Infoteca's E-Journal

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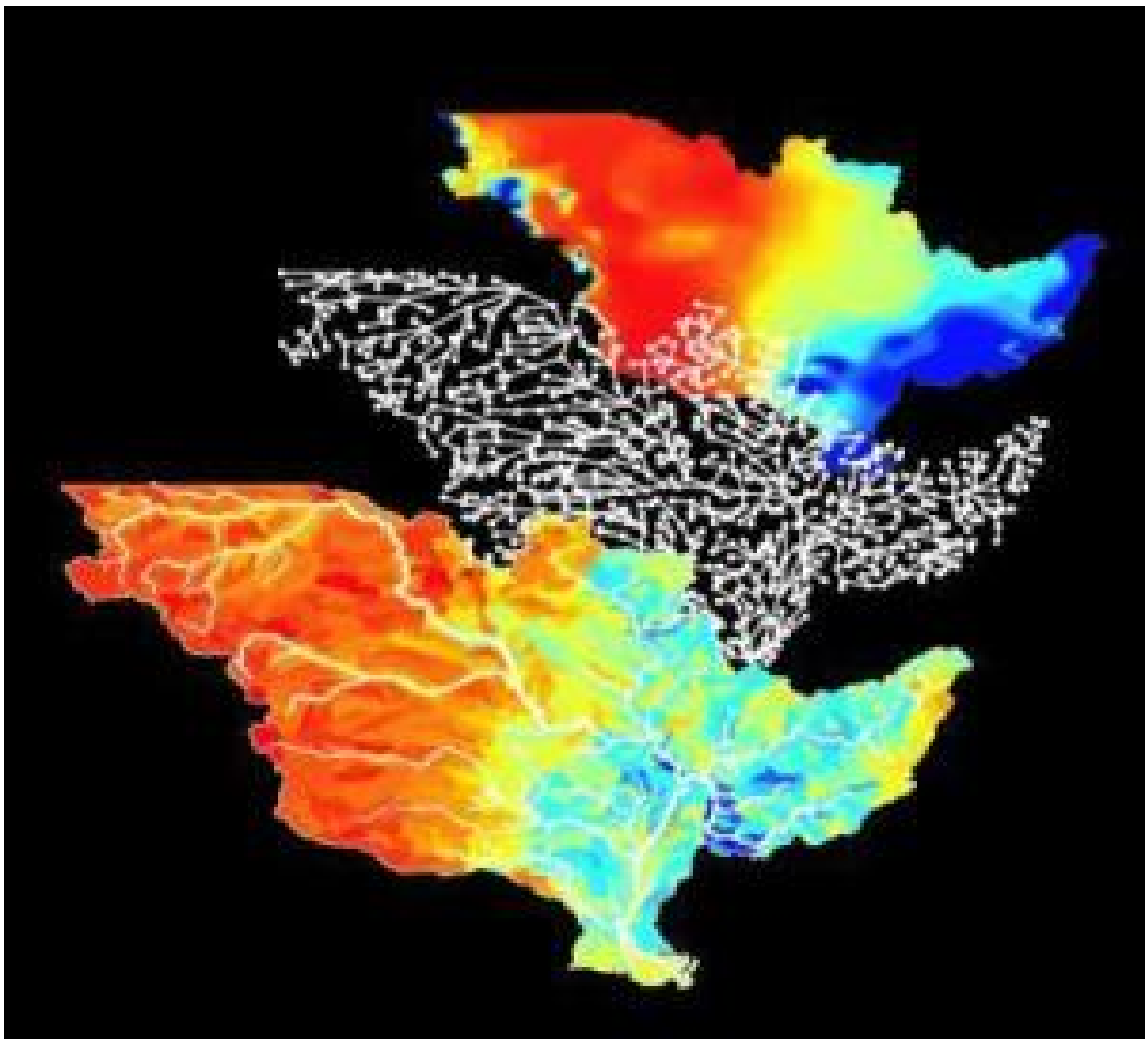
Biodiversity: It's In The Water



Top: runoff distribtion; Middle: sub-basin locations; Bottom: fish species distribution. (Credit: Nature)

ScienceDaily (May 8, 2008) — What if hydrology is more important for predicting biodiversity than biology? New research challenges current thinking about biodiversity and opens up new avenues for predicting how climate change or human activity may affect biodiversity patterns.

Researchers have invented a method for turning simple data about rainfall and river networks into accurate assessments of fish biodiversity, allowing better prediction of the effects of climate change and the ecological impact of man-made structures like dams.

The mathematics behind the new method also can be used to model and predict a wide range of other questions, from the transmission of waterborne illnesses to vegetation patterns on land adjacent to rivers.

In the article in Nature, an international group of researchers demonstrates that the biodiversity of fish species in a river system can be accurately predicted with a simple method that uses only the geomorphology of the river network and rainfall measurements for the river system.

The 3,225,000 km^2 Mississippi-Missouri river basin covers all or part of 31 US states, spanning diverse habitat types and encompassing very different environmental conditions. The one thing linking all these habitats is the river network. Using geomorphological data from the US Geological Survey, the researchers -- hydrologists from Princeton University and the EPFL in Lausanne, Switzerland, and biologists from the University of Maryland -- identified 824 sub-basins in the network. In these, the simple presence (or not) of 433 species of fish was established from a database of US freshwater fish populations. Data on the average runoff production --the amount of rainfall that ends up in the river system and not evaporated back into the air -- was then used to calculate the habitat capacity of each sub-basin.

With just four parameters, it's "an almost ridiculously simple model," explains EPFL professor Andrea Rinaldo. The model results were compared to extensive data on actual fish species distributions. Various different measures of biodiversity were analyzed, and the researchers were surprised to find that the model captured these complex patterns quite accurately. The model is all the more remarkable for what it does not contain -- any reference, anywhere, to the biological properties of individual fish species.

It is a formulation that could be applied to any river system, or in fact, any network at all. All that's needed are the geomorphology of the landscape and an estimate of average dispersal behavior and habitat capacity. This model is general enough that it could be used to explore population migrations or epidemics of water-borne diseases in addition to biodiversity patterns. The researchers plan to extend their work to explore the extent to which simple hydrology can act as the determining factor in a wide range of biodiversity patterns.

"These results are a powerful reminder of the overarching importance of water, and the water-defined landscape, in determining patterns of life," notes Princeton professor Ignacio Rodriguez-Iturbe. It provides a framework that could be used to connect large scale environmental changes to biodiversity. Changes in precipitation patterns, perhaps due to global climate change, could be mapped to changes in habitat capacities in the model, ultimately providing a way to estimate how climate change would alter large-scale patterns of biodiversity. It could also be used for an assessment of the impact of specific, local human activities, such as flow re-routing or damming, on the biodiversity patterns in a river network.

Journal reference:

1. Neutral Metacommunity Models Predict Fish Diversity Patterns in Mississippi-Missouri Basin: Rachata Muneepeerakul, Enrico Bertuzzo, Heather J. Lynch, William F. Fagan, Andrea Rinaldo, and Ignacio Rodriguez-Iturbe; Nature, May 8, 2008.

Adapted from materials provided by Ecole Polytechnique Fédérale de Lausanne, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com:80 /releases/2008/05/080507133330.htm

Laser heats up the fusion future

By Jonathan Fildes
Science and technology reporter, BBC News

The world's most powerful laser has heated matter to a truly sweltering 10 million Celsius.

The Vulcan laser concentrated power equivalent to 100 times the world's electricity production into a spot just a few millionths of a metre across.

Writing in the New Journal of Physics, scientists said they could create the conditions for fractions of a second.

The experiments demonstrated concepts which could be key to building a future nuclear fusion reactor.

The UK has proposed an even more powerful laser facility, known as Hiper (High Power laser Energy Research), which will study the feasibility of laser fusion as a potential future energy source.

"Hiper is a proposed, very large-scale facility and so we have to check that our understanding is correct," explained Professor Peter Norreys of the Rutherford Appleton Laboratory (RAL) in Oxfordshire where the experiments took place.

Extreme condition

Nuclear fusion is looked on as a panacea in a world that demands ever increasing amounts of energy.

The fuel for the process is deuterium and tritium, two heavier forms of hydrogen. Deuterium is commonly found in seawater, whilst tritium can be made from lithium in a so-called "breeder" reactor.

When these isotopes are combined at high temperatures, a small amount of mass is lost and a colossal amount of energy is released.

The process naturally occurs in the core of the Sun where huge gravitational pressure allows this to happen at temperatures of around 10 million Celsius.

At the much lower pressures on Earth, temperatures to produce fusion would need to be much higher - above 100 million Celsius. Ultra powerful lasers, such as Hiper, have been proposed as one method for reaching these extreme conditions, although many remain sceptical about the technique.

The project has been drawn up to capitalise on another project at the National Ignition Facility (NIF) at the Lawrence Livermore National Laboratory in California. NIF is expected to demonstrate energy production from laser driven fusion between 2010 and 2012.

If proven, the technology could rival the current favoured technique for initiating fusion which uses superconducting magnets to contain and fuse the hydrogen nuclei.

This technique will be used in the 10bn-euro Iter reactor currently being built in Cadarache, southern France.

Energy boost

The new work laid some of the foundations for Hiper.

In the experiments, the Vulcan laser focused one petawatt (1,000 trillion watts) of power into a spot about one tenth of the width of a human hair.

The pulse lasted for one picosecond (one trillionth of a second), heating the target to 10 million Celsius, one tenth of that required for nuclear fusion.

However, even at these relatively balmy temperatures, the conditions were equivalent to these found in supernova explosions.

A special high-speed camera probed the fleeting moment.

"We wanted to understand the basic interaction of matter with these laser pulses," Professor Norreys told BBC News.

Specifically, the team wanted to understand how much energy was transferred from the laser to the target.

"Efficient coupling of the laser energy to the target is crucial for fast ignition fusion, and is one of the main questions on which the design of¿ Hiper depends," said Dr Jonathan Davies from Instituto Superior Technico, Lisbon, Portugal, who also took part in the study.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7407963.stm

Published: 2008/05/19 13:35:42 GMT

Remembering Fleming, Ian Fleming

By JOHN F. BURNS

LONDON — Any writer who has struggled to "do the words" would take heart from the self-effacing assessment written for himself by Ian Fleming, the raffish Englishman born 100 years ago this month who became one of the most successful authors of his time through the creation of the world's best-loved spy, James Bond. Fleming died in 1964, at 56, of complications from pleurisy after playing a round of golf in Sandwich, Kent though he had a heavy cold. But the real culprits were years of smoking up to 80 cigarettes a day, and a fondness for drink. Perhaps because of the difficulty he found in resisting life's indulgences, he adopted a strict writing routine in his last 12 years, the period in which he wrote more than a dozen Bond novels that spawned the multibillion-dollar film franchise. Rising early for a swim in the aquamarine waters in the cove below his idyllic Jamaican retreat, Goldeneye, Fleming tapped away at his Remington portable typewriter with six fingers for three hours in the morning and an hour in the afternoon — 2,000 words a day, a completed novel in two months, all the while keeping up the sybaritic lifestyle that led Noël Coward, a frequent guest at Goldeneye and no puritan himself, to describe the Fleming household as "golden ear, nose and throat."

Fleming, who saw 40 million copies of his books sold in his lifetime but died before the Bond franchise went stratospheric, had no literary pretensions. He described his first Bond book, "Casino Royale," as "an oafish opus," and offered further disparagement in a 1963 BBC radio interview. "If I wait for the genius to come, it just doesn't arrive," he said. Asked if Bond had kept him from more serious writing, of the kind achieved by his older brother, Peter, a renowned explorer and travel writer, he replied: "I'm not in the Shakespeare stakes. I have no ambition."

Fleming's workaday approach to writing is among the revelations drawing crowds of Bond lovers to "For Your Eyes Only: Ian Fleming and James Bond," an exhibition that opened at the Imperial War Museum in London last month and runs through March 2009. For the museum, founded in 1917 and guarded by

two 15-inch guns from a World War I dreadnought, there is something — well, raffish — in the staging of an exhibition about the glamorous, gadget-wielding, womanizing, devil-may-care Bond and his creator, for whom the superspy was in many respects an alter-ego.

The museum's former curator, Alan Borg, whose 13-year tenure as director ended in 1995, encouraged innovative approaches by reminding his staff that "the three most off-putting words in the English language" were encompassed by the museum's name. "And we have to fight against that," said Terry Charman, the museum's senior historian and curator of the Bond exhibition. But judging by the enthusiasm of the visitors, concerns about the frivolousness some of Britain's more sniffy critics have discerned in the Bond show seem misplaced.

