, Mr. Frank said, "I would drive the car and stop," but there were segments of the trips he could not leave to chance. "The automobile was the important thing, so I was interested in Detroit and had to get permission to go and photograph at Ford. In America, unlike Europe then, the car was a phenomenon. You needed a car. The country was big."

Mr. Frank described the contrast between his full life in New York and the isolation he felt while traveling — a loneliness that runs through "The Americans." "When I came to New York, I found a group of people, and I was amongst them, and we were friends, and I had a family," he said. "Setting off on a trip, well, I guess I was attracted — because it's a more photographic theme — to follow the people that are alone instead of being at picnics or swimming.

"Whenever I talked to people, I knew that I was a foreigner, and they looked at me as a foreigner, because America, it's not like New York."

He also described his encounters with racism ("I was certainly aware of it") and being stopped by a small-town patrolman in Arkansas and asked what he was doing there.

"I remember the guy took me into the police station, and he sat there and put his feet on the table," he said. "It came out that I was Jewish because I had a letter from the Guggenheim Foundation. They were really primitive." He said the sheriff told him, "Well, we have to get somebody who speaks Yiddish." He continued: "They wanted to make a thing of it. It was the only time it happened on the trip. They put me in jail. It was scary. Nobody knew where I was. I was alone."

It's tempting to draw associations between Mr. Frank's trips and Jack Kerouac's novel "On the Road," another cultural artifact from the period, which came out two years before "The Americans." Kerouac wrote the introduction to "The Americans," but the two men did not meet until after Mr. Frank's journey. Still, Mr. Frank's picture of a man at the wheel taken from the passenger seat of the car, "U.S. 91, Leaving Blackfoot, Idaho," might well double for a portrait of the characters in "On the Road." He was quick, however, to dismiss that association, remembering the men simply as "hitchhikers I picked up," adding, "We were going to Butte, I think."

Mr. Frank referred several times to the lessons he gained from just such opportune moments: "to find your way by intuition, not by intelligence, but intuition."

http://www.nytimes.com/2008/12/14/arts/design/14geft.html?ref=design

Picture This

By THOMAS MALLON

ANNIE LEIBOVITZ AT WORK

By Annie Leibovitz

237 pp. Random House. $40

In one of her many meditations on the taking of pictures, Susan Sontag wrote that “all photographs aspire to the condition of being memorable — that is, unforgettable.” Annie Leibovitz, Sontag’s lover before her death in 2004, says she doesn’t really “have a single favorite photograph” among those she’s taken; it’s her body of work, its “accumulation,” that gives her the most satisfaction.

And yet “Annie Leibovitz at Work,” the latest of her books, makes a viewer realize how many of Leibovitz’s pictures have managed, individually, to fulfill the egoistic aspiration Sontag ascribed to all photographs. Modestly proportioned, this new book is trim-sized more for the nightstand than the coffee table. Its photos are generally reproduced on a smaller scale than they were during their first appearances in splashy venues like Vanity Fair. The text, part memoir, part casual manifesto, is conveyed in an unpretentious, sometimes even choppy, style — “Athletes are proud of their bodies. They’ve worked very hard on them” — that derives from its being “based on conversations” between Leibovitz and her editor, Sharon DeLano. If the more general observations about photography in “At Work” don’t surprise, they do convince.

They’re delivered by induction, set against the particular photos that taught Leibovitz her lessons. Among them: the camera really does love some people more than others; not just leggy Nicole Kidman but

"gaunt, sinister" William Burroughs. When doing sports photography, "if you see the picture through the viewfinder, you're too late." (She got the hurdle, but not Edwin Moses.)

Leibovitz is "not nostalgic about cameras" or even film, but "At Work" does display a kind of wistfulness for much of what she got to see over the last 40 years, and even for some of what she just missed, like the Paris fashion shows of the 1960s, where "photographers and editors stayed up working around the clock and everyone got drunk and crazy and wild." (Leibovitz did, it should be noted, get to go on tour with the Rolling Stones.) The author clings to a belief, reinforced by shooting the O. J. Simpson trial and its raucous surroundings, that still photographs, which invite contemplation, can even now compete with "the barrage of images on television." (Being nearly as famous as some of her subjects hasn't hurt Leibovitz: Judge Lance Ito, a fan, gave her special access to his courtroom.)

What Leibovitz learned from her early magazine work, much of it for Rolling Stone, derived from on-the-job experience, not editorial direction. Shooting concerts was difficult because "you were at the mercy of the lighting people, who were usually on drugs." The subjects could be too. After she told a writer she'd seen "vats of white powder" around Ike Turner when photographing him — and the information found its way into print — Turner called her: "Annie, this is Ike. How could you have done that?

We have ways to take care of people like you." Lesson learned? "I decided that from then on the writer's story was his story and my story was my story." Often her story needed no text at all: a 1975 photo of Arnold Schwarzenegger, naked in a hotel room after winning a body-building competition, makes him look as if he's been turned to stone, a sort of muscle-bound Midas tricked by fate.

Leibovitz avoids inflated claims for what she does and deflects compliments that her pictures have "captured someone" with a confirmed belief that a photograph can never get more than "a tiny slice of a subject." Her famous shot of an extremely pregnant Demi Moore may have been a great magazine cover, but Leibovitz says it's too awkward and constrained (the subject had to cover her breasts) to be "a good photograph per se."

Her self-criticisms are neither left-handed nor tormenting; she sees what's wrong and, freshly instructed, moves on. Criticism of subjects is nowhere to be found: "There certainly are people who are a pain to work with. I'd be crazy to name them. You can't be indiscreet in this business." George Lois, the art director whose high-concept 1960s Esquire covers put Sonny Liston in a Santa hat and Andy Warhol in a can of soup, has had a longer influence on Leibovitz than he did on magazines in general. (Leibovitz deplores current cover designs for being safe and formulaic.) The conceptual covers she did for Rolling Stone — the Blues Brothers painted blue; Meryl Streep pulling at her own whitefaced visage — prefigured a technique ("placing my subject in the middle of an idea") that carried over into the pictures she made for a long-running advertising campaign by American Express.

Some of her best work illustrated the corporate claim that "Membership has its privileges": Willie Shoemaker standing next to Wilt Chamberlain; John Cleese hanging from a tree; Ella Fitzgerald in a pose and outfit that for once allowed her to convey sexiness instead of perfect pitch. For these shoots, as always, Leibovitz did her "homework," boning up on her subjects but then, in their presence, not making any special effort to put them at their ease. She has even resorted to a variant of Lieutenant Columbo's just-one-more-thing approach to get what she wants: "As soon as you say it's over, the subject will feel relieved and suddenly look great. And then you keep shooting."

Contrary to some press accounts, Queen Elizabeth did not storm out of her session with Leibovitz; she more or less stormed in, brisk and impatient. One of the resulting photographs, with Her Majesty in a huge cape against a wintry landscape, looks rather like the ultimate American Express ad. As it happens, the trees in the picture were shot on a Tuesday. The Queen, disinclined to go outdoors, was shot the next day, and the royal marriage of digital images was effected after that. Leibovitz made the transition to computerized imagery with some reluctance: digital photography seemed at first to require too many people and too much equipment on the set. But she has "learned to love" the new medium, which allows

her to take fewer pictures and see what she's getting as she gets it. With digital, photographers "can keep the image that used to exist only on the Polaroid" taken during the setup. Digital can also cater to celebrities' schedules, allowing them to be shot separately for the same group pictures. As Leibovitz explains: "The picture of Helen Mirren and Judi Dench in the car" — part of a fictional, film-noir photo essay for Vanity Fair — "was made in two different places." But to the viewer, the possibilities seem not so much endless as entropic; these complicated photo fantasies crammed with stars and costumes and layouts move beyond concept toward a kind of visual cacophony. The contrivance begins to control Leibovitz instead of the other way around, as is the case in her brilliant business as usual.

"At Work" includes a picture of the photographer's mother, Marilyn Leibovitz, shot in 1997. These days it "means more and more" to the daughter who took it, because of its honesty: "My mother is looking at me as if the camera were not there." This is not a condition easily replicated when the photographer isn't the subject's flesh and blood, and it doesn't obtain almost anywhere else in the book, which is fine, since Leibovitz's work, apart from a 1990s foray into Sarajevo, has never really been about honesty. As "At Work" makes clear, it has been about performance and arrangement — of the highest and shiniest order.

Thomas Mallon's most recent books are the novels "Bandbox" and "Fellow Travelers."

http://www.nytimes.com/2008/12/14/books/review/Mallon-t.html?ref=design

Exposed

By DOUGLAS WOLK

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BREAKDOWNS

Portrait of the Artist as a Young %@&*!

By Written and illustrated by Art Spiegelman

Unpaged. Pantheon Books. $27.50

THE ALCOHOLIC

By Jonathan Ames. Illustrated by Dean Haspiel

136 pp. Vertigo/DC Comics. $19.99

MY BRAIN IS HANGING UPSIDE DOWN

By Written and illustrated by David Heatley

Unpaged. Pantheon Books. $24.95

Something about comics attracts confessional work — really confessional work. Ever since the underground-comix era of the late 1960s and early ’70s, when Justin Green poured his Catholic guilt into “Binky Brown Meets the Holy Virgin Mary” and Robert Crumb gleefully skewered his own unsavory

impulses, there's been a strain of cartooning that would be a vicious invasion of privacy if it weren't about its creators.

Art Spiegelman's first book, "Breakdowns" (1977), combined the obsessions that have defined his work ever since: agonized personal revelations and savage interrogation of comics as a medium. (Look again at that title.) Now it's been rereleased, in an edition that pairs a facsimile of the original with a long new autobiographical piece, in which Spiegelman presents painful anecdotes about his artistic evolution and his family relationships in the mock-comedic form of vintage newspaper funnies. Yet the new material feels muted and slightly too assured alongside the fuming, raw energy of the original "Breakdowns." In the 1970s, nearly all of Spiegelman's work was years ahead of art-comics trends, from the original version of "Maus" (a three-page sketch about Spiegelman's father's experiences during the Holocaust, which evolved into his two-volume magnum opus in the '80s) to "The Malpractice Suite," an extended mutilation of an old "Rex Morgan M.D." strip that becomes more convoluted and deranged with every panel. Spiegelman draws them all with a frantic intensity, as if his pen were about to slash through his drawing board and crack his table in half.

Jonathan Ames has made a career of neurosis-baring in autobiographical essays and prose memoirs like "What's Not to Love?," and he covers the same territory in his first stab at the comics form. "The Alcoholic," drawn in smooth, chunky caricatures by Dean Haspiel (who has also illustrated some of Harvey Pekar's autobiographical comics), is supposedly fiction, but it concerns a character called "Jonathan A." who stumbles boozily through events that may sound familiar to readers of Ames's first-person essays. Unfortunately, the tales of adolescent sexual confusion, a receding hairline, digestive difficulty and a rather unexceptional 9/11 experience don't quite add up to a coherent story — the ending's quick epiphany feels forced and tacked on. For that matter, the way nubile young things keep throwing themselves at "Jonathan A." suggests an irritating self-aggrandizement behind his self-deprecation.