The display explores the relationship between Fleming and Bond, examining how much of the fictional spy is built on the author's character — the degree to which Bond was his "fantasy version of himself," as Mr. Charman put it. As well, it shows how the debonair Fleming drew on his experiences as a man about town and as a prewar foreign correspondent, in the world of banking and investment, in his postwar sojourns in Jamaica, and as a World War II aide to the head of Britain's directorate of naval intelligence, to give what he described as "verisimilitude" to Bond's world of spies and villains and romance.

Of his Bond plots, Fleming, ever prosaic about his talent, said, "I extracted them from my wartime memories, dolled them up, attached a hero and a villain, and there was the book." For M, Bond's irascible, domineering secret service overseer, he had as a model Rear Adm. John Godfrey, his wartime intelligence chief; old school friends, golfing partners, and girlfriends also metamorphosed into Bond characters. Even his villains had real-life antecedents.Auric Goldfinger, "a misshapen short man with red hair and a bizarre face" in Fleming's description, had the author's "flat golf swing" and the surname of a prominent Hungarian-born British architect, Erno Goldfinger, whose penchant for concrete tower blocks Fleming abhorred. Rosa Klebb of Smersh, "a dreadful chunk of a woman" and "a toadlike figure" to Fleming, had her likeness in Maj. Tamara Nikolayeva Ivanova, a notoriously sadistic K.G.B. agent. Ernst Stavro Blofeld, "with lips that suggest contempt, tyranny and cruelty," got his name from a Fleming schoolmate at Eton. Odd Job, Goldfinger's enforcer and "a uniquely dreadful person," drew his deadly missile of a bowler hat from Fleming's knowledge of the nefarious uses to which British intelligence services made of everyday headgear. The disciplines Fleming absorbed as a correspondent for Reuters in the 1930s made him a stickler for accuracy, and the exhibition shows how this fed into Bond's guns. A luxuriantly mustached British gun expert, Geoffrey Boothroyd, reproved Fleming in a 1950s letter for Bond's "rather deplorable taste in firearms" — in particular the penchant of the early Bond for a Beretta pistol, which Mr. Boothroyd, later the model for Major Boothroyd, Bond's secret service armorer, described as "a ladies' gun." At Mr. Boothroyd's urging, the Bond of "Dr. No" and later novels progressed to a Walther PPK and what Mr. Boothroyd described as "a real man-stopper," a Smith & Wesson 0.38 Special.

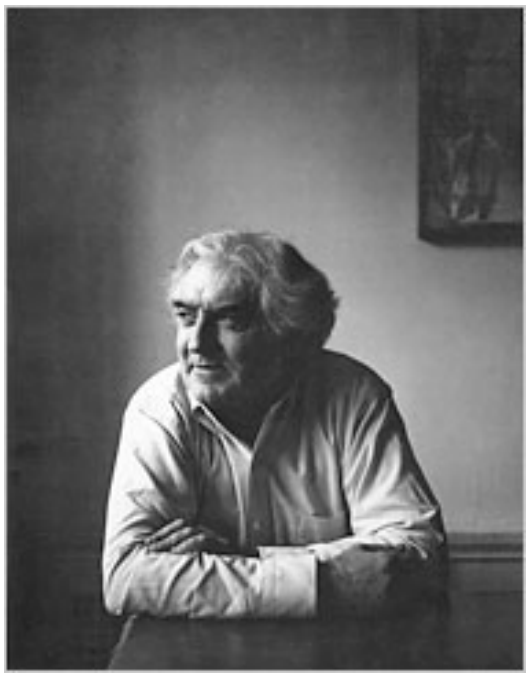
Bond himself, Fleming said, was "a compound of all the secret agents and commandos I met during the war," but his tastes — in blondes, martinis "shaken, not stirred," expensively tailored suits, scrambled eggs, short-sleeved shirts and Rolex watches — were Fleming's own. But not all the comparisons were ones the author liked to encourage. Bond, he said, had "more guts than I have" as well as being "more handsome." And he was eager to discourage the idea that he had been as much of a Lothario as Bond before his marriage to Ann Rothermere, whom he wed in 1952, the year he wrote "Casino Royale."

But the exhibition suggests otherwise. A section of the show titled "Friends and Lovers" has one of a stable of prewar girlfriends, Mary Pakenham, saying of Fleming, "No one I know had sex so much on the brain as Ian." And another entry records the disdain of Fleming's mother, Evelyn St. Croix Fleming, widowed when Fleming's father, Valentine, was killed at the front in World War I, after she found black boa feathers littered across the back seat of her chauffeur-driven Daimler on the morning after Fleming borrowed the car for a night out — and a backseat romp — with a nightclub dancer called Storm.

http://www.nytimes.com/2008/05/19/books/19bond.html?_r=1&th&emc=th&oref=slogin

Cornell Capa, Photojournalist and Museum Founder, Dies at 90

By PHILIP GEFTER



Cornell Capa, who founded the International Center of Photography in New York after a long and distinguished career as a photojournalist, first on the staff of Life magazine and then as a member of Magnum Photos, died on Friday at his home in Manhattan. He was 90.

His death was announced by Phyllis Levine, communications director at the International Center of Photography in Manhattan.

Mr. Capa had three important incarnations in the field of photography: successful photojournalist; champion of Robert Capa, his older brother, among the greatest war photographers; and founder and first director of the International Center of Photography, which, since it was established in 1974, has become one of the most influential photographic institutions for exhibition, collection and education in the world.

In Mr. Capa's nearly 30 years as a photojournalist, the professional code to which he steadfastly adhered is best summed up by the title of his 1968 book, "The Concerned Photographer." He used the phrase often to describe any photographer who was passionately dedicated to doing work that contributed to the understanding and well-being of humanity and who produced "images in which genuine human feeling predominates over commercial cynicism or disinterested formalism," he said.

The subjects of greatest interest to Mr. Capa as a photographer were politics and social justice. He covered both presidential campaigns of Adlai Stevenson in the 1950s and also became good friends with him. He covered John F. Kennedy's successful presidential run in 1960, and then spearheaded a project in which he and nine fellow Magnum photographers documented the president's first hundred days, resulting in the book "Let Us Begin: The First One Hundred Days of the Kennedy Administration." (He got to know the Kennedys well; Jacqueline Kennedy Onassis would become one of the first trustees of the International Center of Photography.)

In Argentina Mr. Capa documented the increasingly repressive tactics of the Perón regime and then the revolution that overthrew it. In Israel he covered the Six-Day War. The vast number of picture essays he

produced on assignment ranged in subject from Christian missionaries in the jungles of Latin America to the Russian Orthodox Church in cold war Soviet Russia, the elite Queen's Guards in England and the education of mentally retarded children in New England.

His work conformed to all the visual hallmarks of Life magazine photography: clear subject matter, strong composition, bold graphic effect and at times even a touch of wit. In his 1959 essay about the Ford Motor Company, for example, one picture presents a bird's-eye view of 7,000 engineers lined up in rows behind the first compact car, which all of them were involved in developing: a single Ford Falcon.

"I am not an artist, and I never intended to be one," Mr. Capa wrote in "Cornell Capa: Photographs," his 1992 book. "I hope I have made some good photographs, but what I really hope is that I have done some good photo stories with memorable images that make a point, and, perhaps, even make a difference."

It was because of Robert Capa that Cornell became a photographer. He was Cornell's mentor, along with Henri Cartier-Bresson and David Seymour, and on his coattails Cornell Capa first became affiliated with Life magazine. In 1947, Cornell Capa's three mentors founded Magnum Photos, which he would join after Robert was killed on assignment in Indochina in 1954.

"From that day," Mr. Capa said about his brother's death, "I was haunted by the question of what happens to the work a photographer leaves behind, by how to make the work stay alive."

The International Center of Photography was born 20 years later, in part out of Mr. Capa's professed growing anxiety in the late 1960s about the diminishing relevance of photojournalism in light of the increasing presence of film footage on television news. But for years he had also imagined a public resource in which to preserve the archives and negatives of "concerned photographers" everywhere. In this regard, his older brother's legacy was paramount in his thoughts when he opened the center, where Robert Capa's archives reside to this day.

Born Cornel (with a single l; he later added a second) Friedmann on April 10, 1918, in Budapest, he was the youngest son of Dezso and Julia Berkovits Friedmann, who were assimilated, nonpracticing Jews. His parents owned a prosperous dressmaking salon, where his father was the head tailor. In 1931 his brother Robert, at 17, was forced to leave the country because of leftist student activities. In 1935 his eldest brother, Laszlo, died of rheumatic fever.

Cornell initially planned to be a doctor, joining Robert in Paris in 1936 to start medical studies. But first he had to learn French. Robert, who had become a photojournalist in Berlin before settling in Paris, had befriended two other young photographers, Cartier-Bresson and Seymour. To support himself, Cornell developed film for the three and made their prints in a makeshift darkroom in his hotel bathroom. Soon he abandoned plans to be a doctor. He also adopted his brother's new last name, a homage, in variation, to the film director Frank Capra.

In 1937 Mr. Capa followed his mother to New York City, where she had joined her four sisters. When Robert came for a visit and established connections with Pix Inc., a photography agency, he helped get Cornell a job there as a printer. Soon after, Cornell Capa went to work in the Life magazine darkroom.

In 1940, Mr. Capa married Edith Schwartz, who assumed an active role in his professional life, maintaining his negatives and archives, and also those of his brother. They had no children, but she provided a home away from home for hundreds of the photographers they came to know. Mr. Capa wrote that Mrs. Capa, who died in 2001, "deserves so much of the credit for whatever I have accomplished."

After serving in the Photo Intelligence Unit of the United States Army Air Forces during World War II, Mr. Capa was hired by Life magazine in 1946 as a junior photographer.

"One thing Life and I agreed on right from the start was that one war photographer was enough for my family," he wrote. "I was to be a photographer for peace."

The historian Richard Whelan wrote in the introduction to "Cornell Capa: Photographs" that Mr. Capa "often quoted the words of the photographer Lewis Hine: 'There are two things I wanted to do. I wanted to show the things that needed to be corrected. And I wanted to show the things that needed to be appreciated.' " That is what Mr. Capa dedicated his life to doing.

http://www.nytimes.com/2008/05/24/arts/design/24capa.html?ref=design

At Spoleto Festival, Revgisiting a Fateful Chapter in Slavery

By DANIEL J. WAKIN

CHARLESTON, S.C. — Not so often do new American operas find life after birth. But Anthony Davis's "Amistad," a historically inspired exploration of slavery and freedom, has come back to the stage 11 years after its debut at the Chicago Lyric Opera, and in a deeply resonant setting.

It is the central work at this summer's Spoleto Festival U.S.A., whose host is Charleston, a city fully freighted with slavery's legacy. The relevance has not been lost on African-Americans involved: the composer, the librettist, performers and audience members.

"This is one of the main ports of slavery," said Gregg Baker, who sings the part of Cinque, leader of the band of captive Africans who are the subject of the story. "To do it down here was a bit, I guess, ironic. Slavery basically built this town."

Mr. Baker spoke at an outdoor reception after the opening-night performance of "Amistad" on Thursday at the newly restored Memminger Auditorium, this city's latest pride and joy and a major performance space of the festival. Spoleto U.S.A., a celebration of opera, chamber music, jazz, theater and dance, has begun its 32nd season and runs through June 8. Rossini's "Cenerentola" and "Monkey: Journey to the West," a pop opera incorporating martial arts, acrobatics, singing and video projections, opened on Friday night.

In an interview on Friday, Mr. Davis, the composer, said a number of white Charleston residents had mentioned to him how painful it was to hear the harshly derogatory language thrown at the Africans by white characters. It was even difficult for the singers in rehearsal, Mr. Davis said. With Charleston's history, he added, "there's a sense of a lot of people trying to get beyond these words."

Yet the mood is a far cry from that of 2000, when some performers withdrew from the festival and audience members boycotted it because of the controversy over the Confederate flag that flew over the state capitol, in Columbia. This year is also the 200th anniversary of the American ban on the importation of slaves.

The opera is based on historical events involving a Spanish slave ship, La Amistad, in 1839-41. A group of West Africans — Mende and Temne people from what is now Sierra Leone — were seized and taken to Cuba for sale as slaves. As the ship moved on to another Caribbean island, they rose up, killed most of

the crew and sought to return home, but the ship's navigator tricked them into sailing toward the United States.

They were captured on Long Island and put on trial in Connecticut, which was deemed more sympathetic to slavery. Abolitionists took up their cause. John Quincy Adams, a former president, defended them, and the Supreme Court eventually ruled that the Africans should be considered free people. Most returned to Africa; some stayed in America. One young woman learned English and graduated from Oberlin College in Ohio.

In interviews blacks in the audience used "resonate" often to describe the Charleston production. Dr. Kenneth E. Robinson and his wife, Priscilla, said they had both attended Talladega College in Alabama, where Amistad murals adorn the library.

"They were Africans who were actually freed from prisons even though they killed white people," said Mrs. Robinson, a Charleston resident. Dr. Robinson said Charleston was "one of the big slave-trading areas."

With the "Amistad" production, said Yvonne Orr, also of Charleston, "it's full circle." Noting that the production might have discomfited some white Charleston residents, she said with a smile, "The ones who feel uncomfortable didn't come."

"Amistad" is reverberating beyond the stage. Several panel discussions are scheduled; it has become subject matter in school lessons; and a model of the ship is in the harbor.

Steven Spielberg rendered the incident in a movie that came out at the same time as the Chicago premiere of the opera in 1997. Mr. Davis said he still had not seen the movie, but drew a comparison to another Spielberg film, "Schindler's List."

"A few good white men save the fortunate few from an oppressed world," he said. To avoid a straightforward account, which could lose the complexity of slavery as a historical force, he added two deities, the Trickster God and the Goddess of the Waters.

Nigel Redden, the festival's director, said he had long wanted to bring "Amistad" to Spoleto U.S.A. but only on the condition that Mr. Davis tighten the work. "I felt this was an opera that needed to be redone," Mr. Redden said. "It was too massive in Chicago."

Mr. Davis and the librettist, his cousin the writer Thulani Davis, set to work. Several scenes were cut. The characters of President Martin Van Buren, a Spanish minister and a United States senator were discarded. Lines were eliminated. The orchestra was reduced to 45 from 65. Textures were thinned.

Mr. Davis acknowledged that the opera had needed surgery. "It just involved too many people," he said.

The vast scale of the original piece and the expense involved — including finding an entire chorus of black singers — also kept it from other performances, he said. Beverly Sills, when she ran New York City Opera, passed. She thought it was too grim, Mr. Davis said.

"I don't think it was understood well the first time," he added. "Musically some people didn't get it. You have to find the right time to do things." Mr. Davis said interest from opera houses has returned. That includes City Opera, under the incoming director, Gerard Mortier. Mr. Davis said he and Mr. Mortier had discussed doing "Amistad" or a previous Davis work, "X: The Life and Times of Malcolm X."

"Amistad" also has a difficult score, with jazzy, funky themes; syncopated rhythms; multiple meters; and challenging vocal parts. The verdict freeing the captives, for example, is announced by a complex and

dissonant brass fugue. The toughest role is the Trickster God, who is called on to scat and sing high C's and soaring, lyrical lines. Michael Forest, a tenor, handled the part.

The changes put the focus more sharply on a smaller band of captives and render the principals more vivid as characters, Mr. Davis said.

"Thinning out the orchestra helped a lot," Mr. Davis added.

Emmanuel Villaume, the festival music director, conducts "Amistad"; the director is Sam Helfrich. The cast includes Mary Elizabeth Williams as the Goddess of the Waters, Stephen Morscheck as Adams, Janinah Burnett as the captive Margru, and Raul Melo as the Navigator.

The revised version is also aimed at accommodating a more intimate theater. The new Memminger is now configured as a "black box," with no proscenium stage and with movable seating. The stage for "Amistad" is a stretched-out oval that runs diagonally from one corner to another. (Even the trimmer cast had trouble fitting on it for the final bow on Thursday.) The audience sits on two sides, close to the edge.

Old-timers sang the theater's praises, remembering the days when pigeons flew around in the roof and school Christmas pageants took up the stage. The auditorium's rebirth had a special feeling. Hurricane Hugo blew off its roof in 1989, and performances returned to a patched-up building in 2000. After a $6 million renovation, it is back in fine fettle, and so, it appears, is "Amistad."

http://www.nytimes.com/2008/05/24/arts/music/24amis.html?ref=arts

A Cantankerous Crowd in No Mood for Love

By MANOHLA DARGIS

CANNES, France — The predictably cranky and impatient press audience offered little love to Philippe Garrel's "Frontier of Dawn" at the Cannes Film Festival on Thursday, just a weak round of applause amid a chorus of jeers. One of the most significant and, in the United States, unknown of the post-New Wave French directors, Mr. Garrel employs poetic melancholia and unhurried rhythms that were, particularly at 8:30 in the morning, either too much or not nearly enough for a crowd that had stayed up late the previous night to take in and debate "Che," Steven Soderbergh's ambitious epic about the revolutions won and lost by Che Guevara. (The arguments continued hotly on Friday.)

Mr. Garrel himself has made several films about revolutionary battles, including "Regular Lovers," his unbearably sad look back at France in May 1968 and afterward. Like that 2005 film, this new one, shown in competition, was shot in glorious high-contrast black-and-white and stars his son, Louis Garrel.

The younger Mr. Garrel plays a photographer, François, who falls for an unstable actress, Carole (Laura Smet), which leads to unquiet happiness and noisier anguish. On the face of it, "Frontier of Dawn" comes across like a familiar if peculiarly French love story, though one tinged with madness. But few other filmmakers can — through purely visual terms, through shades of gray, meticulous framing and harmoniously balanced bodies — convey the mysterious transformation by which ordinary men and women become the adored.

The irritation with which the press greeted "Frontier of Dawn" should have been expected: even in France, 106 minutes of extreme behavior, next to no exposition and some grand poetic flourishes (a ghost growls in a mirror) can be difficult to digest early in the morning. Although she probably would have won audiences over anyway, the American director Kelly Reichardt ("Old Joy") was more favorably placed on Thursday evening with "Wendy and Lucy," which showed in the more hospitable context of Un Certain Regard, a category for younger filmmakers. In the space of a few years, Ms. Reichardt — who offered a few shy words of hello before the screening, flanked by a cluster of male colleagues and her lovely star, Michelle Williams — has become one of the most interesting young American filmmakers.

Her latest follows Wendy (Ms. Williams), a girlish woman with watchful eyes and a hesitant smile, who, with her mutt, Lucy, is on her way to a new life in Alaska with too little money when she runs into trouble in Oregon. With uninflected realism, an attentive camera and no weeping strings, Ms. Reichardt makes palpably, tragically real what it means to be struggling at the very edge of the economic abyss.

Like “Old Joy,” which tracks two friends on a short trip to the country, “Wendy and Lucy” is political to the bone but without any of the usual grandstanding. As of Thursday night’s screening, though distributors were circling the room, this pitch-perfect triumph had yet to attract an American buyer. It will.

A Teacher’s Tale

By now the stalls in the Cannes Market — a hive of global movie commerce in the bowels of the Palais des Festivals — have been dismantled, and most of the buyers and sellers have gone home, having by all reports conducted less business than in previous years. As the festival straggles toward its climax on Sunday evening, when a jury headed by Sean Penn will hand out prizes, a subdued, slightly downcast feeling is settling over the city.

The widely shared opinion among critics seems to be that this wasn’t such a great year. But such snap judgments can be deceptive. A film festival is by nature ephemeral, but good movies have a way of sticking around. And after enduring a few bad ones in the past few days — why the Italian director Paolo Sorrentino keeps being invited back to Cannes is nearly as incomprehensible as “Il Divo,” his latest offering — I was happy to discover Laurent Cantet’s competition entry, “Entre les Murs.”

The film, Mr. Cantet’s fourth feature, concerns a young teacher dealing with a tough class in an urban high school. It’s hardly a new idea for a movie — from “To Sir With Love” to “Dangerous Minds” and beyond, Hollywood has always had a soft spot for melodramas of pedagogical heroism — but Mr. Cantet attacks it with freshness and precision, and without a trace of sentimentality.

The teacher, François (played by François Begaudeau, himself a teacher and the author of the book on which the film is based), is devoted and hard-working but hardly a hero. He is capable of losing his cool and lashing out at his students. More frequently he resorts to sarcasm, partly to parry their provocations and partly, one suspects, to protect himself from his emotional investment in them. Not that he would admit to any such feelings. François is a professional, doing a difficult job with the seriousness and alacrity it demands.

True to its title, which means “between the walls,” “Entre les Murs” never leaves the school building. We learn nothing of François’s private life and only bits and pieces about the backgrounds of his pupils, whose faces reflect the multicultural makeup of French society today. His interactions with them generate moments of hilarity (including a raucous discussion of the imperfect subjunctive, a point of French grammar that has caused untold misery in French classes around the world) and also painful collisions and misunderstandings.

Mr. Cantet has long been interested in exploring the varieties of work in modern Europe. “Human Resources” (1999) was about changing relationships between management and labor in the industrial sector, and “Time Out” (2001) examined the alienation of the corporate managerial class.

To describe those films in such terms and to suggest that “Entre les Murs” extends their themes by focusing on a man who labors in the service of the state makes them sound drier and more schematic than they are. But Mr. Cantet is motivated above all by a passionate curiosity about the way people live, and he directs with such sensitivity and skill that his curiosity becomes contagious. It is not enough to call him a realist, though he is surely at the forefront of the current wave of realism in European cinema. It’s simpler to say that his movies tell the truth.

ghttp://www.nytimes.com/2008/05/24/movies/24cann.html?ref=arts#

In Search of Buckley

Review by VICTOR S. NAVASKY

FLYING HIGH

Remembering Barry Goldwater.

By William F. Buckley Jr.

208 pp. Basic Books. $25.95.

STRICTLY RIGHT

William F. Buckley Jr. and the American Conservative Movement.

By Linda Bridges and John R. Coyne Jr.

Illustrated. 358 pp. John Wiley & Sons. $27.95.

In the late 1960s an assistant prosecutor friend of mine invited me to be his guest at a Jets game. He was a member of something called the Jets Club, which was located in an upper tier of Shea Stadium just behind the press box, with a lively bar scene and a perfect view of the field.

I remember being astonished when I saw that among those living it up at the bar were members of the United States attorney's office, cheek by jowl with lawyers for some of the most notorious white-collar criminals in the country. These guys were supposed to be mortal enemies, yet here they were, making merry with their ostensible adversaries. What was going on?

As I thought about it, I realized what was going on was that these guys were indeed on opposite sides but they were in the same fraternity, as it were; they spoke the same language, shared the same set of skills, understood each other's trials (no pun intended), tribulations and triumphs.

I am reminded of these ruminations when I think of the late William F. Buckley Jr. and National Review, the magazine he founded way back in 1955, because as former editor and then publisher of The Nation I spent more than my share of time taking exception to and attacking Buckley and his National Review

reprobates. And yet, at the end of the day, the truth is that because we were both in the same fraternity, as it were (the journal-of-opinion business), had we found ourselves within drinking distance, we would have had much to talk, commiserate and maybe even brag about.

Let me explain: I despised Buckley's rationalizing role during the McCarthy period, his early and arrogant opposition to integration, his radical conservatism and all the rest, but a part of me identified with his struggles as the proprietor of his little money-losing journal of opinion. (Despite Buckley's commitment to free enterprise, which would have ordained an early death for National Review, he often excused his annual appeal for support by observing, "You don't expect the church to make a profit, do you?") Unlike the mainstream news media, journals of opinion, right or left, admit they have a point of view, are suspicious of the Establishment press's claims to objectivity, revel in covering stories that the mainstream press either chooses to ignore or simply doesn't see, raise questions that big media prefer not to address, take it as their mission to put new issues on the national agenda, perform a troop-rallying function in times of trouble for their side, and loudly (and justly) claim an influence far in excess of what their circulation numbers would seem to entitle them to.

It is probably no accident, as the old-left journals used to say, that both Buckley and Carey McWilliams, The Nation's longtime editor, were fans of Albert Jay Nock, who after briefly working at The Nation in the 1920s went on to found his own libertarian magazine called The Freeman (the rights to which Buckley sought unsuccessfully to buy when he began National Review). Nock started out as a left-wing anarchist and bohemian, but he metamorphosed into an anti-egalitarian who believed that journals of opinion were aimed at what he called the Remnant, the enlightened few who would influence the many.

Because Buckley first came to fame with "God and Man at Yale," his radical assault on his alma mater as a bastion of secular humanism, for years he enjoyed a reputation — reinforced by his television program, "Firing Line," his newspaper columns and the books he published annually — as the scourge of liberalism (indeed his third book was "Up From Liberalism"). But as Buckley's book No. 50-something, "Flying High: Remembering Barry Goldwater," and his biographers Linda Bridges and John R. Coyne Jr., in "Strictly Right: William F. Buckley Jr. and the American Conservative Movement," all make crystal clear, even before the Goldwater campaign, Buckley was at least as interested in joining the Establishment as in criticizing it.

Listen, if you don't believe me, to Noel Parmentel Jr. and Marshall Dodge III's recording "Folk Songs for Conservatives":

> Won't you come home, Bill Buckley,
> Won't you come home —
> From the Establish-MENT?
> Don't pal with Norman Mailer,
> Don't sup with Reds.
> Please give them up for LENT. ...
> Don't be ashamed. We're not to blame.
> Bill Buckley, won't you PLEASE come home?