Another artist in the confessional tradition is David Heatley, whose first book, "My Brain Is Hanging Upside Down," seems to encompass every uncomfortable thought he's ever had about sexuality, race and his family.

The section "Sex History" is just what it says it is: Heatley's nearly complete sexual history, from childhood games onward, documented in more than 700 tiny, doodly, wobbly-lined panels (although he draws a discreet veil over his relationship with his wife). It's riveting for prurient reasons, of course, but also for its apparently comprehensive honesty: he's perfectly willing to come off as a callow jerk.

"Black History," a much longer application of the same technique to his relationships with every black person he's ever known, is a little more coy — he tries to make his internalized racism shrivel up by exposing it to harsh sunlight, but he's also trying to reassure us that he's down. (Padding the story with handwritten commentary on his favorite hip-hop records was probably a bad idea.)

But the final third of the book, devoted to his family tree, centers on a beautifully unsettling mosaic of comic-strip jokes that seem to be at his parents' expense but inevitably end up ridiculing his own dealings with them. The book culminates in a lengthy piece about the birth of his children in the context of the generations before theirs: Heatley isn't the only one, he knows, who's ever heard a woman gasping and a newborn crying.

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http://www.nytimes.com/2008/12/14/books/review/Wolk-t.html?ref=design

'ONE LIFE: THE MASK OF LINCOLN'
Reconsidering the Man From Illinois

By EDWARD ROTHSTEIN

WASHINGTON — Two white plaster masks appear next to each other in a display case at the National Portrait Gallery here. One shows a middle-aged face with a firm, grim look — perhaps because the subject had to control his breathing as the sculptor waited for the substance to harden. The plaster eyes are scooped out, but you can glimpse the interior man in the subtle musculature of the jaw, the high cheekbones, the expansive, smooth brow. He is determined, vigorous and (we know) ambitious.

The other mask is of the same man's face, about five years later. It seems more of a death mask than one taken from life. Those years — between 1860, when this man, Abraham Lincoln, was beginning his campaign for president of the United States, and February 1865, when he was just two months away from being murdered — seem to have carved the flesh from his cheeks, hollowed out the eye sockets more decisively than any sculptor's thumb, and dug lines and pockets in aging, sallow flesh.

This modest exhibition of 30 images of Lincoln at the Portrait Gallery — "One Life: The Mask of Lincoln" — may turn out to be an understated highlight of Lincoln's coming bicentennial year, which promises a full harvest of academic conferences, exhibitions, the reopening of Ford's Theater and scores of new books, many offering revelations from freshly plumbed archives and analyses of figures major and minor. But the juxtaposition of these masks may remain one of the most potent, graphic images of the effects of the crucial years they frame.

They suggest, too, how closely our conceptions of Lincoln's public greatness are connected with our conception of his inner life, his empathy, his personal suffering. It is as if, in resuscitating the Union after the grievous bloodshed of the Civil War, Lincoln had bodily absorbed the nation's suffering —

prefiguring the posthumous Christian iconography that developed after Lincoln's assassination on Good Friday.

"This war is eating my life out," Lincoln told a friend. "I have a strong impression that I shall not live to see the end."

In this small show, organized by the curator David C. Ward, images become more powerful than argument. What can be read in Lincoln's features — of his leadership of the Union, his milestone emancipation of slaves, his rededication of American ideals based on the inalienable rights proclaimed by the Declaration of Independence? Could another figure of his age have done the same?

There is some resemblance between Lincoln and Winston Churchill in Britain in 1941, during the blitz of London. Had Churchill not used his rhetorical gifts to strengthen and unite his citizenry and cabinet, defining the character of their island nation and outlining what was at stake, the course of the 20th century might have been different.

And had Lincoln not, with almost ruthless firmness, taken the ideal of the Union as the highest good and defended it with his own rhetorical gifts, had he not believed — as so few others did — that the stakes were worth the war's unprecedented horrors and sufferings, then the world's greatest experiment in self-government would have failed, and questions would have been raised, as Lincoln said, about whether any nation so conceived could long endure.

I have fallen under the spell of Lincoln, which means that for every book read, there are several lifetimes' worth of books to follow. It is a field in which there are so many opinions that no one could ever be lonely. I walk around hearing voices — though not, perhaps, the voices that Mary Todd Lincoln sought in White House séances after her 11-year-old son died.

I have been listening to audio books of recent Lincoln works: Fred Kaplan's "Lincoln: The Biography of a Writer" and Doris Kearns Goodwin's "Team of Rivals." I have even tried audio books of Lincoln's speeches, though I have not heard a speaker do justice to the rhythms and music of those late, condensed orations, like the Gettysburg Address or the Second Inaugural, in which Lincoln strips away all accident and incident, laying out the counterpoint of high principle.

The bicentennial will not allow much silence to intervene for contemplation of this man's open-minded, sad nobility, but no complaints here.

The historian James Oakes, who is a contributor to Eric Foner's valuable new anthology, "Our Lincoln: New Perspectives on Lincoln and His World," has suggested that for a time Lincoln historians paid attention to large, abstract forces, market conditions, abolition movements or other political pressures, but that in recent years attention to Lincoln has again become almost minutely personal.

Mr. Foner's anthology of academic essays strikes a balance between the personal and the abstract, and a daylong conference last month at Mr. Foner's home base, Columbia University, featured the book's contributors and was often exhilarating. But Lincoln the man looms largest and is likely to loom larger still with the inauguration of Barack Obama, who, like Lincoln, was once an Illinois state legislator.

Mr. Obama has so identified himself with Lincoln that he invoked him while announcing his candidacy in Lincoln's onetime political base, Springfield, Ill. He has suggested that his political career has been an extension of the arc of racial progress begun by Lincoln. In Mr. Obama's victory speech he quoted Lincoln's First Inaugural Address. The theme of Mr. Obama's own inauguration will be "A New Birth of Freedom," an allusion to the Gettysburg Address. And the president-elect has admiringly cited Ms. Goodwin's "Team of Rivals," saying he has been influenced by the way Lincoln composed his cabinet.

All of this heightens the relevance of the coming flood of Lincolniana. Coming in January is a much anticipated two-volume biography of Lincoln by Michael Burlingame, drawing on the author's discoveries of letters and newspaper writings (as well as a lost 1865 eulogy of Lincoln by Frederick Douglass).

Another new biography is imminent from Ronald C. White Jr. Lincoln's marriage to the manic Mary Todd is the subject of the recent book "The Lincolns" by Daniel Mark Epstein. She is made an even more sympathetic figure in "Mrs. Lincoln" by Catherine Clinton — though Mr. Burlingame's research will make further rehabilitation much more difficult.

Mr. Kaplan's book is a study of Lincoln's development as a writer. James M. McPherson's book is about Lincoln's military prowess, and Harold Holzer's account is of the months between Lincoln's election and his taking office in 1861 — months in which Southern secessions began.

Yet another new book, compiled by Philip B. Kunhardt III, Peter W. Kunhardt and Peter W. Kunhardt Jr. ("Looking for Lincoln: The Making of an American Icon"), is an illustrated history of Lincoln's posthumous image. The Library of America, in "The Lincoln Anthology," is doing something similar in prose: Mr. Holzer compiles almost 150 years of reactions to Lincoln by writers ranging from Horace Greeley and Nathaniel Hawthorne to E. L. Doctorow and Mr. Obama.

Yet for all the detail, the probing and the analysis, something remains uncanny. If Lincoln had died in 1860, we probably wouldn't remember him. He had failed to gain much political power during his one term in Congress beginning in 1847; he lost the 1858 election to the Senate; and while he was a diligent party man and lawyer, his legislative track record was not terribly distinguished. He was last out of four Republicans in line to get the party's nomination in 1860.

He would have a legacy of a few good speeches and some powerful argument in the debates with his rival, Stephen A. Douglas, but it would have been a career far less influential than that of the antislavery politician of the previous generation whom Lincoln most admired, Henry Clay.

So how is it that, within five years, Lincoln ended up worthy of Secretary of War Edwin M. Stanton's comment on his death, "Now he belongs to the ages"? The closer you look, combing through these mountains of material, the more ambiguities appear.

Beginning in the 1960s, for example, Lincoln's stature was knocked down a few notches; he had equivocated about some issues for which he is now most admired. In one debate with Douglas, for instance, he was eager to reassure the audience that he had no intention of urging "political and social equality between the white and the black races."

And at first, ending slavery was not one of Lincoln's goals in the Civil War. In 1862 Lincoln said in a letter to Greeley that his ambition was to save the Union, which he would do "without freeing any slave" or "by freeing all the slaves" or "by freeing some and letting others alone." And his grand scheme for freed slaves? Initially they were to be encouraged to migrate to a special colony in Africa.

As for the elegiac prose of his great speeches, where are they anticipated in the many stiff and uninspiring speeches of his earlier life or in his reputation for off-color joviality? Mr. Holzer points out that The New York Daily News mocked the president-elect as an "inveterate old anecdote monger."

"Is the precious time of Cabinet Councils to be wasted with stories?" the paper asked. "Will he go down to South Carolina and assuage her wrath" with an anecdote? It is almost as if there were no connections between the lawyer in Springfield and the president in Washington.

Of course, that is an exaggeration. Continuities abound. But what happened is still remarkable. Lincoln had a tragic vision of the world; he grew up surrounded by familial death and disregard; his marriage was difficult; two children died; his career was pockmarked by failures. He suffered greatly but acted as if he had a right not to happiness itself, but only to its pursuit.

As in life, so in government. He believed that political compromise was the motor of democratic life. And the biggest compromises at America's founding were those involving slavery. It was only by allowing slavery into the Constitution that the Constitution was made possible; it was only by settling for containment rather than elimination that the better angels of early America could even create a United States.

Lincoln, though, rose to the presidency at the very moment when that tragic compromise failed. So in this respect, the flexible politician became an absolutist. There was, in his mind, a fundamental principle that could not be abandoned: the Union. He cleaved fiercely — almost fanatically — to it because it already was a compromise, though one generated out of an ideal toward which the nation would have to move.

That conviction forced him to refine his thinking and discipline his actions. In a debate with Douglas, Lincoln referred to an "eternal struggle between these two principles — right and wrong — throughout the world." The wrong, he said, was "the divine right of kings." The right was "the common right of humanity." The notion of "divine right" left a stain in the form of American slavery; the notion of "common right" was America's founding principle.

Those inalienable rights of humanity could be guaranteed only by something like the Union, so even when it came to abolishing slavery, Lincoln was cautious and protective, hewing strictly to the Constitution, knowing the wrong could be fully undone only with an amendment, but believing, finally, that he could at least, as commander in chief in time of war, free slaves in the rebellious territories. The Emancipation Proclamation is written in stolid, legalistic prose in which all of Lincoln's rhetorical gifts are shunted aside. That too was done in service to the Union.

Then he was freed to define his larger vision. Andrew Delbanco, in Mr. Foner's anthology, argues that the Civil War, for all its trauma, was unlike many other wars in that it did not produce a crisis that left the country without a sense of purpose. That is because, he suggests, Lincoln found "transcendent meaning in the carnage" and affirmed that meaning for both sides. He really became another founding father.