But our Bill's climb from his father's virulent conservatism was more than a search for respectability. If Buckley's magazine was to achieve the influence it sought, it had to do more than assault and attack the liberals. It had to bring together the conflicting strands of conservatism (the Christian and other traditionalists, the libertarians, the free marketers, the isolationists and, in later years, the neoconservatives, paleoconservatives and others too sectarian to mention), all held together by the glue of anti-Communism under the now-forgotten rubric of "fusionism." And it had to provide them a forum to air their differences. If Buckley's image was ideologue, his editorial role was transideological — a patcher-upper, keeping combatants like the ex-Communist Whittaker Chambers, the anarchist Frank Chodorov, the self-described "majority-rule democrat" Willmoore Kendall and the former Trotskyist James Burnham from jumping ship, while throwing overboard the embarrassments (including John Birchers, writers for the by then anti-Semitic American Mercury, Ayn Rand Objectivist-atheists and miscellaneous misbehaving staff members) and simultaneously attracting some extraordinary, not yet

politically formed younger talents like John Leonard, Garry Wills and Joan Didion, all of whom moved on long before there was a MoveOn to move on to. (He also, by the way, recruited, while they were still in college, Richard Brookhiser and David Brooks, who now writes a column for The New York Times.)

The authors of "Strictly Right" correctly observe that while the outside world regarded National Review as a conservative monolith, it has always included warring voices. But they also conclude quite wrongly that this is "something unique in American journals of opinion." (Check out the "letters to the editor" pages of The Nation if you don't believe me.)

Bridges and Coyne cover much of the same ground as John Judis's "William F. Buckley Jr.: Patron Saint of the Conservatives" (1988), the only other major Buckley biography, but this is an insider's book by one National Review lifer and a former staff member, whereas Judis, then a senior editor at the democratic-socialist magazine In These Times, now a senior editor at the sometimes liberal New Republic, wrote from a distant shore. The authors repeat a complaint that despite much good reporting, Judis's book "suffers from ... Judis's inability to suppress his horror of conservative ideas."

If that is true, and I don't quite think it is, Bridges and Coyne place their National Review thumbs on the other side of the scale. No Buckley misdeed goes unextenuated. For example, when W.F.B. didn't object to his anti-Semitic father's putting the kibosh on Bill's sister's possible marriage to a Jewish classmate at Yale, the authors elucidate: "Bill himself would later write that the father did indeed partake of the country-club anti-Semitism prevalent in his day. But Will Buckley also had a rational objection to a marriage between a Catholic and a Jew, and it was this objection that Bill shared. How could they worship together? What would be the children's religious upbringing?"

I have long been taken with the observation of the Frankfurt School Marxist philosopher Jürgen Habermas that every subscription list is a potential political movement, and it is ironic that there is no better example of this than Buckley's National Review, which helped convert conservatives from a theory to a movement — a movement that gave us Goldwater, Reagan and, with a little help from the Supreme Court, Bush II. And here I would submit that although in February 2006 Buckley wrote in his column regarding the Iraq war, "Our mission has failed," he and his magazine deserve their share of the credit/blame for our "mission" in Iraq.

Having now read Buckley's remembrance of Goldwater, however, I must conscientiously add that, based on the evidence of "Flying High," he was — through no fault of his own — absent at the creation.

Consider this: What is new here has less to do with the role National Review played in making the Goldwater candidacy possible than with the story of the exclusion ("sequestration" is what he calls it) of Buckley and company from the campaign itself and how W.F.B. felt about it. Goldwater in his 1979 autobiography already reported that the leader of his brain trust "had passed the word down that the candidate should distance himself personally and professionally from 'the National Review people,'" i.e., as Buckley points out, from "Brent Bozell, the author of 'The Conscience of a Conservative,' and me, the editor and founder of National Review and, as such, putative godfather of the conservative movement." (Modesty was never his problem.)

Ever the gentleman, Buckley allows that "the candidate himself might well have been unaware of" such mini-humiliations as the directive that Buckley not appear at the Youth for Goldwater rally on the first day of the convention. He also excuses the candidate's rhetorical compromises: "Perhaps he couldn't, at the Cow Palace, use the exact language he had written in his book. That much could not realistically be expected." An odd observation, since Goldwater hadn't written his book "The Conscience of a Conservative" — Bozell, Buckley's brother-in-law, had, as we already know from, among others, Rick Perlstein, author of "Before the Storm," the definitive book on Goldwater and the conservative movement. (And, according to Judis, Goldwater may not even have read the manuscript before it was submitted!)

Buckley assures the reader, however, that "others noticed the vaporization at Goldwater headquarters of National Review Inc., more keenly than I did." Let the reader decide whether it was a grand strategy, petty retaliation or poetic justice when, during our hero's 1965 campaign for mayor of New York, he neglected to let the press know that Goldwater had sent a letter of endorsement.

In December 1991, National Review devoted an entire issue to an article by Buckley titled "In Search of Anti-Semitism: What Christians Provoke What Jews? Why? By Doing What? — And Vice Versa," in which he criticized writers for both National Review and The Nation for their views on the subject. As far as I'm concerned he got it wrong regarding The Nation. But I regret that William F. Buckley isn't here to kick us around anymore — and vice versa.

Victor S. Navasky, the former editor and publisher of The Nation, is chairman of the Columbia Journalism Review. His latest book (with Christopher Cerf) is "Mission Accomplished! Or, How We Won the War in Iraq: The Experts Speak."

http://www.nytimes.com/2008/05/25/books/review/Navasky-t.html?ref=books

Pentagon Shift on 'Minerva'

Pentagon officials are talking with the National Science Foundation about the NSF playing a major role in the peer review for a new program to promote social science research on topics that relate to key issues in U.S. foreign policy.

A senior Defense Department official who asked for anonymity told *Inside Higher Ed* about the discussions when contacted to respond to a letter being sent by the American Anthropological Association to the Bush administration and key Congressional leaders calling for the new program to be shifted from the Pentagon to another agency, such as the NSF (or the National Institutes of Health or National Endowment for the Humanities). The official stressed that no agreements had been worked out yet, but that it was likely that the new program would include a close relationship with the NSF, especially in regard to peer review. The anthropology group and many scholars have questioned the Pentagon's ability to run a credible peer review process for the program, so the NSF role could shift the debate over the new DOD initiative, the Minerva Consortia.

The official said that another route under consideration for providing a peer review framework for Minerva was the Multidisciplinary University Research Initiative, which is supported through the military services. One likely outcome, the official said, was that both programs would be involved.

While NSF officials have previously said that the agency was open to playing a role in Minerva, the Pentagon has previously defended the idea that this would be a Defense Department program.

Minerva represents a major Pentagon effort to support academic research and to establish closer ties to academe. Several of the ground rules for Minerva have been praised by university presidents as policies that make it possible for universities to participate. News that Minerva projects could include non-Americans, could include work critical of the U.S. government and would not be classified have cheered many. But much of the work envisioned in the program might well be done by anthropologists, many of whom have been dubious of Minerva from the start.

Conducting research of the sort envisioned by Gates is of "paramount importance," the letter released by the American Anthropological said. "However, we are deeply concerned that funding such research through the Pentagon may pose a potential conflict of interest and undermine the practices of peer review that play such a vital role in maintaining the integrity of research in social science disciplines," said the letter, which was sent formally by Setha Low, president of the association and a professor of anthropology at the Graduate Center of the City University of New York.

While some university lobbyists worked with Pentagon officials quietly for some time before the idea was announced in April, anthropology leaders say that they were not consulted. Notably, the Pentagon's interest in working with social scientists comes at a time that anthropologists and scholars in other disciplines have been debating how they can distance themselves from work with the military that they feel violates scholarly ethical codes that bar research that may harm those being studied.

The Minerva concept reflects an endorsement by Secretary Gates of something many academics have been saying for years: U.S. policy should be better informed by knowledge of the cultures and societies all over the world, including those regions that do not embrace the United States. As outlined by Gates, consortia involving university researchers, selected through peer review, would conduct research on such topics as the relationships between religious beliefs and terrorism, the ideology and record of Iraq's government, religious studies generally, Chinese military and technology studies, and other topics. (Pentagon officials provided more details in a briefing for selected bloggers a few weeks ago.)

As word of Minerva has spread, some anthropologists have issued detailed critiques. The Network of Concerned Anthropologists, which has been organizing scholars to pledge not to help the military in its "war on terror," released an analysis questioning the possible impact of military support on the direction of anthropological research, and expressed fears of turning the university into "an instrument rather than a critic of war-making."

The letter from the American Anthropological Association is more narrow in focus, and stresses issues of peer review and, to a lesser extent, the skepticism anthropologists have of the Pentagon's ability to set up a quality peer-review system.

"Rigorous, balanced and objective peer review is the bedrock of success and productive programs that sponsor academic research. Agencies such as NSF, NIH, and NEH have decades of experience building an infrastructure of respected peer reviewers.... Lacking the kind of infrastructure for evaluating anthropological research that one find at these other agencies, we are concerned that the Department of Defense would turn for assistance in developing a selection process to those who are not intimately familiar with the rigorous standards of our disciplines. To lay the groundwork for the type of academic research involved in Project Minerva, it is critical than association like the AAA be consulted on its creation, structure and implementation," the letter says.

The letter continues: "It is also likely, given the history of our discipline, that many anthropologists who would have a great deal to contribute to a national conversation about terrorism and violence would apply for funding from the National Science Foundation, as it is a familiar informational and research interlocutor to study such topics, but will be unfamiliar with any such processes for the Department of Defense."

The anthropology association released its letter without knowing of the Pentagon-NSF talks on the program. Damon Dozier, director of public affairs at the association, said he was "very pleased" to hear that the Defense Department was talking about a science foundation role in the program. Dozier said, however, that the Pentagon has yet to consult the anthropology association on the program. He added that the association couldn't be certain about MInerva until seeing details about a possible NSF tie.

Barry Toiv, vice president for public affairs of the Association of American Universities, which has worked with the Pentagon on Minerva, said that "we think that working with NSF is a good approach, and we're glad DOD is seriously considering it."

The senior Defense Department who agreed to discuss Minerva without his name attached said he thought that when the program is finalized, it will attract strong support from scholars, and predicted that "world class" professors would be involved. But he added that he wasn't certain that the Pentagon would worry about satisfying disciplinary associations. "We certainly need qualified anthropologists, sociologists, political scientists, historians, psychologists," he said. "We need recognized experts in these fields. The relevant disciplines need to be involved. Whether professoional associations per se should have a role, I'm less sure."

Hugh Gusterson, one of the organizers of the Network of Concerned Anthropologists and a professor of anthropology and sociology at George Mason University, said that an NSF role in peer review "would go a long way to alleviating many of my concerns, but we'd have to wait and see how it would work out." Gusterson stressed that scholars would need to see details on the Pentagon-NSF relationship. Still, he said that there is no doubt that the NSF has a ready group of anthropologists to use in peer review, and a system to collect evaluations and manage grants.

In addition, Gusterson noted that for some anthropologists, any program supported by the Pentagon would be problematic, and Gusterson said he worried that Pentagon control of the program could diminish its effectiveness. Gusterson noted that if the Pentagon is sincere about attracting scholars with a range of views, it should want scholars involved who believe, for example, that U.S. foreign policy is one factor in support for terrorism abroad. Scholars with those views are likely to be those who avoid any Pentagon connections, Gusterson said, so keeping the program in any way at the Pentagon, "could end up truncating the discussion."

— Scott Jaschik

The original story and user comments can be viewed online at
http://insidehighered.com/news/2008/05/28/minerva.

Where Multicultural Ed and Internationalization Meet

"Elitist, frivolous, escapist."

"Divisive, political, provincial."