Look finally, in the National Gallery, at the Alexander Gardner photograph taken soon after the late-life mask was made, less than two months before Lincoln's death. A crack shattered the glass plate, its scar running, almost prophetically, across the top of Lincoln's head. The president's left eye is in finely etched focus, gazing off in deep introspection, while the rest of the face softens into a gentle blur. Lincoln's eye, surely, has seen much that haunts him.

But on Lincoln's mouth are the hints of an enigmatic smile, as if in the closing weeks of the war, Lincoln saw, despite the struggles to come, a sign of what might be. The clarity of his gaze and the promise of his smile remain.

http://www.nytimes.com/2008/12/12/arts/design/12linc.html?ref=design

Confronting His Culture and Himself

By CAROL KINO

THE day before the opening of his show at Harris Lieberman Gallery in SoHo, the Mexican artist Daniel Guzmán was crouched on the floor, lashing bamboolike sticks together with leather cord to create rectangular building blocks. The sticks were carrizo, he explained, a traditional cane used by the Mixtec people of Oaxaca to make everything from baskets to buildings. The blocks would soon be assembled into a squared-off shape resembling an altarpiece, topped by a shattered ceramic head.

This is the first time he has worked with this material, Mr. Guzmán said. “My mother is from Oaxaca, and I have Indian blood. I wanted to confront my personal and historical background.”

Other constructions made from carrizo were already in place around the room. Mr. Guzmán had festooned them with personal possessions like an old transistor radio, vinyl records, a shirt and a pair of pants evoking a scarecrow or a body stretched on a rack, and a Mexican boxing mask dangling like a severed head. He said the series, titled “Everything Is Temporary,” was his take on the New Fire ceremony, an Aztec ritual involving human sacrifice.

Although Mr. Guzmán, 44, has been making multimedia work for years, he is probably best known for his exuberant, densely layered ink drawings. For the last five years they have been on the international biennial circuit. Last year they were included in American museum shows like “Sympathy for the Devil: Art and Rock and Roll Since 1967,” at the Museum of Contemporary Art in Chicago, which explored the links between art and rock. This year the New Museum of Contemporary Art in New York presented “Double Album: Daniel Guzmán and Steven Shearer,” a two-man show about extended adolescence and male identity.

Because Mr. Guzmán’s drawings often employ cartoonlike imagery as well as text, it is easy to assume that he is imitating artists like Richard Prince or Raymond Pettibon. That perception irks Jessie Washburne-Harris, a partner in Harris Lieberman.

“What people don’t realize is, Daniel didn’t know Pettibon till later in life,” Ms. Washburne-Harris said. “I think it’s really important when you’re looking at Daniel’s work to think about the history of the graphic arts in Mexico.”

Mr. Guzmán is influenced by varied sources, including the Mexican muralist José Clemente Orozco; the printmakers José Guadalupe Posada, a late-19th-century social satirist, and Leopoldo Méndez, a contemporary of Orozco; European and American masters like Philip Guston and Otto Dix; a vast range of music, from Ravel to the Chilean singer-songwriter Victor Jara to rock; and Mexican movies, comic books and boxing, as well as the street culture of Mexico City, where he grew up.

Recently Mr. Guzmán has also begun to make use of Aztec symbolism, as in his 2005-7 diptych series "La Búsqueda del Ombligo" ("The Search of the Navel"), selections from which appeared in this year's Carnegie International. While the heavily inked images suggest bitterly political satire about the tax man, the military and the like, they are also heavily laden with Aztec symbols like rabbits, skulls, snakes and the moon.

The work at Harris Lieberman, on view through Jan. 10, focuses more pointedly than ever on Aztec imagery, starting with "El Sol de México," an installation in the gallery's front window from which the show takes its title. Using very simple materials — two layers of glass with strips of vinyl and black paint — Mr. Guzmán has created a rendering of the logo for the Mexican daily newspaper El Sol de México. The sun, of course, is also a major player in Aztec mythology, and Mr. Guzmán's version of it can be seen shimmering halfway down the block. It's as though he had located an ancient spiritual dimension in the pages of the newspaper.

The show also includes four drawings that link the concept of Aztec human sacrifice with the carnage currently being wrought by gangs and drug cartels in Mexico, where gruesome murders and beheadings have become a routine part of doing business. Each drawing is centered on Mr. Guzmán's exacting rendering of a recent cover from El Gráfico, a Mexico City tabloid that has reported on this violence in lurid detail. On the cover depicted in "Masacre Sin Fin" ("Massacre Without End") a body is wrapped in a shroud. Around it float drawings of disembodied heads — a frequent sight in Mexican tabloids — and a single weeping eye that seems to quote from both Surrealist imagery and the paintings of Roy Lichtenstein.

Finally there is the 16 ½-minute projection video "El Secreto del Mal" ("The Secret of Evil"), which plays on an endless loop. (Mr. Guzmán borrowed the title from a book of short stories by the Chilean writer Roberto Bolaño, whose work typically examines the violent politics of Latin America.) Throughout most of the piece two young men, a poet and a political activist, are holed up in a ruined house in Mexico City, on the run from some mysterious and terrifying assailant. While they wait, flinching at every footstep and creak, they bicker nervously, and their argument soon turns philosophical.

"To me you stopped being a poet when you stopped believing in social change," the activist complains. The poet defends himself. "To abandon myself to the fantasy of revolution," he says. "It's so much more intense to contemplate beauty." At times they are represented by their shadows on the wall — a riff on Plato's allegory of the cave, in which human life on earth is revealed as a mere illusion of reality. Once their pursuers arrive, the video suddenly segues into a campy zombie flick that ends in gory, ritualistic-looking sacrifice.

Mr. Guzmán noted that "Night of the Living Dead," George A. Romero's 1968 zombie movie, is widely regarded as a critique of Vietnam-era America. Similarly he fashioned "El Secreto" as a comment on his own life and times. The video is about "my love for horror movies," he said. "But it is also about confronting the mortality of the contemporary world. It is about the horror to live in Mexico."

Mr. Guzmán 's life has always been deeply embedded in Mexico City. In the early 1990s he began showing with Temistocles 44, a group centered on an artist-run exhibition space of the same name. Like the others in the collective, he was interested in art forms he had not been able to explore in art school, including conceptualism and performance. But unlike most of the group's members, he did not have an upper-middle-class origin: he spent his childhood in Oaxaca and his teenage years in La Colonia de los Doctores, a working-class neighborhood in Mexico City.

As a child, he said, “I don’t have the opportunity to go to the museums, because my mother and my father don’t have this interest in cultural things.” Yet he always drew obsessively. “I start to make drawings very young,” he said. “I copy things from photographs, that kind of stuff. I love wasting my time in that activity.”

A few high school field trips to museums made him realize that drawing was something he might pursue professionally. He enrolled in the National School of Visual Arts to study graphic design, but within a year he had transferred to the fine arts department.

Initially Mr. Guzmán found himself leaving his love of popular culture behind to focus on abstract paintings. “For a brief time I forget my background,” he said. “But fortunately I have very good teachers. They say, ‘Go to wherever you want to go.’ And when I returned to my background, I recovered material to work with.”

Although this material has given Mr. Guzmán an international career, he said he has no intention of leaving Mexico City. “I feel at home there,” he said. “I can never live outside of Mexico.”

Instead, he said, he prefers to follow the lead of the Situationists, an international conceptualist movement that flourished in the 1960s. “The Situationists said, ‘Be local,’ ” Mr. Guzmán said. “When you become clear about your personality and where you live, you become universal.”

http://www.nytimes.com/2008/12/07/arts/design/07kino.html

| 'MARLENE DUMAS: MEASURING YOUR OWN GRAVE'
The Body Politic: Gorgeous and Grotesque

By ROBERTA SMITH

The figurative painter Marlene Dumas has been characterized as an artist who leaves you either hot or cold, but that's not necessarily so. "Marlene Dumas: Measuring Your Own Grave," a midcareer survey at the Museum of Modern Art, cuts right down the middle. It left me warm.

Ms. Dumas's work tends to aim for the solar plexus, as the show's morbid title suggests. Fusing the political and the painterly, it grapples with the complexities of image making, the human soul, sexuality, the beauty of art, the masculinity of traditional painting, the ugliness of social oppression. How much it delivers on these scores is a question that this exhibition doesn't quite answer.

The show suggests that while this amply talented artist has created some riveting images, her work becomes monotonous and obvious when seen in bulk. She has not substantially varied her subjects or her habit of basing her images on photographs in about 25 years. And when you stand in front of her paintings, far too many other photo-dependent artists come to mind for the pictures to qualify as original. Her work tends too much toward well-done pastiches of ideas and tactics from the last 25 years, primarily Conceptualism, appropriation art and Neo-Expressionism

Ms. Dumas's stained and brush-worked canvases are lurid in subject or color, and usually both. The subjects include pregnant women; rather monstrous-looking newborns; murdered children and victims of suicide and execution (mostly women); hooded prisoners; forlorn adolescents; bodies in morgues. Each image is served up in a blank, abstract space with handsome trimmings of lush colors and surface action that have their history in Abstract Expressionism and even Color Field painting.

Striking abbreviations and fuzzy blurs make us look twice. Is that woman asleep or dead? Has that naked child been playing with red paint or is that blood on its hands? In many instances such doubts keep you moving between the harsh, suggestive imagery and the brushwork and process, but after a while you may begin to feel a bit manipulated.

Other paintings go for point-blank sensationalism. "Dead Girl" shows just the head and shoulders of a fallen adolescent with blood streaming from her face. Yet in some of Ms. Dumas's portraits suffering is subtle and implicit, a life sentence and therefore more convincing. In "Moshekwa" the resolute face of a

black man fills most of a large canvas with an aura intensified by the shifting tones of his skin, which culminates in a gorgeous patch of dark purple glowing from his forehead like a mark of nobility.

Sometimes the paintings convey a raw, existential force, like the shadowed and piercing, slightly animalistic face of an enormously pregnant and mostly naked woman, defiant yet posing on her knees. Yet, lest we forget that meaning is ambiguous, and that the work is a painting, Ms. Dumas has titled it "Pregnant Image."

Born in South Africa in 1953, Ms. Dumas has lived in the Netherlands since 1976. Although a regular on the must-buy lists of collectors everywhere and the subject of an exhibition at the New Museum in 2002, she is more widely known in Europe than in the United States. This show is her largest in this country and only her fifth solo show in New York. It was organized by Connie Butler, the Modern's chief curator of drawings and an Ahmanson Fellow at the Museum of Contemporary Art in Los Angeles, where it opened last summer.

One thing is certain: Ms. Butler has done Ms. Dumas no favors by installing her work thematically instead of chronologically. The arrangement creates the impression of an overlarge gallery show of works done over a few years. It is as if the museum didn't want its stately sixth-floor galleries to feature anything but the mature, finished recognizable product.

The public could be confused by the messiness of early work. So instead the art seems to have sprung from the forehead of Zeus or Gerhard Richter or Luc Tuymans (or Ida Applebroog). Not until reaching the back of the drawing galleries on the third floor do you absorb any idea of development.

Here, in a single vitrine, you'll encounter a very young artist moving very fast out of the gate on her own steam, starting with a brusque crayon drawing of beauty contestants. Ms. Dumas made it at age 10 while growing up on a farm near Cape Town. The earliest pieces broadcast a gift for drawing and caricature; a fierce, inborn focus on women; and a precocious interest in the physical side of life and art.

Close-ups of breasts and the female pudenda from 1972 bring to mind both Eva Hesse's sexually charged abstractions and Joan Semmel's monumental views of entwined naked couples. They could also be simply a young artist's record of her changing body.

The standout is a small, oatmealish oval of canvas, cotton wool and paint on paper titled "Breakfast for Claes Oldenburg." Made in 1975 when Ms. Dumas was in art school in Cape Town, it is an apt hommage whose gouges and fluttering marks also suggest a Cubist relief, complete with Pointillist dots, and a natural pictorial intelligence.

A page from Vogue magazine with the fashion model erased in a series of black, smeary strokes dates from 1977, just as young female artists in the United States were beginning to combine feminism and photography; it rawly indicates a refusal to leave painting behind. Then a sudden growth spurt: nearby, a large collage combines scaled-up drawings based on newspaper clippings of Winnie Mandela; Patrice Lumumba's widow, Pauline Opango; and Betty Shabazz, the widow of Malcolm X. The piece dates from 1982. The first paintings on view date from 1984, and show Ms. Dumas working very much as she does today.

The consistency of this show suggests an artist who settled too early into a style that needs further development. Stasis is disguised by shifting among various charged subjects that communicate gravity in shorthand. Ms. Dumas's painting is only superficially painterly. The photographic infrastructure is usually too close to the surface, which makes it all look too easy. Worse, it makes subject matter paramount.

At times her career — including her work and her voluble persona — seems like an extended Conceptual Art project intended to turn painting and its maleness on its head. Yet it is framed in a familiar artistic ego and bluster.

"I paint because I'm a woman," she has said, in a tone that echoes the macho claims of male painters. And in quotations and poems in the catalog she seems just as self-involved and even pompous as many of her male counterparts. Sometimes she can be articulate about painting's physicality and its psychological effects, yet saying it doesn't make it so. Sometimes, when she talks about the viewer completing the art and the ambiguity of interpretation, she fetishizes ideas implicit in all art at least since Duchamp.

Remember Robert Longo's twisting figures and the endless conjecture of whether they were dancing or being shot? The text panel at the front of the show invites viewers to participate in the process of constructing meaning. I thought that's what we always do.

Still, one viewer's stasis could be another's relentless perseverance. Ms. Dumas's emphasis on the naked or otherwise vulnerable bodies of women can read as retribution for centuries of less attuned representations by men and also for the supposed neutrality of abstraction.

Some of her works protect women by making them disembodied, cloaking them in abstraction. The abject female of "Magdalena (Out of Eggs, Out of Business)" is little more than a few cursory features and two knee-length strands of hair enveloped in a Rothko-like field of dark red. Yet she doesn't convince that this approach is all that different from that of Munch.

Ms. Dumas's best work may lie ahead, and in the direction of greater variety. A model is Louise Bourgeois, whose recurring feminist themes have been presented in a succession of markedly different forms. There are hopeful signs in recent works like the "Moshekwa" portrait (2006); the frowsy, Nan Goldin-ish "Self-Portrait at Noon" from this year; and "Immaculate" (2003).

This last, a compact and foreshortened image of a woman's genitalia and torso, goes beyond stain painting and allows for a more textured, controlled buildup of paint. To our benefit, Ms. Dumas has made several major themes her own, but she has yet to do the same with her beloved métier, painting.

"Marlene Dumas: Measuring Your Own Grave" is at the Museum of Modern Art, (212) 708-9400, through Feb. 16.

http://www.nytimes.com/2008/12/12/arts/design/12duma.html

Art and Mental Illness

Last year, The New York Times called the Mexican artist Martín Ramírez "simply one of the greatest artists of the 20th century." What is so remarkable about his achievement, beyond the mesmerizing repetition of lines and images in his drawings, is that all of the work was created inside a mental institution.

Mr. Ramírez, who died in 1963, was an immigrant who fell on hard times during the Great Depression, and for the last 30 years of his life he was institutionalized after a diagnosis of schizophrenia.

After a major exhibit of his drawings last year at the American Folk Art Museum in New York City, a cache of previously unknown work was discovered. Now 25 of those new drawings, created during the last three years of his life, are on display at the museum through April 12. This weekend, the museum is presenting a panel discussion in which historians and sociologists will explore Mr. Ramírez's life and work, including the circumstances of his diagnosis and whether his work really reflects a mental illness.

Scientists have long studied the link between creativity and mental illness, and the lines between the two are often blurred. Studies suggest that creative people often share more personality traits with the mentally ill than "normal" people in less creative pursuits. One Stanford University study compared patients with bipolar disorder with a group of healthy people. They found that graduate students in creative disciplines shared more personality traits with the bipolar patients than with their healthy but less creative peers, according to a study published last year in The Journal of Affective Disorders.

In the case of Mr. Ramírez, scholars continue to debate whether the artist really suffered from mental illness. Some see a thoughtful sanity in the work. Brooke Davis Anderson, the director and curator of the Contemporary Center at the Folk Art Museum, says the latest exhibit shows that Mr. Ramírez developed artistically over the years, employing a greater use of color and a bolder exploration of the abstract near the end of his life. And unlike art that is sometimes typical of the mentally ill, she said, he didn't need to fill in every space on his canvas.

"That diagnosis does stick to him," said Ms. Anderson, who will be speaking on Saturday's panel at the museum. "But he wasn't afraid of white space at all, His reliance on motifs and animals indicate a more

sane and less mentally ill part of Mr. Ramírez. There's great diversity in the decorative palate, composition and scale."

Whatever the answer, the work and the artist's personal story are fascinating. He created art long before the days of "art therapy" classes. Later in his career he was given art supplies, but early on he was forced to cobble together his own tools to make art. He made bowls out of dried oatmeal, grabbed scraps of paper in the hospital, used burnt matchsticks to draw, and made paste for collages out of potatoes and saliva.

For a glimpse of the recently discovered art of Martín Ramírez, click on the drawing above to watch a slide show that includes six of his drawings. The panel discussion at the American Folk Art Museum will be held Saturday, Dec. 13, from 11 a.m. to 1 p.m. Click here for more information.

To learn more, read this review by Roberta Smith in The Times last year. For more on the story of how the new drawings were discovered, read "Trove of Unknown Work Expands Outsider's Legacy," by my colleague Randy Kennedy.

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http://well.blogs.nytimes.com/2008/12/11/art-and-mental-illness/?ref=design

Diabetes Epidemic Signals an Increase in Blindness, Too

By RONI CARYN RABIN

The number of Americans who could lose their vision to diabetes-related eye diseases is going to skyrocket over the next four decades, with elderly Hispanics and blacks hit hardest because of higher rates of Type 2 diabetes, according to a new study from the Centers for Disease Control and Prevention.

The report projects that the number of adults 40 and older with diabetic retinopathy — the leading cause of blindness among working-age adults — will reach 16 million in 2050, up from 5.5 million in 2005.

An advanced form of the disease will affect 3.4 million people in 2050, almost triple the 1.2 million affected in 2005. The report was published on Tuesday in The Archives of Opthalmology.

“These are alarming numbers,” said Dr. Jinan B. Saaddine, an epidemiologist at the disease centers and an author of the study. “This calls for more awareness and more action, not just to do something about the condition before it develops but to do more to prevent diabetes to start with.”

“All of this could be prevented by preventing diabetes in the first place,” she added. “That’s the big picture.”

Diabetics are more susceptible to developing cataracts and glaucoma as well, and the study estimates that the number of diabetics with glaucoma will quadruple to 1.4 million, while the number with cataracts will more than triple to 10 million.

Older Hispanics and black Americans will be disproportionately affected, according to the report. Glaucoma cases will increase almost 12-fold among Hispanic diabetics 65 and older, and the number of cataract cases will increase more than 7-fold among black diabetics 75 and older.

People with diabetic retinopathy usually do not have symptoms until they actually start to lose vision. As a result, many skip the recommended annual eye exams.

And though treatments are available, they are most effective early in the course of the illness, said Dr. Lloyd Aiello, director of the Beetham Eye Institute at the Joslin Diabetes Center in Boston.

Dr. Aiello said the figures were sobering but not surprising.

“We’re in the middle of a worldwide diabetes epidemic that is just taking off,” he said. “The economic impact is huge, even if you just look at the cost to the federal government of disability and reduced productivity.”

“Many of these,” he added, “are working people.”

http://www.nytimes.com/2008/12/10/health/research/10diabetes.html?ref=research

The Pain May Be Real, but the Scan Is Deceiving

By GINA KOLATA

Cheryl Weinstein's left knee bothered her for years, but when it started clicking and hurting when she straightened it, she told her internist that something was definitely wrong.

It was the start of her medical odyssey, a journey that led her to specialists, physical therapy, Internet searches and, finally, an M.R.I. scan that showed a torn cartilage and convinced her that her only hope for relief was to have surgery to repair it. But in fact, fixing the torn cartilage that was picked up on the scan was not going to solve her problem, which, eventually, she found was caused by arthritis.

Scans — more sensitive and easily available than ever — are increasingly finding abnormalities that may not be the cause of the problem for which they are blamed. It's an issue particularly for the millions of people who go to doctors' offices in pain.

The scans are expensive — Medicare and its beneficiaries pay about $750 to $950 for an M.R.I. scan of a knee or back, for example. Many doctors own their own scanners, which can provide an incentive to offer scans to their patients.

And so, in what is often an irresistible feedback loop, patients who are in pain often demand scans hoping to find out what is wrong, doctors are tempted to offer scans to those patients, and then, once a scan is done, it is common for doctors and patients to assume that any abnormalities found are the reason for the pain.

But in many cases it is just not known whether what is seen on a scan is the cause of the pain. The problem is that all too often, no one knows what is normal.

"A patient comes in because he's in pain," said Dr. Nelda Wray, a senior research scientist at the Methodist Institute for Technology in Houston. "We see something in a scan, and we assume causation. But we have no idea of the prevalence of the abnormality in routine populations."

Now, as more and more people have scans for everything from headaches to foot aches, more are left in a medical lurch, or with unnecessary or sometimes even harmful treatments, including surgery.

“Every time we get a new technology that provides insights into structures we didn’t encounter before, we end up saying, ‘Oh, my God, look at all those abnormalities.’ They might be dangerous,” said Dr. David Felson, a professor of medicine and epidemiology at Boston University Medical School. “Some are, some aren’t, but it ends up leading to a lot of care that’s unnecessary.”

That was what almost happened with Mrs. Weinstein, an active, athletic 64-year-old who lives in New London, N.H. And it was her great fortune to finally visit a surgeon who told her so. He told her bluntly that her pain was caused by arthritis, not the torn cartilage.