Such are some common perceptions of college officials involved in internationalization (see the former colorful set of adjectives) and multicultural education (see the latter) — perceptions that are among the challenges to cooperation between the two fields, as outlined during an American Council on Education-led session at the 60th annual and largest-ever NAFSA: Association of International Educators Conference in Washington, which kicked off Tuesday afternoon with more than 9,200 registrants. "It really boils down to the last point, that we've had limited interactions and knowledge of each other's work," Christa Olson, associate director of ACE's Center for International Initiatives, said of the gap between internationalization and multicultural education at American colleges. ACE is leading an initiative, still in its early stages, to "bridge" that gap, and explore the intersection between work on diversity and difference done through domestic and international lenses, respectively. In their presentations Tuesday, Olson and Jarred A. Butto, a program associate at ACE, described the challenges to collaboration between those involved with multicultural education and internationalization, ranging from the theoretical (divergent historical and intellectual roots of the two fields) to the practical (different offices charged with the two endeavors, and different budgets), as well as potential common ground (including a shared student learning outcome of intercultural competence). ACE chose 26 colleges to participate in an upcoming June symposium — each college's team including, at a minimum, the chief academic officer, chief diversity officer and chief international education officer — to further discuss the intersection between what ACE believes are two distinct yet overlapping areas, and to develop action plans on the issue(s). As of now, however, Olson conceded Tuesday that this intersection between internationalization and multicultural education is an emerging area of interest and that the organization does not yet have a collection of concrete examples of successful practices to share — at least not beyond general education program requirements at two different institutions described in Tuesday's session. Since the mid-90s, the State University of New York at Binghamton, for instance, has had an eight-credit "Creating a Global Vision" general education requirement subdivided into two four-credit components. Each student at Binghamton must take one class tagged under the "U.S. Pluralism" category and another under "Global Interdependencies," said H. Stephen Straight, vice provost for undergraduate education and international affairs. "What we are endeavoring to convey," Straight said, "is that domestic and ethnic diversity in the U.S. is not a unique phenomenon, is not unique to the U.S., that virtually all cultures have become pluralistic." In turn, he said, domestic pluralism has global roots, in immigration and diaspora. And for three years now, Baldwin-Wallace College, in Ohio, has required that all students take a course designed to address how different cultural perspectives – both domestically and internationally – influence "enduring questions" like "What is human nature?" explained Judy B. Krutky, associate academic dean for intercultural education. One challenge, however, Krutky said, is convincing students, very focused on their majors, of the course's worth. "Students aren't really sure they need this information," she said. Also on Tuesday, Mexico's former president, Vicente Fox, gave an opening plenary speech focused on Latin America's pending rise — with education as its catalyst — and, more generally, accountability and the need to ensure equal access to quality education. He thanked the audience for a warm welcome that "more than compensates" for one he'd received navigating U.S. Customs upon his arrival in Washington ("Take off your boots!... Don't you understand me — take off your coat!")

No doubt further conversations on U.S. border control and immigration policy will ensue – as well as conversations on any number of issues related to international student mobility and policy, study abroad, and campus internationalization initiatives — as NAFSA's annual conference continues throughout this week.

— Elizabeth Redden

The original story and user comments can be viewed online at http://insidehighered.com/news/2008/05/28/nafsa.

What Changed, and Didn't, After Virginia Tech

April 16, 2007 changed Virginia Tech irrevocably. But how much did the shootings of 32 students and professors on the Blacksburg, Va., campus change the rest of higher education?

It will probably be a long time before that question is answered fully. But in a presentation this week at the annual forum of the Association for Institutional Research, researchers from the Midwestern Higher Education Compact offered an initial analysis of some of the more practical changes that campus officials said they had made in the wake of the Virginia Tech incident. Their study, "The Ripple Effect of Virginia Tech: Assessing the Nationwide Impact on Campus Safety and Security Policy and Practice," finds that most two-year and four-year colleges and universities reviewed and in many cases significantly altered their campus safety procedures, especially in terms of notifying students about possible danger and dealing with students who displayed signs of trouble.

But on balance, the survey also found, campus leaders generally shunned the sort of wholesale changes to their admissions or other policies that might have been seen as severely restricting the campus culture or trampling on individual rights. While more than half of respondents said they had considered installing metal detectors at entrances to classroom buildings, and about a third said they had contemplated adding questions to their admissions applications that asked would-be whether they had had previous psychiatric treatment, few did so.

"It's interesting what they talked about and *didn't* do," said Gina Johnson, a researcher at the Midwestern compact who co-wrote the report with Chris Rasmussen, director of policy research there. Despite significant pressure from many sources (legislators, parents, etc.) to react aggressively to the Virginia Tech crisis, in many cases campuses "didn't go to extremes" in response.

The survey, conducted by the multistate Midwestern compact and funded by two insurers, AIG and Lexington Insurance Company, asked officials at a national mix of colleges a series of questions about

changes on their campuses since the Virginia Tech shootings (Midwestern colleges responded slightly disproportionately and Western campuses slightly disproportionately, the researchers said).

The vast majority of the 331 two- and four-year campuses that responded said they had conducted thorough reviews of their campus safety and security policies and procedures, with Southern colleges (those closest to Virginia Tech) most likely to have done so (at 96 percent), followed by Northeastern (88 percent), Western (82 percent) and Midwestern institutions (79 percent). Bigger institutions were also likelier than smaller ones to have conducted such reviews. Most said that they had altered their practices in response to the reviews, although "they were really doing a lot of things already," said Johnson. Among the most significant changes they did make: While just 5 percent of survey respondents said that they had incorporated mobile phones in their institutions' emergency notification systems before Virginia Tech, 75 percent of the remaining institutions said they had either implemented such technology since last April or had such a plan in the works.

Thirty-six percent of respondents to the Midwestern compact's survey said they had staged incidents to test their emergency response systems since the Virginia Tech shootings. Larger campuses were far likelier than smaller campuses to have done so; 57 percent of institutions with more than 10,000 students had staged at least one incident, while 37 to 39 percent of colleges with between 1,000 and 10,000 students had done so, and 14 percent of institutions with enrollments under 1,000.

Among other changes:

Thirty-five percent said they had increased their institutionwide budgets for 2007-8 for safety and security as a direct result of Virginia Tech.

More than half of institutions said they had reviewed their policies under the Family Educational Rights and Privacy Act, and about a quarter of those said they had changed how they carry out the federal student privacy law and communicate student information either internally or externally.

Twenty-four percent of survey respondents said they had revised language in the student handbook related to disturbing or threatening student behavior, and 38 percent reported that their institutions had conducted general awareness campaigns to help students recognize such behavior in others.

The Balancing Act

As noteworthy as what changed was what did not. More than half of respondents said they had considered installing metal detectors at entrances to classroom buildings, and nearly half said they had considered installing closed circuit security cameras in individual classrooms. But in both of those cases, most institutions opted not to go that route; 39 percent said they had discussed but rejected the idea of metal detectors (about 15 percent said the notion was still on the table), and about a third had decided not to go forward with cameras in their classrooms (more than 20 percent said they were still entertaining that possibility). A similar outcome emerged regarding admissions policies. About 30 to 35 percent of respondents said they had considered adding questions to their admissions application asking whether applicants had been hospitalized for psychiatric reasons, received any psychiatric or psychological treatment, or were currently taking medication to treat a psychiatric or psychological condition. Most of the rest said they had not even considered asking such questions, and virtually none of the campuses that contemplated doing so said they actually wound up asking such questions.

More than half of respondents said they had not considered the prospect of starting background checks of applicants for admission, and 14 percent reported considering but rejecting the idea. Fifteen percent said they had discussed the possibility and were still weighing it. "Only 3 percent ... reported that background checks were being conducted in the 2007-8 admissions cycle," the report said, and less than 2 percent said they planned to do so in the future.

— Doug Lederman

The original story and user comments can be viewed online at http://insidehighered.com/news/2008/05/28/vatech.

The Rich Get Hungrier

By AMARTYA SEN

Cambridge, Mass.

WILL the food crisis that is menacing the lives of millions ease up — or grow worse over time? The answer may be both. The recent rise in food prices has largely been caused by temporary problems like drought in Australia, Ukraine and elsewhere. Though the need for huge rescue operations is urgent, the present acute crisis will eventually end. But underlying it is a basic problem that will only intensify unless we recognize it and try to remedy it.

It is a tale of two peoples. In one version of the story, a country with a lot of poor people suddenly experiences fast economic expansion, but only half of the people share in the new prosperity. The favored ones spend a lot of their new income on food, and unless supply expands very quickly, prices shoot up. The rest of the poor now face higher food prices but no greater income, and begin to starve. Tragedies like this happen repeatedly in the world.

A stark example is the Bengal famine of 1943, during the last days of the British rule in India. The poor who lived in cities experienced rapidly rising incomes, especially in Calcutta, where huge expenditures for the war against Japan caused a boom that quadrupled food prices. The rural poor faced these skyrocketing prices with little increase in income.

Misdirected government policy worsened the division. The British rulers were determined to prevent urban discontent during the war, so the government bought food in the villages and sold it, heavily

subsidized, in the cities, a move that increased rural food prices even further. Low earners in the villages starved. Two million to three million people died in that famine and its aftermath.

Much discussion is rightly devoted to the division between haves and have-nots in the global economy, but the world's poor are themselves divided between those who are experiencing high growth and those who are not. The rapid economic expansion in countries like China, India and Vietnam tends to sharply increase the demand for food. This is, of course, an excellent thing in itself, and if these countries could manage to reduce their unequal internal sharing of growth, even those left behind there would eat much better.

But the same growth also puts pressure on global food markets — sometimes through increased imports, but also through restrictions or bans on exports to moderate the rise in food prices at home, as has happened recently in countries like India, China, Vietnam and Argentina. Those hit particularly hard have been the poor, especially in Africa.

There is also a high-tech version of the tale of two peoples. Agricultural crops like corn and soybeans can be used for making ethanol for motor fuel. So the stomachs of the hungry must also compete with fuel tanks.

Misdirected government policy plays a part here, too. In 2005, the United States Congress began to require widespread use of ethanol in motor fuels. This law combined with a subsidy for this use has created a flourishing corn market in the United States, but has also diverted agricultural resources from food to fuel. This makes it even harder for the hungry stomachs to compete.

Ethanol use does little to prevent global warming and environmental deterioration, and clear-headed policy reforms could be urgently carried out, if American politics would permit it. Ethanol use could be curtailed, rather than being subsidized and enforced.

The global food problem is not being caused by a falling trend in world production, or for that matter in food output per person (this is often asserted without much evidence). It is the result of accelerating demand. However, a demand-induced problem also calls for rapid expansion in food production, which can be done through more global cooperation.

While population growth accounts for only a modest part of the growing demand for food, it can contribute to global warming, and long-term climate change can threaten agriculture. Happily, population growth is already slowing and there is overwhelming evidence that women's empowerment (including expansion of schooling for girls) can rapidly reduce it even further.

What is most challenging is to find effective policies to deal with the consequences of extremely asymmetric expansion of the global economy. Domestic economic reforms are badly needed in many slow-growth countries, but there is also a big need for more global cooperation and assistance. The first task is to understand the nature of the problem.

Amartya Sen, who teaches economics and philosophy at Harvard, received the Nobel Prize in economics in 1998 and is the author, most recently, of "Identity and Violence: The Illusion of Destiny."

http://www.nytimes.com/2008/05/28/opinion/28sen.html?_r=1&th&emc=th&oref=slogin

Sydney Pollack, Filmmaker New and Old

By A. O. SCOTT

Sydney Pollack's career as a director blossomed in the 1960s and '70s, but in many ways he was a throwback to an earlier era in American movies.

The story of the New Hollywood, dominated by a wild bunch of ambitious, iconoclastic would-be auteurs, is by now overgrown with nostalgia and legend-mongering, but Mr. Pollack's place in that legend suggests continuity rather than upheaval. The vitality of motion pictures has always been sustained by craftsmen with a modicum of business sense and the ability to tell a good story. Mr. Pollack, who died on Monday at 73, was never (and never claimed to be) a great innovator or a notable visual stylist. If he could be compared to a major figure from the Old Hollywood, it would not be to one of the great individualists like Howard Hawks or John Ford, who stamped their creative personalities onto every project, whatever the genre or the level of achievement. Mr. Pollack was more like William Wyler: highly competent, drawn to projects with a certain quality and prestige and able above all to harness the charisma of movie stars to great emotional and dramatic effect.

Just about any film by Robert Altman or Martin Scorsese, for instance, will be immediately and primarily identifiable as such, no matter who's in it. But if you think of "They Shoot Horses, Don't They?," you'll remember Jane Fonda, so desperate and defiant and sad as she pushes herself through a Depression-era dance marathon. "Tootsie" is Dustin Hoffman's movie. "This Property Is Condemned" will conjure up Natalie Wood and Robert Redford, oddly cast but nonetheless generating Southern Gothic heat in an overripe Tennessee Williams scenario. And it is Mr. Redford who defines Mr. Pollack's oeuvre nearly as much as the director himself. Over nearly 25 years, from "This Property Is Condemned" to "Havana," they worked together on westerns ("Jeremiah Johnson,"); love stories both sweeping ("The Way We

Were") and intimate ("The Electric Horseman"); paranoid thrillers ("Three Days of the Condor"); and high-toned literary adaptations ("Out of Africa.")

Those movies demonstrate both Mr. Redford's consistency — he's handsome, stoic, adjusting the mix of sensitivity and mischief depending on the role — and Mr. Pollack's range. He was an exemplary mainstream filmmaker, which is not to say that he was a timid or unimaginative director. As a producer, he was certainly prolific and eclectic, putting his name on (and his energy and enthusiasm behind)

projects as varied in scale and style as "The Fabulous Baker Boys," "The Talented Mr. Ripley" and "Forty Shades of Blue." In both capacities he worked, comfortably and with conviction, within the parameters of the Hollywood "A picture" tradition, turning out high-quality commercial entertainments that did not shy away from ethical and political engagement.