No one had told her that before, Mrs. Weinstein said, and looking back on her quest to get a scan and get the cartilage fixed, she shook her head in dismay. There’s no surgical procedure short of a knee replacement that will help, and she’s not ready for a knee replacement.

“I feel that I have come full circle,” she said. “I will cope on my own with this knee.”

In fact, Mrs. Weinstein was also lucky because her problem was with her knee. It’s one of only two body parts — the other is the back — where there are good data on abnormalities that turn up in people who feel just fine, indicating that the abnormalities may not be so abnormal after all.

But even the data on knees comes from just one study, and researchers say the problem is far from fixed. It is difficult to conduct scans on people who feel fine — most do not want to spend time in an M.R.I. machine, and CT scans require that people be exposed to radiation. But that leaves patients and doctors in an untenable situation.

“It’s a concern, isn’t it?” said Dr. Jeffrey Jarvik, a professor of radiology and neurosurgery at the University of Washington. “We are trying to fix things that shouldn’t be fixed.”

As a rheumatologist, Dr. Felson saw patient after patient with knee pain, many of whom had already had scans. And he was becoming concerned about their findings.

Often, a scan would show that a person with arthritis had a torn meniscus, cartilage that stabilizes the knee. And often the result was surgery — orthopedic surgeons do more meniscus surgery than any other operation. But, Dr. Felson wondered, was the torn cartilage an injury causing pain or was the arthritis causing pain and the tear a consequence of arthritis?

That led Dr. Felson and his colleagues to do the first and so far the only large study of knees, asking what is normal. It involved M.R.I. scans on 991 people ages 50 to 90. Some had knee pain, others did not.

On Sept. 11, Dr. Felson and his colleagues published their results in The New England Journal of Medicine: meniscal tears were just as common in people with knee arthritis who did not complain of pain as they were in people with knee arthritis who did have pain. They tended to occur along with arthritis and were a part of the disease process itself. And so repairing the tears would not eliminate the pain.

“The rule is, as you get older, you will get a meniscal tear,” Dr. Felson said. “It’s a function of aging and disease. If you are a 60-year-old guy, the chance that you have a meniscal tear is 40 percent.”

It is a result that paralleled what spine researchers found over the past decade in what is perhaps the best evidence on what shows up on scans of healthy people. “If you’re going to look at a spine, you need to know what that spine might look like in a normal patient,” said Dr. Michael Modic, chairman of the Neurological Institute at the Cleveland Clinic.

After Dr. Modic and others scanned hundreds of asymptomatic people, they learned abnormalities were common.

“Somewhere between 20 and 25 percent of people who climb into a scanner will have a herniated disk,” Dr. Modic said. As many as 60 percent of healthy adults with no back pain, he said, have degenerative changes in their spines.

Those findings made Dr. Modic ask: Why do a scan in the first place? There are some who may benefit from surgery, but does it make sense to routinely do scans for nearly everyone with back pain? After all, one-third of herniated disks disappear on their own in six weeks, and two-thirds in six months.

And surgeons use symptoms and a physical examination to identify patients who would be helped by operations. What extra medical help does a scan provide? So Dr. Modic did another study, this time with 250 patients. All had M.R.I. scans when they first arrived complaining of back pain or shooting pains down their leg, which can be caused by a herniated disc pressing on a nerve in the spine. And all had scans again six weeks later. Sixty percent had herniated disks, the scans showed.

Dr. Modic gave the results to only half of the patients and their doctors — the others had no idea what the M.R.I.’s revealed. Dr. Modic knew, though.

In 13 percent of the patients, the second scan showed that the herniated disk had become bigger or a new herniated disk had appeared. In 15 percent, the herniated disk had disappeared. But there was no relationship between the scan findings at six weeks and patients’ symptoms. Some continued to complain of pain even though their herniated disk had disappeared; others said they felt better even though their herniation had grown bigger.

The question, though, was whether it helped the patients and their doctors to know what the M.R.I.’s had found. And the answer, Dr. Modic reported, is that it did not. The patients who knew recovered no faster than those who did not know. However, Dr. Modic said, there was one effect of being told — patients felt worse about themselves when they knew they had a bulging disk.

“If I tell you that you have a degenerated disk, basically I’m telling you you’re ugly,” Dr. Modic said.

Scans, he said, are presurgical tools, not screening tools. A scan can help a surgeon before he or she operates, but it does not help with a diagnosis.

“If a patient has back or leg pain, they should be treated conservatively for at least eight weeks,” Dr. Modic said, meaning that they take pain relievers and go about their normal lives. “Then you should do imaging only if you are going to do surgery.”

That message can be a hard sell, he acknowledged. “A lot of people are driven by wanting to have imaging,” Dr. Modic said. “They are miserable as hell, they can’t work, they can’t sit. We look at you and say, ‘We think you have a herniated disk. We say the natural history is that you will get better. You should go through six to eight weeks of conservative management.’ ”

At the Partners Healthcare System in Boston, spine experts have the same struggle to convince patients that an M.R.I. scan is not necessarily desirable, said Dr. Scott Gazelle, director of radiology there.

“The consensus is that you are a surgical candidate or not based on your history and physical findings, not on imaging findings,” he said.

Dr. Gazelle had a chance last year to test his own convictions. He had the classic symptoms of a herniated disk — shooting pains down his left leg, a numb foot and difficulty walking.

Dr. Gazelle went to see his primary-care doctor but, he said, “I didn’t get an M.R.I.” That decision, he added, “was the right thing to do.”

About three months later, he had recovered on his own.

In 1998, two medical scientists, writing in The Lancet, proposed what sounded like a radical idea. Instead of simply providing patients and their doctors with the results of an X-ray or an M.R.I. scan, he said, radiologists should put the findings in context. For example, they wrote, if a scan showed advanced disk deterioration, the report should say, “Roughly 40 percent of patients with this finding do not have back pain so the finding may be unrelated.”

It is an idea that only would work for back pain, because that is the one area where radiologists have enough data. But it made eminent sense to Dr. Jarvik. “It gives referring physicians some sort of context,” he said.

So, a few years ago, with some trepidation, his radiology group starting including epidemiological data in their reports. “We thought, ‘What’s going to be the reaction among referring physicians?’ ” Dr. Jarvik said. Their fear was that doctors would start choosing other places for M.R.I.’s and that Dr. Jarvik’s group would lose business.

Because of the way the university’s records are kept, it’s hard to know whether the new reporting system had that effect, Dr. Jarvik said. But he was heartened by the responses of some doctors, like Dr. Sohail Mirza, who recently moved to Dartmouth Medical School.

“We often see patients who have already had M.R.I. scans,” Dr. Mirza said. “They are fixated on the abnormality and come to a surgeon to try to get the abnormality fixed. They’ll come in with the report in hand.”

The new sort of report, Dr. Mirza said, was “very helpful information to have when talking to patients and very helpful for patients to help them understand that the abnormalities were not catastrophic findings.”

Others, like Dr. Modic, are hesitant about reporting epidemiology along with a patient’s scan findings.

“It’s an interesting idea,” he said. But, he added: “The problem isn’t what happens after they get their imaging. It’s that they get the imaging in the first place.”

That was what happened with Mrs. Weinstein.

When she started looking up her symptoms on the Internet, she decided she probably had a meniscus tear. “I was very forceful in asking for an M.R.I.,” she said.

And when the scan showed that her meniscus was torn, she went to a surgeon expecting an operation.

He X-rayed her knee and told her she had arthritis. Then, Mrs. Weinstein said, the surgeon looked at her and said, “Let me get this straight. Are you here for a knee replacement?”

She said no, of course not. She skis, she does aerobics, she was nowhere near ready for something so drastic.

Then the surgeon told her that there was no point in repairing her meniscus because that was not her problem. And if he repaired the cartilage, her arthritic bones would just grind it down again.

For now, Mrs. Weinstein says she is finished with her medical odyssey.

“I continue to live with this, whatever they call it, this arthritic knee,” she said.

This article has been revised to reflect the following correction:

Correction: December 10, 2008
An article on Tuesday in the Evidence Gap series, about M.R.I. scans that can lead to incorrect diagnoses, misidentified the hometown of a patient who received such a diagnosis, and at one point misstated the knee injury detected by the scan. The patient, Cheryl Weinstein, lives in New London, N.H., not London. The scan, as noted elsewhere in the article, showed torn cartilage, not a torn ligament. Because of an editing error, the article also omitted the given name and title of an expert who said such diagnoses should take better account of epidemiological studies. He is Dr. Jeffrey Jarvik, a professor of radiology and neurosurgery at the University of Washington.

http://www.nytimes.com/2008/12/09/health/09scan.html?ref=research

Researchers Put a Microscope on Food Allergies

By KAREN ANN CULLOTTA

CHICAGO — For 5-year-old Sean Batson, even a grandmother's kiss is to be feared.

"My mother was wearing lipstick, and when she kissed Sean's cheek, it broke out in hives," said his mother, Jennifer Batson.At his first birthday party, Sean had a severe allergic reaction — hives, swollen eyes, vomiting and wheezing — to his first nibble of cake. And when a toddler with an ice cream cone touched Sean's arm with sticky hands during a play date, the arm erupted in hives.

The daily struggle of living with Sean's allergies to nearly unavoidable foods and food products — soy, eggs and milk, traces of which can turn up even in nonfoods like lipstick — prompted Mrs. Batson and her husband, Tim, to participate in a project that scientists are calling the most comprehensive food allergy study to date.

The international study, led by Dr. Xiaobin Wang and Dr. Jacqueline A. Pongracic of Children's Memorial Hospital here, is searching for causes of food allergy by looking at hundreds of families in Boston, Chicago and Anhui Province in China.Using questionnaires and interviews, the investigators are gathering data on a broad range of environmental, genetic and health factors, among them diet, hygiene, number of pets and the children's prenatal and postnatal medical histories.

Dr. Wang says the study's multicenter design allows researchers to look at startling variations in the prevalence and types of food allergies across diverse populations and regions.In China, for example, skin-prick testing found that large percentages of one rural population were sensitive to shellfish (16.7 percent) and peanuts (12.3 percent). Yet actual food allergies in that population, as diagnosed by physicians, were all but unheard of: less than 1 percent.

In the United States, by contrast, 12 million people (4 percent of the population) suffer from food allergies, according to the Food Allergy and Anaphylaxis Network, a nonprofit information and advocacy

group.“We found something unexpected,” said Dr. Wang, director of the Smith Child Health Research Program at Children’s Memorial. “The apparent dissociation between high allergic sensitization and low allergic disease in this Chinese population is not seen in our two U.S. study populations.“What can explain the U.S. and China difference?” she asked. “Is it urban versus rural exposure? Diet and lifestyle? Or genetic susceptibility? These are all questions we are trying to find some clear answers for.”

For Sean Batson and his family, a recent clinical evaluation at the hospital included a skin-prick test to establish baseline data for Sean’s sister, Audrey, 1, who does not seem to have food allergies. (Neither do their parents, Tim Batson, 38, a computer programmer, and Jennifer Batson, 36, a copy editor.)

Sean was given a fresh skin-prick test, too. The mild discomfort was tempered by an episode of “SpongeBob SquarePants” playing on a minimonitor affixed to a cushy reclining chair. Dr. Wang said her own awareness of food allergies was heightened after her twin sons started kindergarten in Boston and began bringing home an abundance of notes warning of severe food allergies among their classmates.“Going back 10 to 15 years ago, during my pediatric residency training, there was very little education about food allergies,” said Dr. Wang, one of 12 principal investigators who were recently awarded grants by the National Institutes of Health to conduct innovative research on food allergies.

Indeed, with recent data showing a marked increase in the number of food allergies, which cannot be explained by a lack of detection in years past, the institutes have begun an initiative to address food allergies as an emerging health challenge.Although it is possible to be allergic to any food, eight foods account for 90 percent of all reactions — milk, eggs, peanuts, fish, shellfish, soy, wheat, and tree nuts like cashews and almonds.

Up to 200 deaths each year are attributed to the most severe reaction, food-induced anaphylaxis, which also results in 30,000 trips to the emergency room. Some experts suggest that children in a culture smitten with antibacterial detergents and hand sanitizers are exposed to fewer germs, depriving the immune system of its germ-fighting job and leading it to misidentify certain foods as foreign.

But that is still just a hypothesis, and many researchers say the causes of food allergies are highly complex, and the “hygiene hypothesis” cannot be the sole explanation.Dr. Pongracic, who has been treating children with food allergies for 17 years, says even trace amounts of allergens can cause life-threatening reactions. “Ultimately, we hope that our research will lead to the discovery of ways to predict which child is likely to outgrow food allergy,” she wrote in an e-mail message, adding that doctors hoped to develop therapies “that can lessen the severity of an allergic reaction, and even protect against the reaction in the first place.”

Frustration over the lack of financing for food allergy research led one Chicago-area couple, David and Denise Bunning, to donate $3 million to the study at Children’s Memorial. As the parents of two sons with life-threatening food allergies, they say they hope to convince lawmakers that food allergies deserve as much public attention as other chronic childhood diseases like asthma and Type 1 diabetes.

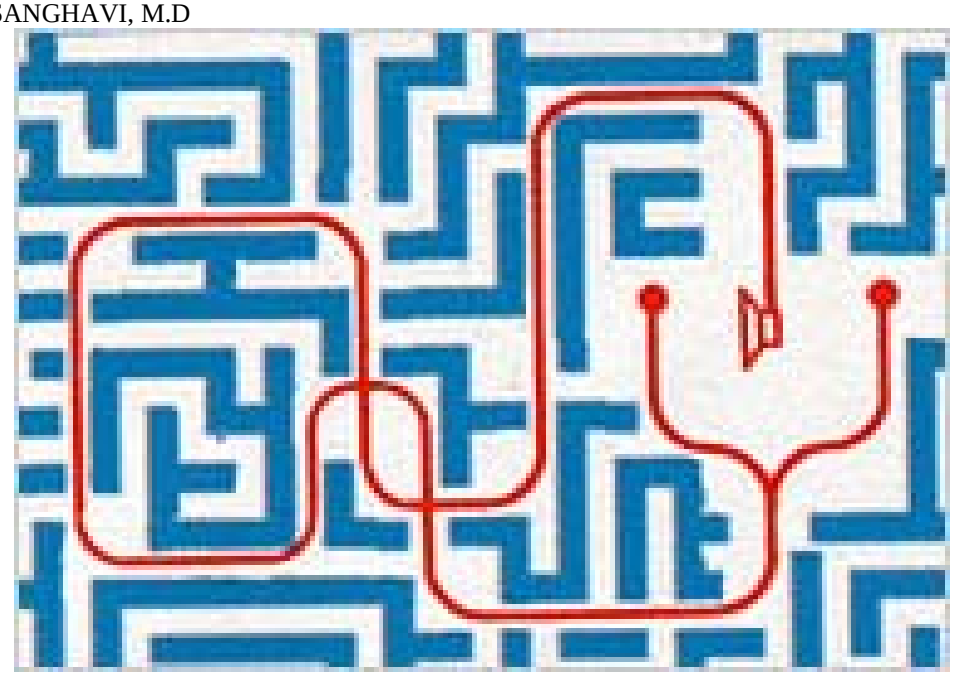
“At first I thought, ‘O.K., you have this one-in-a-million kid with severe food allergies, and you just have to cope,’ ” said Mr. Bunning, a financial trader. “But when we learned that both Bryan and Daniel had severe food allergies, there was a lot of disbelief. It felt like we were hiding from a phantom.”

Mrs. Bunning, a former teacher, added: “Now, we’re pretty excited about the future findings of the allergy study. We need to start looking at food allergies not as something you pick and choose as a parent, but as a childhood disease with potentially life-threatening reactions, even death.”

http://www.nytimes.com/2008/12/09/health/09allergies.html?ref=research

Plenty of Guidelines, but Where's the Evidence?

By DARSHAK SANGHAVI, M.D



Every year medical journals publish thousands of new research studies, and few doctors have the time or expertise to read them all. To help them, a patchwork of private and public organizations distill these studies into up-to-date clinical guidelines, which are recipes that doctors follow to treat everything from ingrown toenails to heart attacks. By creating national standards of care, these groups exert great influence over medical practice. Yet the process for creating guidelines can be idiosyncratic and error-prone, especially in regard to children's health, leading to sudden shifts that confuse doctors and parents.

Over the last year, for example, the American Academy of Pediatrics abruptly reversed its recommendation that healthy infants avoid peanuts and other potential food allergens, without citing any new data. Weeks after the American Heart Association widely publicized the need to perform cardiac testing in children treated with drugs for attention problems, the academy issued a contradictory guideline discouraging such testing.

Last summer, the academy issued a controversial policy statement calling on doctors to check blood cholesterol levels in millions of young children and, in some cases, prescribe chronic drugs to lower cholesterol.

Dr. Roger Suchyta, the academy's associate executive director, told me the policy was reviewed by 14 committees and the board of directors before publication. But he added that academy standards did not require any systematic overview of the scientific literature before a policy was issued. The policies may thus rely greatly on some doctors' personal views, not clear data.

In an oversight, the cholesterol policy was not assessed by the American Heart Association or American College of Cardiology, which also issue guidelines. "Nobody thought to do that," Dr. Suchyta said.

The committee that drafted the policy also had severe time constraints, said one of its members, Dr. Jatinder Bhatia, a neonatologist in Georgia. The panel must review its policies every five years, and this year it had to consider "a whole bunch of reports," he told me, including complex policies on infant

formula and vitamin supplementation — 1,178 pages in all, of which the cholesterol policy was only 11 pages.

The committee also did not grade the quality of the evidence behind its recommendations, like beginning cholesterol tests in many toddlers as young as 2 and treating children as young as 8 with cholesterol-lowering medications.

Clinical guidelines were first developed in the 1980s, when Medicare officials asked experts to determine the appropriate use of pacemakers, which were a new, expensive technology. “From that effort, the whole concept of guideline development took off,” said Dr. Elliott M. Antman, a past chairman of the American Heart Association’s guideline development team, which wrote these first guidelines.

To produce its recent guidelines on heart attack treatment, he estimated, the group spent hundreds of thousands of dollars to review and grade clinical evidence and to assemble a team of dozens of experts. Few organizations invest these resources into creating guidelines. A report in The Journal of the American Medical Association found that only about a third of clinical guidelines reviewed current medical evidence. Fewer than half followed any kind of standard format.

Dr. Suchyta says the only group that finances comprehensive reviews of pediatric health evidence is the federal Agency for Healthcare Research and Quality. So far, though, it has sponsored only about a dozen independent reviews, which serve as the basis of reliable clinical guidelines. Despite this evidence gap, the pediatrics academy has released hundreds of care recommendations. The academy is a leading contributor to the National Guideline Clearinghouse (www.guideline.gov), a public database created by the American Medical Association that contains the consolidated wisdom of American medicine in more than 2,200 guidelines. Among domestic contributors, the academy is topped only by the Centers for Disease Control and Prevention and the American College of Radiology.

Many of the academy’s recommendations — on topics as diverse as breast feeding, circumcision and learning disabilities — may arouse controversy. Moreover, they may lead to jarring shifts over time, because the evidence is not explicitly rated for quality.

By contrast, the United States Preventive Services Task Force clearly scores its guidelines. Routinely checking blood pressure is a Grade A1 practice (highly recommended, with good evidence), while routine mammography gets a B2 (less strongly recommended, with fair evidence). Evidence-based guidelines are critical to protecting public health from bad medicine. In a notorious 2006 example, a group of cardiologists in Texas published its own guideline promoting routine, and expensive, cardiac CT scans in healthy middle-aged people. The guideline, which lacked any evidence grading, appeared in a supplement to The American Journal of Cardiology financed by Pfizer, which makes the cholesterol-lowering drug Lipitor.

Peter Jacobson, a health law professor at the University of Michigan who investigated the rogue guideline, told me he “never got a straight answer as to whether it was submitted for peer review.” The guideline also failed to disclose any author conflicts of interest. Fortunately, because more trusted groups like the heart association had more explicit evidence-based guidelines, the rogue guideline failed to gain wide acceptance. In contrast, because most pediatric guidelines lack evidence standards, doctors have trouble knowing which ones are reliable. Last year, the International Society for Bipolar Disorders released a guideline to diagnose bipolar disorder in children, and the lead author reported financial ties to seven manufacturers of psychiatric medications. No clinical evidence was cited in the guideline. Because the American Academy of Pediatrics lacks better evidence-based guidelines, this could become the standard of care.

Given the background noise from poor guidelines, some doctors ignore even high-quality ones. For example, fewer than one in three pediatricians follow the pediatrics academy’s guideline on ear

infections, which discourages overuse of antibiotics. That sensible recommendation arose from a comprehensive federal review of evidence.

In standardizing care through pay-for-performance incentives, large insurers like Medicare may increasingly reward doctors for following clinical guidelines. Before that happens, though, it will be critical to establish better standards for the standards — especially for children.

Darshak Sanghavi is a pediatric cardiologist at the University of Massachusetts Medical School and the author of "A Map of the Child: A Pediatrician's Tour of the Body."

http://www.nytimes.com/2008/12/09/health/views/09essa.html?ref=research

Amish gene 'limits heart disease'

A gene mutation which protects the heart against a high-fat diet has been found in the Amish population.

Researchers found 5% of the US Amish population in Lancaster, Pennsylvania have a mutation in a protein which breaks down fatty particles.

Those with the mutation had higher levels of "good" HDL-cholesterol and lower levels of "bad" LDL-cholesterol, the journal Science reported.

It is hoped the finding will lead to new therapies to reduce cholesterol.

The researchers used blood samples from 800 volunteers in the Old Order Amish community to look for DNA markers that might be associated with levels of fat particles called triglycerides in the blood stream.

High blood levels of triglycerides, one of the most common types of fat in food, have been linked to heart disease.