His death is a reminder that things have changed, that the kind of movie he made, which used to be the

kind of movie everyone wanted to make (and to see), may be slipping into obsolescence. His last completed feature, "The Interpreter," with Nicole Kidman and Sean Penn hashing out the traumas of postcolonial African politics at the United Nations, struggled to find the mix of topicality and high intrigue that had come so easily in the '70s, but it mostly seemed forced and preposterous. The blend of big stars with meaty, serious themes; lavish production values; and unstinting professionalism that once would have seemed foolproof looked downright anachronistic.

The old A pictures, made for mass appeal and Oscar glory, no longer have the industry cachet or cultural impact they used to. The studios send their specialty divisions out in search of awards on the relative cheap, while action franchises, raunchy comedies and family-friendly animation bring in the big money and attract the heavy investments.

There are exceptions, from time to time, movies that try to steer between the art house and the lowest common denominator in the great Hollywood middle-brow tradition. Tony Gilroy's "Michael Clayton," a tale of corporate malfeasance with a smart script, a few murders and George Clooney's charisma, may be the best recent example. It's hardly an accident that Mr. Pollack's name appears in the credits twice, as a producer and as a member of the cast.

It would be nice if "Michael Clayton" turned out not to be an anomaly but rather a sign that the old mainstream has not entirely run dry. And I hope that there are at least aspiring filmmakers and producers out there who dream of being the next Sydney Pollack.

http://www.nytimes.com/2008/05/28/movies/28poll.html?th&emc=th

Designers Teach Glass (and Themselves) New Tricks

By KATHRYN SHATTUCK

Summer hadn't quite arrived in the city over the Memorial Day weekend, but in the garden of the Cooper-Hewitt, National Design Museum, on upper Fifth Avenue, it was several hundred degrees in the shade. Onstage in the Corning Museum GlassLab, four sweat-beaded men in black T-shirts rotated elongated rods — tipped with molten glass hot enough to ignite anything it touched, whether metal, wood or flesh — with the nonchalance of baton twirlers.

Behind them a pyrotechnician stood ready in case the kilns, which turn glass to liquid at 2,100 degrees Fahrenheit, or the reheating furnaces called glory holes, which burn to a volcanic white-orange 2,300 degrees, got unruly. At the stage's edge the designers Tobias Wong and Tom Scott hovered out of heat and harm's way, gun glasses shielding their eyes from the occasional ricocheting glass shard.

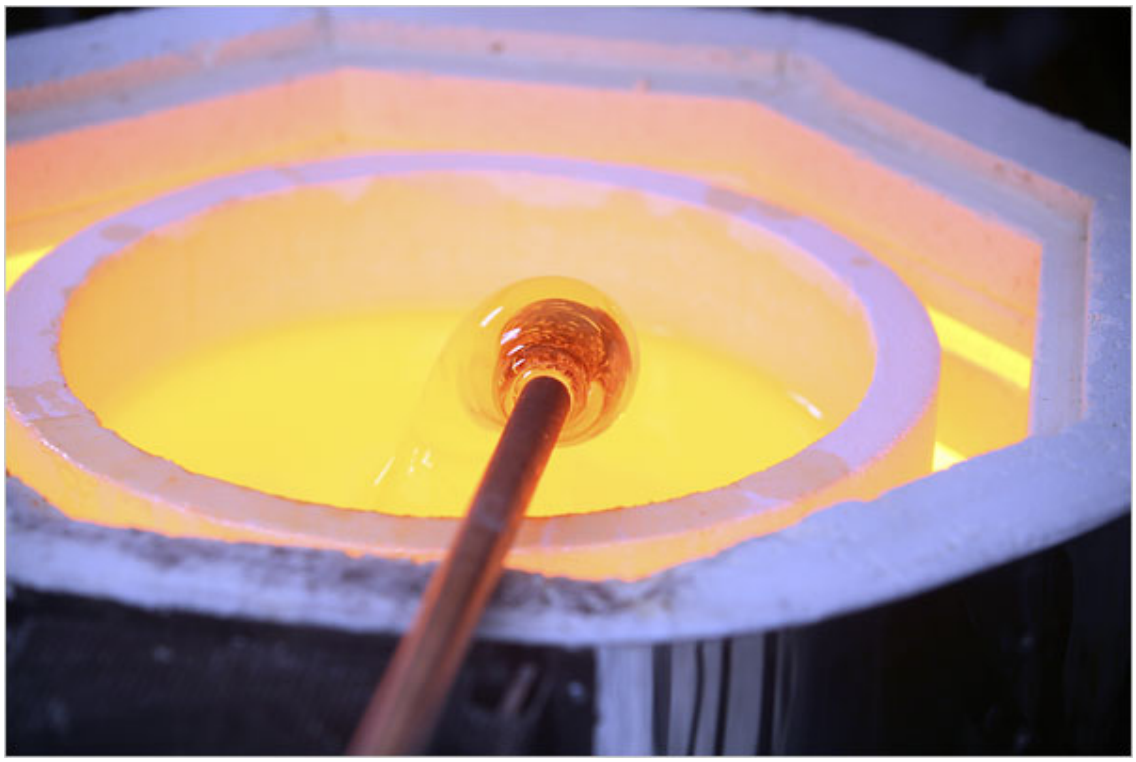
Armed with inspiration and images, Mr. Wong, whose designs include a chair that lights up as a lamp and a white-rubber chandelier, and Mr. Scott, who fashions knitwear, gave gently precise instructions. After spinning yellow-hot lumps into pliable glass yarn, the craftsmen wove it into braids, chain stitches and, in homage to Central Park and Claes Oldenburg, pretzels. Pretzels with salt, no less.

"A big part of this process was an exploration in boundaries and how far you can push them, and knowing what your restrictions as a designer might be," Mr. Wong said.

Mr. Scott added: "It was a true collaboration. We gave them a couple of ideas, and they took them to the next level. Who knew you could knit and crochet in glass?"

By the time the Corning GlassLab packs up its two-and-a-half-week visit on June 3, 19 designers will have tested the limits of a material that few of them had previously used, even as the artistic and structural potential of glass is being explored and exploited in fields like architecture and technology.

The GlassLab, a mobile hot-glass studio and offspring of the Corning Museum of Glass in upstate New York, made its debut last December at Design Miami 2007, where artists competed to become involved in the process. For its sojourn in Manhattan, GlassLab and the Cooper-Hewitt invited New York designers in a variety of mediums, including the product designers Harry Allen, and Constantin and Laurene Boym; Francisco Costa of Calvin Klein; the humorously avant-garde Sebastian Errazuriz; the architect Paul Haigh; Chad Phillips of the toymaker Kidrobot; Sigi Moeslinger and Masamichi Udagawa of Antenna Design (MetroCard vending machines, JetBlue check-in kiosks); Ted Muehling (jewelry, porcelain,



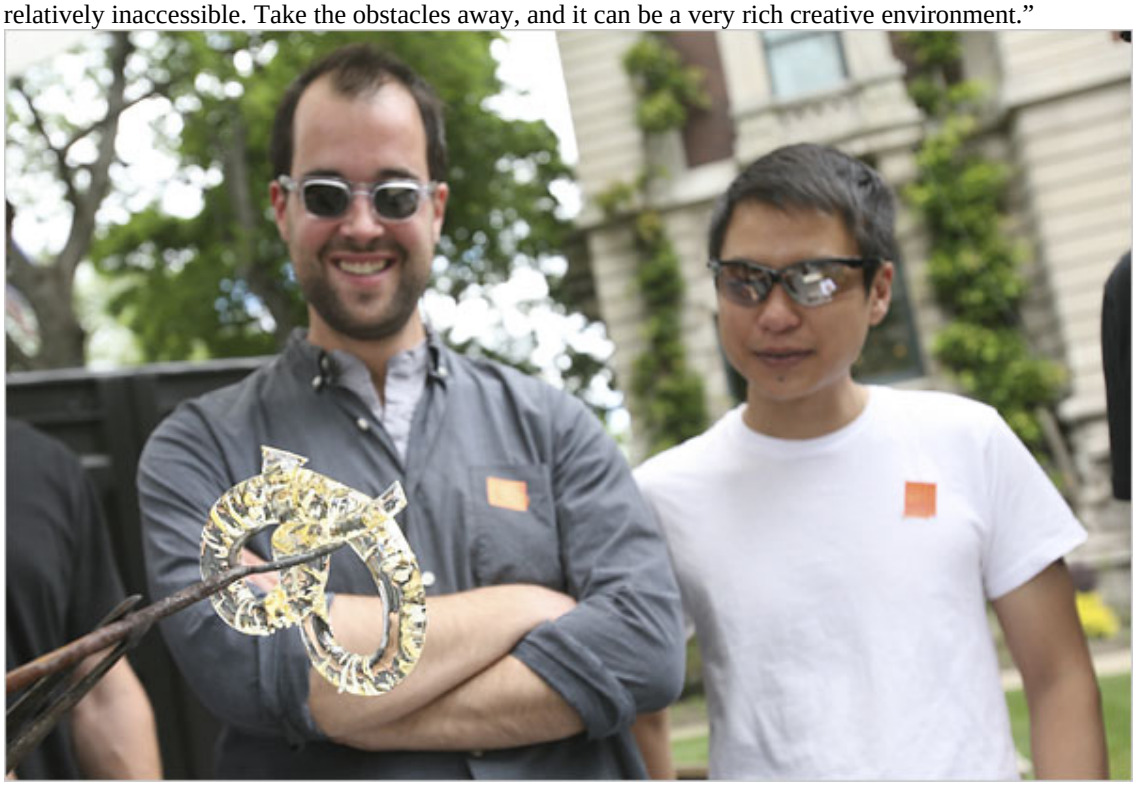
glassware); and the sculptor Michele Oka Doner. Most had two or more sessions of transforming their concepts into prototypes.

The Corning Museum has long offered public demonstrations at its home base and, since 2001, it has gone on tour, with its Hot Glass Roadshow traveling to places like the Getty Villa in Malibu, Calif., and the Art Basel Miami. Later this year it will set sail on Celebrity cruise ships.

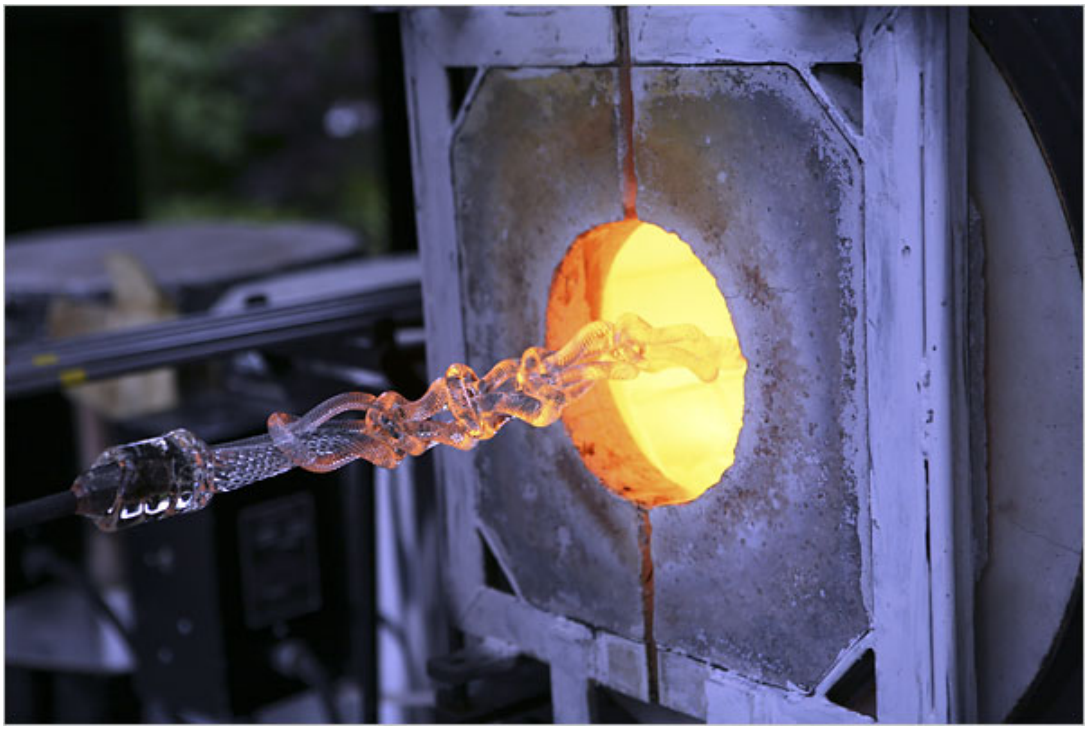
The GlassLab grew out of a three-year-old partnership with the Vitra Design Museum in Weil am Rhein,

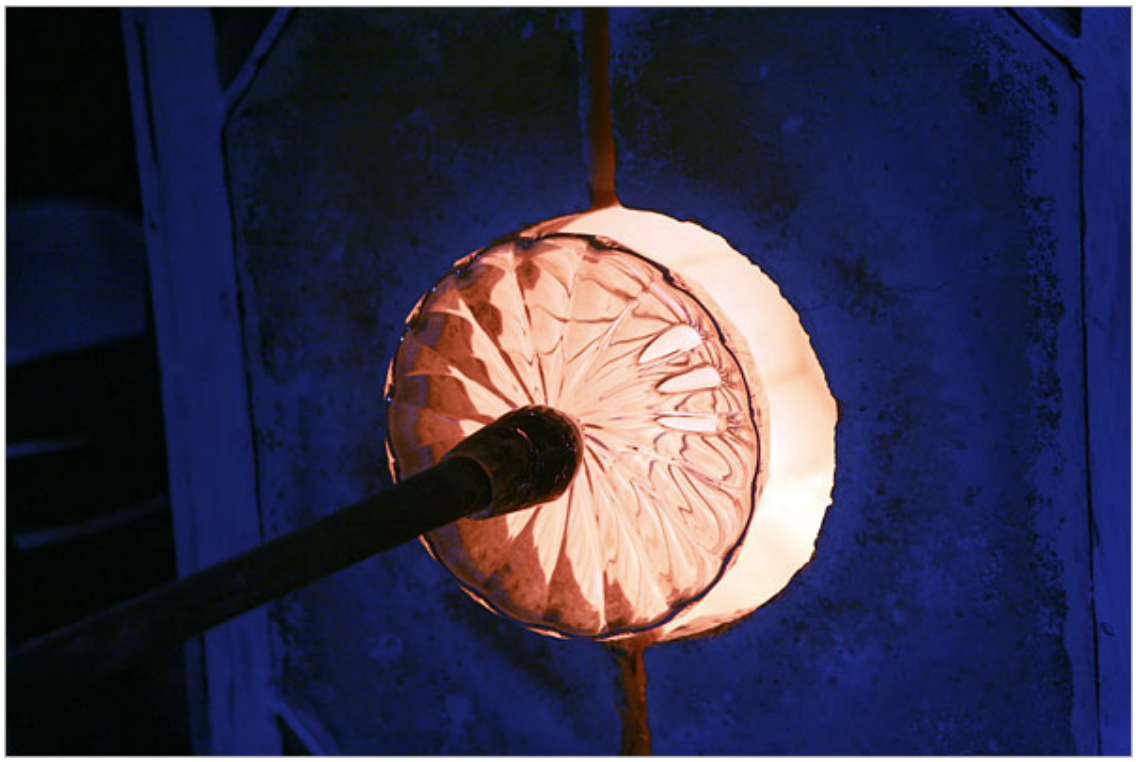
Germany; the two institutions have collaborated in summer design workshops at Domaine de Boisbuchet in southwestern France.“The ‘aha moment’ was this magical thing that occurred when we brought the material and the horsepower of hot glass into the design environment and fundamentally let it happen,” said Robert K. Cassetti, the Corning Museum’s senior director of creative services and marketing.

For most designers, he said, “hot glass and the prototyping that can take place with glassblowing is relatively inaccessible. Take the obstacles away, and it can be a very rich creative environment.”



In his sessions at GlassLab, Tim Dubitsky, of the creative agency Li Inc., tried to create three-dimensional typography by cutting out glass with cookie molds and draping it in sheets over metal letters. His most ambitious project was to encase a book in glass, with the caveat that the container would have to be broken for the book to be read. The glass masters created a delicate casing a little more than one-eighth of an inch thick, which they allowed to cool overnight before inserting the book and then sealing up the end.





"It was super lovely — communication without words, like choreography, " Mr. Dubitsky said of watching the men toil in silent unison. "You could tell they were going into a perfectionist mode."

The august designer Massimo Vignelli, who worked for the Italian glass firm Vanini at the start of his career nearly 50 years ago, arrived with intricate sketches for ribbed Venetian-style vessels.

A clear conical vase was meant to hold Mr. Vignelli's favorite flower, the peony; a narrow-stemmed cylinder, an orchid.

"I prepared some drawings that apparently look easy but are not so easy," he said. "Making glass is playing with the light. When you play with the corrugation of glass, you don't need to add color because the light is adding color."

Mr. Vignelli was fearless, following the glass masters — Eric Meek, Lewis Olson, Matt Urban and Dan Spitzer — to the kilns and glory holes, and leaning in closely as they silently twirled, shaped, reheated and reshaped the glowing wads until they started resembling what the designer imagined they could. "Glass is really a perfect design of teamwork, a ballet of designer and master," Mr. Vignelli said.

Mr. Meek, who has been making glass for 15 years, said that the GlassLab collaboration with designers had opened his eyes to fresh possibilities. "It always leads to new and exciting ideas for things you might never think

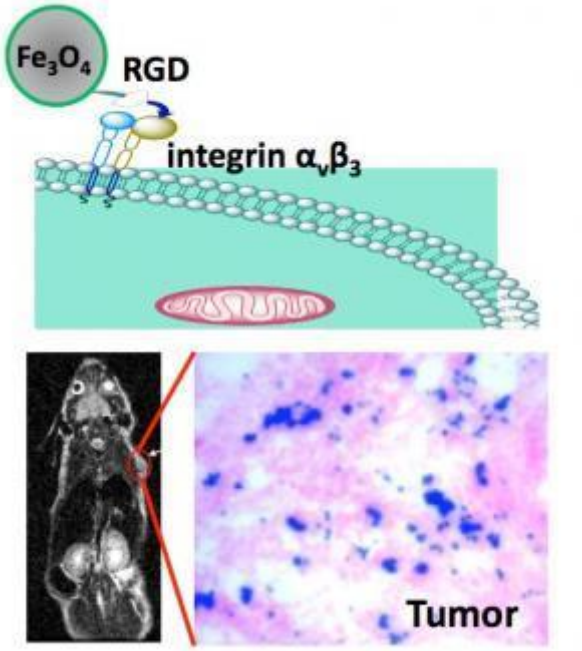
of until someone else leads you there," he said.

If there's one thing glassmakers live for, said the Corning Museum's Mr. Cassetti, a former designer for Steuben, it's the material's future. "In Corning, it's all about what's next with glass," he said. "So often you'll see people talking to the material as they work, saying, 'O.K., teach me something new today.' "

GlassLab continues daily through June 3 at the Cooper-Hewitt, National Design Museum, 2 East 91st Street, Manhattan; (212) 849-8400, cooperhewitt.org.

http://www.nytimes.com/2008/05/28/arts/design/28glas.html?th&emc=th

Chemists Create Cancer-detecting Nanoparticles



Nanobonding The illustration (top) shows how a RGD peptide-coated iron oxide nanoparticle binds with an integrin-rich tumor cell. At bottom left is a MRI of a mouse with the implanted U87MG tumor (red circle). At bottom right is an optical image that reveals iron oxide nanoparticles (blue) amassed in the tumor area (pink). (Credit: Jin Xie, Brown University)

ScienceDaily (May 28, 2008) — Magnetic resonance imaging (MRI) can be a doctor's best friend for detecting a tumor in the body without resorting to surgery. MRI scans use pulses of magnetic waves and gauge the return signals to identify different types of tissue in the body, distinguishing bone from muscle, fluids from solids, and so on.

Scientists have found that magnetic nanoparticles can be especially helpful in locating cancerous cell clusters during MRI scans. Like teeny guide missiles, the nanoparticles seek out tumor cells and attach themselves to them. Once the nanoparticles bind themselves to these cancer cells, the particles operate like radio transmitters, greatly aiding the MRI's detection capability.

Now, Brown University chemist Shouheng Sun and a team of researchers have created the smallest magnetic nanoparticles to date that can be employed on such seek-and-find missions. With a thinner coating, the particles also emit a stronger signal for the MRI to detect.

The results have been published online recently in the Journal of the American Chemical Society. Brown graduates students Jin Xie, Chenjie Xu and Sheng Peng collaborated on the research, along with Professor Xiaoyuan Chen and his associates from Stanford University.

The team created peptide-coated iron oxide nanoparticles — particles billionths of a meter in size. The researchers injected the particles into mice and tested their ability to locate a brain tumor cell called U87MG. Sun and his collaborators concentrated specifically on the nanoparticle's size and the thickness of the peptide coating, which ensures the nanoparticle attaches to the tumor cell.

Size is important because the trick is to create a nanoparticle that is small enough to navigate through the bloodstream and reach the diseased area. Bigger particles tend to stack up, creating the circulatory system's version of a traffic jam. Sun's team developed a nanoparticle that is about 8.4 nanometers in overall diameter — some six times smaller than the size of particles currently used in medicine.

"We wanted to make (the nanoparticle) very small, so the body's immune system won't recognize it," Sun explained. "That way, you let more particles interact with and attach to the tumor cell."

Nanoparticles are important in MRI detection because they enhance what scientists refer to as the "contrast" between the background, such as water molecules in the body, and a solid mass, such as a tumor.

The coating, while integral to the nanoparticles' attachment to the tumor cell, also is crucial to establishing the "signal-to-noise" ratio that a MRI uses. The thinner the coating, the stronger the emitted signal and vice versa. Sun's team outfitted their nanoparticles with a two-nanometer thick peptide coating — 10 times thinner than the coating available in popular MRI contrast agents such as Feridex. Sun's nanoparticles are like having a 50,000-watt radio transmitter versus a 150-watt station; it's easier for the MRI to "hear" the stronger signal and to hone in on the signal's source.

Another important feature of the team's work is discovering that the RGD peptide coating binds almost seamlessly to the U87MG tumor cell. The team plans to test the particle's ability to bind with other tumor cells in further animal experiments.

The National Cancer Institute, part of the National Institutes of Health, and the Department of Energy's Experimental Program to Stimulate Competitive Research (EPSCoR) funded the research.

Adapted from materials provided by Brown University.
http://www.sciencedaily.com /releases/2008/05/080527100950.htm

Scientists Remove Thousands Of Aspen Trees To Glimpse Forest's Future

Vogel uses a hammer and a pry bar to strip the bark between the two cuts. (Credit: Image courtesy of University of Michigan)

ScienceDaily (May 28, 2008) — Armed with chainsaws and pry bars, University of Michigan researchers and their colleagues recently hastened the end for nearly 7,000 mature aspen and birch trees in a large-scale, long-term experiment to glimpse the Great Lakes region's future forests.

A band of bark was stripped from each tree to kill it without cutting it down.

The main goal of the federally funded experiment Forest Accelerated Succession Experiment (FASET) is to determine how much heat-trapping carbon dioxide forests of the Upper Midwest will remove from the air in coming decades. Forests can help offset human-caused climate warming, and scientists want to know how big a role these particular forests will play.

The work began this month at the University of Michigan Biological Station near Pellston, at the northern tip of the state's Lower Peninsula. Project scientists say it's one of the largest experiments of its kind ever undertaken.

"Are the forests of the future going to be taking up more carbon than today's forests? That's the big-picture question, and we think the answer is, 'Yes, they will,'" said Christoph Vogel, a U-M forest ecologist.

"These aspens would naturally fall out, one at a time, over the next 20 to 30 years," he said. "By imposing this artificial treatment, we're doing it all at once. I think it will give us a good picture of what the forest will look like in 20 or 30 years." If Vogel and his colleagues are right about a future rise in carbon

storage, Great Lakes-area forests will play an increasingly important role in helping to soak up carbon dioxide (CO2), an invisible gas blamed for global warming.

But here's the big question to be addressed by FASET: Just how much CO2 will future forests remove? Finding the answer is not as straightforward as it might seem. Scientists can't simply measure the current CO2 uptake and project that number into the future because the region's forests are in flux. In fact, they are on the cusp of the most profound change since the forests were clear-cut in the late 1800s.

Today across the Upper Midwest, the aging aspen and birch trees that dominate the forest canopy are starting to die of old age. The sun-hogging aspen and birch are gradually giving way to understory species—red maple, beech, white pine, red pine, and red oak—currently stuck in partial shade.

As the aspen and birch drop out, the increased sunlight should boost the growth rate among the pines, oaks and maples, leading to a more complex, multi-layered canopy. The FASET experiment is designed to speed up that transition, acting like a time machine that allows scientists to measure future carbon uptake now. "We're simply accelerating the natural process of succession to allow the pine and the hemlock and the oak to come up and take their position in the canopy a little faster than they otherwise would, so that we can address the question, What will these future forests be like?" said Peter Curtis, an Ohio State University ecologist and the FASET principal investigator.