They found a mutation in the APOC3 gene, which encodes a protein - apoC-III - that inhibits the breakdown of triglycerides.

As part of the study, participants drank a high-fat milkshake and were monitored for the next six hours.

Individuals with the mutation produced half the normal amount of apoC-III and had the lowest blood triglyceride levels - seemingly because they could break down more fat.

They also had relatively low levels of artery-hardening - a sign of cardiovascular disease.

Protection

Study leader Dr Toni Pollin, assistant professor of medicine at the University of Maryland School of Medicine, said: "Our findings suggest that having a lifelong deficiency of apoC-III helps to protect people from developing cardiovascular disease.

"The discovery of this mutation may eventually help us to develop new therapies to lower triglycerides and prevent cardiovascular disease," she added.

The researchers believe the mutation was first introduced into the Amish community in Lancaster County by a person who was born in the mid-1700s.

It appears to be rare or absent in the general population.

Cathy Ross, cardiac nurse at the British Heart Foundation said the benefits of high HDL cholesterol and low LDL cholesterol are already being achieved by drugs such as statins.

"If new drugs can be developed that mimic the effect of this mutation, it may afford more ways in which individuals could be protected from developing cardiovascular disease.

"There are also lots of other simple ways people can reduce your risk of cardiovascular disease such as eating a diet low in saturated fat, having five portions of fruit and vegetables a day and taking regular physical activity."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7778364.stm

Published: 2008/12/12 01:15:42 GMT

Test 'predicts preterm baby risk'

Researchers have identified a test which can predict whether a woman is likely to give birth if her waters break early in pregnancy.

High levels of lactate in vaginal fluid is strongly associated with onset of labour within 48 hours, according to Swedish researchers.

UK experts said the test would help to plan care and reassure women whose membranes rupture prematurely.

The study appears in Obstetrics and Gynaecology journal, BJOG.

Known as the "Lac-test", the tool was assessed in 86 women with singleton pregnancies of 20 to 36 weeks gestation.

Among 23 women with high lactate concentrations, 87% had spontaneous onset of labour within 48 hours.

In 58 women with low lactate concentrations - in effect a negative Lac-test - only 5% went into labour within 48 hours.

The median time between examination and onset of labour was 13.6 hours for those with a high lactate concentration and 48 days for those with a low lactate value.

Prediction

The researchers said previous studies had found an association between high lactate concentration in vaginal fluids and rupture of membranes in pregnancies of more than 34 weeks gestation, but this is the first time the link has been seen under 34 weeks.

Being able to predict labour is even more valuable in these premature babies, as steroids can be given to promote lung development and women can be referred to specialist hospitals.

Preterm prelabour rupture of membranes (PPROM) - waters breaking in pregnant women before 37 weeks - occurs in 2% of pregnancies and accounts for one-third of all preterm births.

Study leader, Dr Eva Wiberg-Itzel, from the Department of Clinical Science and Education at the Karolinska Institute, said: "The diagnosis of ruptured membranes is easy when there is an obvious leakage of amniotic fluid, but more difficult when the leak is scanty or intermittent.

"We believe that the Lac-test adds important information in clinical practice."

Professor Philip Steer, editor-in-chief of BJOG, said it seemed a promising tool to predict the onset of labour.

"A more reliable diagnosis of PPROM could help doctors determine when to keep women in hospital, and improve the timing of antenatal steroid therapy."

Professor Andrew Shennan, an obstetrician at St Thomas' Hospital in London, said the test could solve a potentially important problem.

"When membranes rupture unexpectedly there's a big dilemma - do you deliver the baby or not, will this woman go into labour or not?

"We would probably give steroids anyway as it's a high risk situation, but the main thing is being able to tell the women what's likely to happen.

"We can also get them to a specialist unit if needed."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7777959.stm

Published: 2008/12/12 00:03:59 GMT

Diverting Students from Developmental Ed

At the University of Texas at El Paso, as at many colleges, remedial math is often a gateway — and many never manage to squeeze through. Of the UTEP students who failed remedial beginning algebra from fall 2006 to summer 2008, 72 percent are not registered there this fall. "If these students fail, we lose them. If they fail, they're gone. They drop out of school," says Denise Lujan, UTEP's director of developmental math.

"With the economy, with the future of Texas, with the changing demographics, what can I do to get them over that hump to pass and keep them going to school?"

In trying out different responses to that question, UTEP has explored new structures for its pre-college level courses, on the one hand, and, on the other, new strategies to divert students from the developmental education pipeline before they even enter it.

Confronted with problems of stigma, the financial costs incurred by students who place into developmental coursework, and political pressures to reduce spending on remedial education, UTEP is not alone in considering alternatives to the traditional structure — in which students pass into college-level courses, or they don't, end of story, says Deborah A. Santiago, vice president for policy and research at *Excelencia* in Education. "Those three reasons undergird these efforts to not be either-or, either developmental education, or none at all," continues Santiago, who wrote a recent report on colleges on the Texas-Mexico border, including UTEP.

"The reality is the existing paradigm, the existing structure, just isn't working. And they're willing to experiment and try."

'You Just Keep Working'

Given the largely low-income population in the areas around it, UTEP comes down heavily on the side of access over exclusivity, accepting 96.7 percent of undergraduate applicants in 2006. Its federal graduation rate is low: The six-year graduation rate is 29 percent and the four-year rate only 4 percent. (UTEP's president, Diana Natalicio, has publicly stated that 70 percent of the university's undergraduate degree recipients aren't counted in the calculation, which follows only first-time freshmen.)

Donna E. Ekal, the associate provost for undergraduate studies, says that her focus, likewise, is not on the federal rate, "but more so [on] reducing the time that it takes students to get into their for-credit courses, and reducing their time to graduation."

Bigger-picture data correlating how UTEP's various changes to remedial education — all fairly recent, and some newer than others — have affected or will affect that metric are still being gathered. But, with the goal of reducing time to graduation in mind, Ekal divides UTEP's efforts into four categories.

The first is the College Readiness Initiative, in which a dozen area school districts administer college placement tests in 11th grade, with some opportunity then for intervention pre-graduation. The second involves efforts to align the curriculum from K-12 to college through the El Paso Collaborative for Academic Excellence. The third and fourth involve changes to the first-year experience and course redesigns, respectively – including, in both cases, the creation of alternative streams for students who otherwise would sink significant time and money into a traditional remedial course sequence.

In math, for instance, students who place into remedial courses on their placement tests take a six-hour refresher during orientation, then retake the test. "Fifty-six percent of those who retook the test went up at least one course," Ekal says of summer 2008 results. "Some of them didn't take a math course senior year or they didn't pay attention or it's just not in the front of their brain."

For those students who still tested into remedial coursework after the refresher, "Basically we're sitting outside the testing office and recruiting people and saying we have a deal for you," says Lujan, the

developmental math director. Free of charge for the past two summers, students could sign up to spend a chunk of time each week, including time in a supervised computer lab, wading through and demonstrating mastery of math content on a computer program known as ALEKS. “The point is to not have them sign up for a developmental course,” says Ekal.

According to Lujan’s data, among the 56 students who placed into the highest level of remedial math (intermediate algebra), and took up the free ALEKS option this summer, 79 percent moved immediately into college-level math. In terms of success rates, of students who participated in the summer 2007 module and then took college-level pre-calculus, 62 percent passed it, compared to 44 percent who’d previously taken a traditional remedial math course.

There is likely a self-selection factor at play here — only the most motivated students would sign up to spend long summer days solving math problems for zero credit, after all. This fall, UTEP piloted use of the computer program during a semester-long developmental math class. Lujan likes it so far because while a student might fail a traditional remedial math course and have to restart (or, more likely, not) from scratch — covering those areas again they’d already mastered as well as those they hadn’t — with the computer program, Lujan says, “You just keep working.”

Supplemental Instruction

In English, UTEP has taken a different approach, diverting students from developmental writing courses not via intensive summer work but via supplemental instruction — allowing students who miss the cut score for college-level work, but not by much, to enroll in college-level freshman English provided they concurrently enroll in a hybrid, online and face-to-face, developmental course.

“They didn’t place college-ready, but they were close,” says Cheryl Baker Heller, the director of developmental English at UTEP. “Our hope was if we took these students and did not place them into developmental English but placed them right into a college-credit course, with help, with a lot of supplemental instruction, that they would go on and do well. Because statistically students who place into developmental courses graduate at a much lower rate than those who place directly into college-level courses.”

UTEP data show that 87 percent of students who completed college English concurrently with the supplemental instruction course passed (course drops aren’t counted in that figure, which covers students from fall 2006 to summer 2008). Meanwhile, the number of traditional remedial writing courses has dropped, from 20 sections to — this fall semester — three,Heller says. (She credits that in part to better high school preparation. Through dual enrollment programs, many area high school students are coming to UTEP already having taken the freshman English class, she says.)

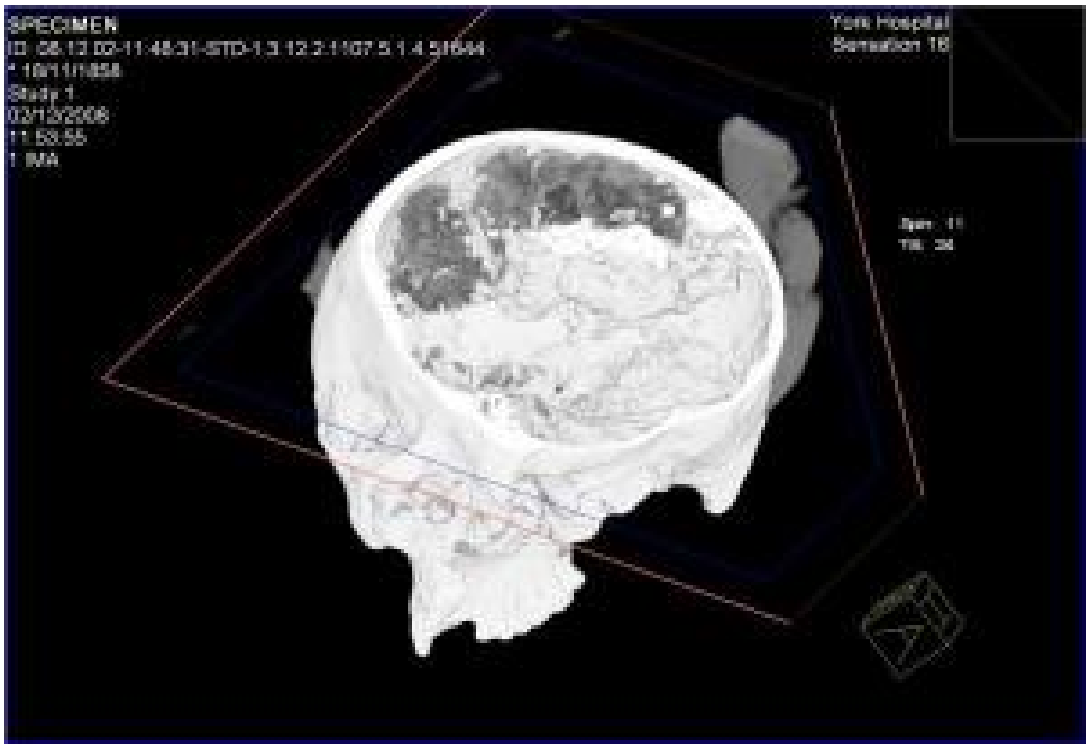
This fall, the developmental English program piloted another new approach, compressing a remedial reading course to half its original duration. The now eight-week course met six hours weekly and was linked to a reading-intensive college-level class. The premise, Heller says, is that while students might excel in the 16-week remedial reading course, that doesn’t always help them with a linked sociology or history course, say: “They may have already failed it by the fourth week depending on how many tests were given.”

Effects of the compressed reading course on student performance in the linked college-level classes are still to be determined. It’s finals week at UTEP.

— Elizabeth Redden

The original story and user comments can be viewed online at
http://insidehighered.com/news/2008/12/12/utep

Iron Age 'Sacrifice' Is Britain's Oldest Surviving Brain



Brain material shows as dark folded matter at the top of the head in this computer-generated view into the skull. The lighter colours in the skull represent soil (Credit: York Archaeological Trust)

ScienceDaily (Dec. 13, 2008) — The oldest surviving human brain in Britain, dating back at least 2000 years to the Iron Age, has been unearthed during excavations on the site of the University of York's campus expansion at Heslington East.

Archaeologists from York Archaeological Trust, commissioned by the University to carry out the exploratory dig, made the discovery in an area of extensive prehistoric farming landscape of fields, trackways and buildings dating back to at least 300 BC.

And they believe the skull, which was found on its own in a muddy pit, may have been a ritual offering.

As Finds Officer Rachel Cubitt cleaned the soil-covered skull's outer surface, she felt something move inside the cranium. Peering through the base of the skull, she spotted an unusual yellow substance.

'It jogged my memory of a university lecture on the rare survival of ancient brain tissue. We gave the skull special conservation treatment as a result, and sought expert medical opinion,' she said.

York Hospital's sophisticated CT scanner was used to produce startlingly clear images of the skull's contents. Philip Duffey, Consultant Neurologist at the Hospital said: 'I'm amazed and excited that scanning has shown structures which appear to be unequivocally of brain origin. I think that it will be very important to establish how these structures have survived, whether there are traces of biological material within them and, if not, what is their composition.'

Dr Sonia O'Connor, Research Fellow in Archaeological Sciences at the University of Bradford added: 'The survival of brain remains where no other soft tissues are preserved is extremely rare. This brain is

particularly exciting because it is very well preserved, even though it is the oldest recorded find of this type in the UK, and one of the earliest worldwide.'

The find is the second major discovery during archaeological investigations on the site of the University's £500 million campus expansion. Earlier this year, a team from the University's Department of Archaeology unearthed the skeleton of a man believed to be one of Britain's earliest victims of tuberculosis in a shallow grave. Radiocarbon dating suggests that the man died in the fourth century late-Roman period.

The Vice-Chancellor of the University of York, Professor Brian Cantor, said: 'The skull is another stunning discovery and its further study will provide us with incomparable insights into life in the Iron Age.'

There are now plans for a team of specialists to carry out further tests on the skull. They hope to solve the mystery of why such brains survive death and burial, what this might tell us about burial practices, the nature of the burial environment and, perhaps, about the individual whose brain it was.

Adapted from materials provided by University of York, via AlphaGalileo.

http://www.sciencedaily.com/releases/2008/12/081212081722.htm

Amputees Can Experience Prosthetic Hand As Their Own

ScienceDaily (Dec. 13, 2008) — Scientists at Karolinska Institutet and Lund University in Sweden have succeeded in inducing people with an amputated arm to experience a prosthetic rubber hand as belonging to their own body. The results can lead to the development of a new type of touch-sensitive prosthetic hands.

The illusion of having a rubber hand was achieved by the scientists by touching the stump of the amputated arm out of sight of the subject while simultaneously touching the rubber hand in full view of the same subject. This created the illusion that the sensory input was coming from the prosthetic hand rather than from the stump, and that the hand belonged to the subject's own body.

The effect was confirmed by the subjects' own descriptions of the experience and by their tendency to point to the hand when asked to localise the point of stimulation. That they experienced the rubber hand as their own was also substantiated physiologically in that they started to sweat when the hand was pricked with a needle.

The study, which was carried out at the Red Cross hospital in Stockholm, opens up new opportunities for developing prosthetic hands that can be experienced by wearers as belonging to their own bodies, which would be a great benefit to patients and which is considered an important objective in applied neuroscience.

"We'll now be looking into the possibilities of developing a prosthetic hand that can register touch and stimulate the stump to which it's attached," says Henrik Ehrsson, one of the researchers involved in the study. "If this makes it possible to make a prosthetic sensitive by cheating the brain, it can prove an important step towards better and more practical prosthetic hands than those available today."

The study is part of the EU's SmartHand project, which is administered from Lund University. The objective of the SmartHand project is to develop a new type of thought-controlled prosthetic hand with advanced motor and sensory capabilities. Other financiers include the European Research Council, the Swedish Research Council, and Skåne County Council.

Journal reference:

1. Henrik Ehrsson, Birgitta Rosén, Anita Stockselius, Christina Ragnö, Peter Köhler & Göran Lundborg. **Upper limb amputees can be induced to experience a rubber hand as their own**. *Brain*, (2008) 131, 3443-3452

Adapted from materials provided by Karolinska Institutet.

http://www.sciencedaily.com/releases/2008/12/081211081809.htm

These Shells Don't Clam Up: Innovative Technique To Record Human Impact On Coastal Waters

Stable isotope techniques used on Mercenaria mercenaria have yielded valuable information on wastewater inputs in coastal waters. (Credit: Dr. Ruth Carmichael, Dauphin Island Sea Lab)

ScienceDaily (Dec. 13, 2008) — With their sedentary lifestyles and filter-feeding habits, clams have been silent witnesses to the changes that humans have inflicted upon their waters. These clams are silent no more, as Dr. Ruth H. Carmichael of the Dauphin Island Sea Lab and her colleagues have reported in their recent paper in the prestigious journal Aquatic Biology.

Using stable isotope techniques, Carmichael demonstrated it is possible to identify and trace wastewater inputs to estuaries and coastal food webs by studying the organic matrix in the shell of the hard clam Mercenaria mercenaria.This work presents a novel application of established biochemical techniques that can be applied to refine diet analyses for shellfish, trace nitrogen entry to coastal waters relative to changes in urbanization or climate, and help discern natural from human-driven influences on coastal ecosystems.

Using this new technique will allow coastal researchers and managers to document increases in waste loadings to coastal waters over longer periods of environmental change.

"This technique is exciting because it gives scientists and coastal managers a way to look into the past and trace human influences, in this case wastewater pollution, into local waters and ultimately into the organisms living there," said Dr. Carmichael. "Tools that help us define and trace specific sources of human-influence on our coastal waters are essential to inform management and future research efforts."

Journal reference:

1. Carmichael RH, Hattenrath T, Valiela I, Michener RH. **Nitrogen stable isotopes in the shell of Mercenaria mercenaria trace wastewater inputs from watersheds to estuarine ecosystems**. *Aquatic Biology*, AB - Vol. 4, No. 2 [link]

Adapted from materials provided by Dauphin Island Sea Lab, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/12/081202133226.htm

Strategic Video Game Improves Critical Cognitive Skills In Older Adults

ScienceDaily (Dec. 13, 2008) — A desire to rule the world may be a good thing if you're over 60 and worried about losing your mental faculties. A new study found that adults in their 60s and 70s can improve a number of cognitive functions by playing a strategic video game that rewards nation-building and territorial expansion.

This is the first such study of older adults, and it is the first to find such pronounced effects on cognitive skills not directly related to the skills learned in the video game, said University of Illinois psychology professor Arthur Kramer, an author on the study.

Decades of laboratory studies designed to improve specific cognitive skills, such as short-term memory, have found again and again that trainees improve almost exclusively on the tasks they perform in the lab – and only under laboratory conditions, Kramer said.

"When you train somebody on a task they tend to improve in that task, whatever it is, but it usually doesn't transfer much beyond that skill or beyond the particular situation in which they learned it," he said. "And there are virtually no studies that examine whether there's any transfer outside the lab to things people care about."

Kramer and his colleagues wanted to know whether a more integrated training approach could go beyond the training environment to enhance the cognitive skills used in every day life. Specifically, the researchers wondered whether interactive video games might benefit those cognitive functions that decline most with age.

"Older people tend to fare less well on things that are called executive control processes," Kramer said. "These include things like scheduling, planning, working memory, multitasking and dealing with ambiguity."

After testing several video games, the researchers selected "Rise of Nations," which gives gamers points for building cities and "wonders," feeding and employing their people, maintaining an adequate military and expanding their territory.

"You need merchants. You need an army to protect yourself and you have to make sure you're spending some of your resources on education and food," said postdoctoral researcher Chandramallika Basak, lead author on the study. "This game stresses resource management and planning, which I think for older adults is important because many of them independently plan and manage their resources."

The study included 40 older adults, half of whom received 23.5 hours of training in Rise of Nations. The others, a comparison group, received no training in the game.

Both groups were assessed before, during and after the video game training on a variety of tests designed to measure executive control functions. The tests included measures of their ability to switch between tasks, their short-term visual memory, their reasoning skills and their working memory, which is the ability to hold two or more pieces of information in memory and use the information as needed.

There were also tests of the subjects' verbal recall, their ability to inhibit certain responses and their ability to identify an object that had been rotated to a greater or lesser degree from its original position.

The researchers found that training on the video game did improve the participants' performance on a number of these tests. As a group, the gamers became significantly better – and faster – at switching between tasks as compared to the comparison group. Their working memory, as reflected in the tests, was

also significantly improved. Their reasoning ability was enhanced. To a lesser extent, their short-term memory of visual cues was better than that of their peers, as was their ability to identify rotated objects.

The video game training had no effect on their ability to recall a list of words in order, their enumeration ability or their ability to inhibit certain responses, however.

There was a correlation between their performance on the game and their improvement on certain cognitive tests, Kramer said.

Those who did well in the game also improved the most on switching between tasks. They also tended to do better on tests of working memory.

"In medical terminology, these would be dose-response effects," Kramer said. "The more drug – or in this case the more training on the video game – the more benefit."

The findings are meaningful, Basak said, because they show that multi-dimensional training can affect many individual components of cognitive function.

"The fact that you're training people in a molecule and finding transfer to atoms I think is very impressive," she said.

"This is one mode in which older people can stay mentally fit, cognitively fit," Kramer said. "I'm not suggesting, however, that it's the only thing they should do."

Other activities, in particular socializing, exercising and eating well, are also important to maintaining healthy cognitive function in later years, he said.

This research was supported by grants from the National Institute on Aging. The authors received no monetary or other support from the video game industry. The research appears in December in the journal Psychology & Aging.

Adapted from materials provided by University of Illinois at Urbana-Champaign, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/12/081211081442.htm