Aspen and birch will be killed in an 83-acre "treatment stand" using a technique called girdling. Instead of felling the trees with chainsaws, workers use the saws to inscribe two shallow, parallel cuts that encircle the tree trunk. Other workers follow with hammers and steel pry bars, stripping a band of bark from the trees. Girdling trees kills them while preventing them from sprouting new shoots. Sugars produced in the leaves can't make it down to the roots, which slowly starve. But water, minerals and growth hormones called cytokinins continue to flow up to the canopy.

If the trees were simply cut down, cytokinins would accumulate in the roots and signal the tree to sprout new shoots. The end result, over time, would be even more aspens. In the coming years, atmospheric carbon dioxide uptake in the treatment stand will be compared to uptake in a control stand about a mile away. Both sites have large towers topped with sniffers that send air samples to analytic instruments inside mobile laboratories below.

The U-M Biological Station, established in 1909, covers about 10,000 acres. Nearly all of it is designated as a nature research area. Measurements collected since 1999 show that the U-M experimental forest adds about 7,000 tons of carbon each year to its total mass by pulling in carbon dioxide during photosynthesis and storing the carbon as new wood.

Vogel and his FASET colleagues from Ohio State University and Indiana University predict that once the aging aspens and birch are removed and the treatment stand has a chance to recover, the carbon storage rate in the treated area could increase by as much as 40 percent.

It's expected to increase because removing the aspens and birches will allow more sunlight to reach the understory trees. A more complex, multi-layered canopy will rise up to replace the aspens and birches.

FASET results will be of interest to climate modelers and forest ecologists—even policymakers. The project is funded with a $650,000 grant from the U.S. Department of Energy's National Institute for Climate Change Research.

Adapted from materials provided by University of Michigan.

http://www.sciencedaily.com:80 /releases/2008/05/080523095759.htm

Family Feuds: Why Close Relatives Keep Their Distance In The Animal Kingdom

ScienceDaily (May 28, 2008) — Mammals cannot share their habitat with closely related species because the need for the same kind of food and shelter would lead them to compete to the death, according to new research out on May 28, 2008 in Proceedings of the Royal Society B: Biological Sciences.

The team behind the study says this is important because the retreat of natural habitats like rainforests caused by habitat destruction and climate change could inadvertently force closely-related species to live closer together than before.

Lead author of the study Natalie Cooper, a postgraduate student in Imperial College London's Department of Life Sciences, explains: "Mammal species that share a recent common ancestor have similar needs in terms of food and other resources. Our study shows that this has naturally resulted in closely related species keeping their distance from each other in the wild. Without this separation, one species outcompetes the other.

"The danger is that if mankind's reduction of natural habitats throws these close relatives together in small geographical areas they could struggle to survive."

The new research focused on communities of three different types of mammals: new world monkeys (including marmosets, tamarins and spider monkeys), possums, and ground squirrels (including marmots, prairie dogs and chipmunks).

Ms Cooper and her colleagues compared data from a 'family tree' showing the evolution of all mammal species on the planet, with checklists of which mammal species are found where. They discovered that in the case of these monkeys, squirrels and possums, close evolutionary relatives do not tend to live in communities with one another.

For example, in Badlands National Park, South Dakota USA, four species of ground squirrel, including the black tailed prairie dog, live alongside each other and other distantly related squirrels in a community. However, Gunnison's prairie dog, a close relative of the black-tailed species, was notably absent from the community, although data showed it lived within just 10km of the National Park and in very similar habitats.

This idea that closely related species would be unlikely to be found together because they compete ferociously was first put forward by Charles Darwin in 1859. This study provides the most evidence so far for Darwin's prediction, thanks to the new complete 'family tree' for mammals, developed by Imperial biologists last year, and new comprehensive data on the location and make-up of different mammal communities worldwide.

The research team hope that their findings could help conservationists have a better understanding of the possible problems that mammal species could encounter if their habitats are depleted and they are forced to live in close proximity to their close evolutionary relatives.

The research was funded by the Natural Environment Research Council.

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

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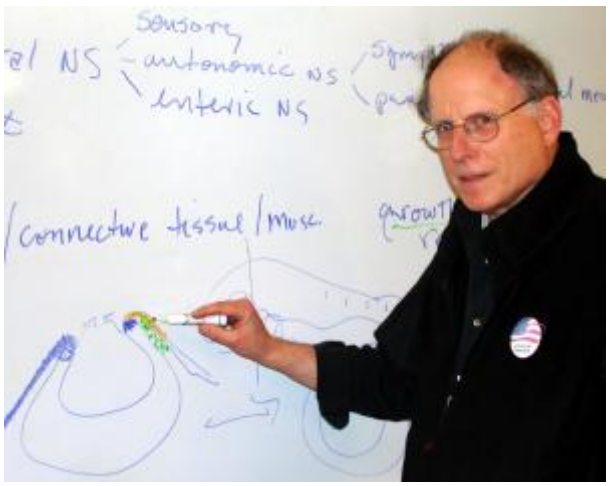
Origin Of Cells For Connective Tissues Of Skull And Face Challenged



James Weston points to a layer of cells above an embryo's neural crest. (Credit: Photo by Jim Barlow)

ScienceDaily (May 28, 2008) — With improved resolution, tissue-specific molecular markers and precise timing, University of Oregon biologist James A. Weston and colleagues have possibly overturned a long-standing assumption about the origin of embryonic cells that give rise to connective and skeletal tissues that form the base of the skull and facial structures in back-boned creatures from fish to humans.

Weston and co-authors from the Max Planck Institute of Immunology in Germany and the French National Scientific Research Centre at the Curie Institute document their potentially textbook-changing case in an article appearing online the week of May 19-23 ahead of regular publication in the Proceedings of the National Academy of Sciences.

The cells in question, they argue, do not come from a portion of embryonic neural epithelium called the neural crest, as widely believed, but rather from a distinct thin layer of epidermal epithelial cells next to it. "Our results," Weston said, "could lead to a better understanding of the etiology of craniofacial defects, as well as the evolution of the head that distinguishes vertebrates from other creatures."

The neural crest was first identified by classical embryologists in the late 19th and early 20th centuries and has been one of the most studied embryonic tissues. Conventional wisdom says that the neural crest gives rise to skeletal and connective tissue of the head and face, as well as a wide diversity of other stem cells that migrate to many places in the vertebrate embryo, where they spawn the cells that create the peripheral nervous system, and pigment cells in skin and hair (or scales and feathers).

The new study is part of research done over 25 years in Weston's quest to understand early development of the neural crest and explore alternative explanations for sometimes differing findings involving its assumed cell lineages. Weston noted that mutations in mice that adversely affected development of the peripheral nervous system or pigmentation did not affect craniofacial structures, whereas mutations that caused abnormal development of skeletal and connective tissue of the head and face did not alter neural crest-derived pigment or peripheral nervous system cells.

This paradox, he said, led him to wonder if different genetic programs were required to function in distinct embryonic precursors of these tissues. "In our new paper," he said, "we finally were able to re-examine some of the underlying assumptions that have led to the conventional wisdom about the source of the embryonic cell lineages that give rise to the skeleton and connective tissue of the head and face."

In the mouse embryo at eight days gestation, Weston and collaborators used high-resolution imaging and immunostaining techniques to identify and track the dispersal of cells known to jump start connective and skeletal tissue development. They were able to see clearly that these cells came from the non-neural layer

of cells rather than from the neural crest. The same distinction also exists in chicken embryos during the first few days of gestation, Weston noted. "Looking at the right time is very important," he said.

Weston argues that this non-neural epithelium is indeed distinct from the neural crest, because its cells contain characteristically different molecules. He and colleagues dispute suggestions that this non-neural structure is simply a sub-domain of the neural crest. "These cells emerge at a different time in development and disperse in the embryo before neural crest cells begin to migrate," Weston said.

"New technologies let us see cell types more clearly than ever before," said Weston, a member of the UO's Institute of Neuroscience. "We previously had discovered that a molecule that marks cell surfaces in the non-neural epithelium reveals a very sharp boundary between this non-neural epithelium and the neural tissue connected to the neural crest. In this study, we took a closer look."

They located a population of cells in the non-neural epithelium that express other molecules that "do not appear to originate from the neural crest," said Weston, who retired in 2001 but continued to teach in the College of Arts and Sciences until 2006. He still collaborates in some research with colleagues at the UO and at various labs around the world.

"I think our results have two important messages," he said. "First, it is important to identify and validate -- rather than ignore -- assumptions; and second, because we identified an alternative embryonic cell lineage as the source of the head and facial structures, we can now more effectively analyze and understand the molecular-genetic mechanisms that regulate the normal and abnormal development of these structures."

Co-authors with Weston were Marie Anne Breau, Thomas Pietri, and Jean Paul Thiery, all of the Curie Institute, and Marc P. Stemmler of the Max Planck Institute of Immunobiology. Pietri was a graduate student in the Curie Institute, where the project began in 2002, while Weston was on a fellowship, and now is a postdoctoral researcher with Phil Washbourne in the UO Institute of Neuroscience. Thiery, now based at the Institute of Molecular and Cell Biology of the Agency for Science, Technology and Research in Singapore, is a corresponding author with Weston on the PNAS paper.

Adapted from materials provided by University of Oregon.

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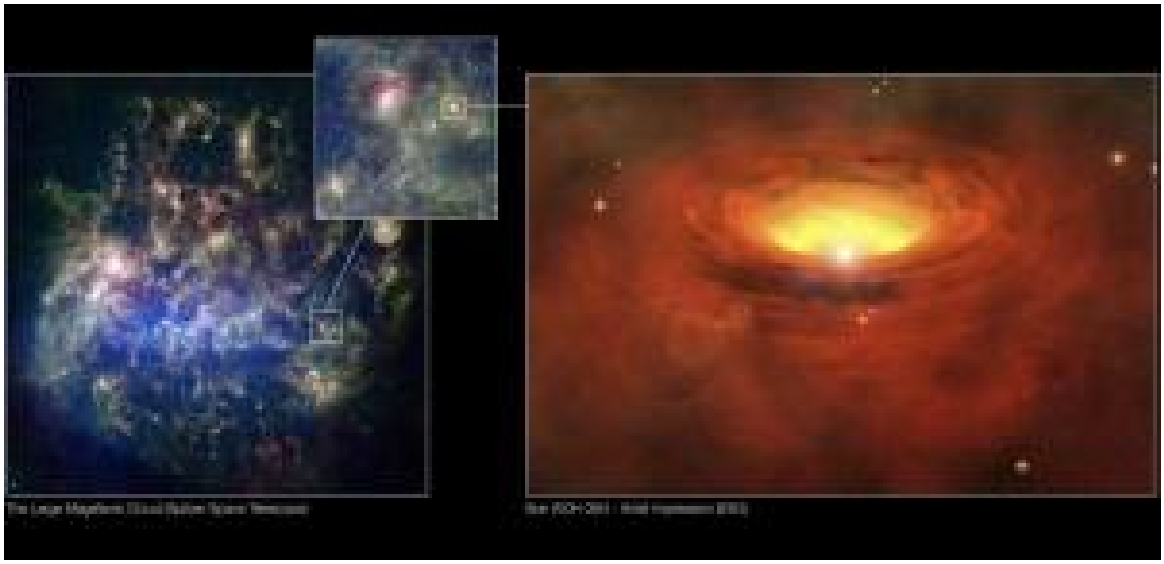
Massive Star In Nearby Galaxy Has Mammoth Belt



The position of the supergiant star WOH G64 in the Large Magellanic Cloud, one of the Milky Way's neighbouring galaxies, is shown in this Spitzer image (left). On the right, an artist's impression is provided of the thick, massive torus of matter surrounding the star as inferred from observations made with ESO's Very Large Telescope Interferometer. This is the first time that MIDI resolves an individual star in a neighbouring galaxy. (Credit: ESO)

ScienceDaily (May 28, 2008) — Talk about a diet! By resolving, for the first time, features of an individual star in a neighbouring galaxy, ESO's VLT has allowed astronomers to determine that it weighs almost half of what was previously thought, thereby solving the mystery of its existence. The behemoth star is found to be surrounded by a massive and thick torus of gas and dust, and is most likely experiencing unstable, violent mass loss.

WOH G64 is a red supergiant star almost 2 000 times as large as our Sun and is located 163 000 light-years away in the Large Magellanic Cloud, one of the Milky Way's satellite galaxies.

"Previous estimates gave an initial mass of 40 times the mass of the Sun to WOH G64. But this was a real problem as it was way too cold, compared to what theoretical models predict for such a massive star. Its existence couldn't be explained," says Keiichi Ohnaka, who led the work on this object.

New observations, made with ESO's Very Large Telescope Interferometer, conclude that the gas and dust around the star is arranged in a thick ring, rather than a spherical shell, and the star is thus less hidden than had been assumed. This implies that the object is in fact half as luminous as previously thought, and thus, less massive. The astronomers infer that the star started its life with a mass of 25 solar masses. For such a star, the observed temperature is closer to what one would expect.

"Still, the characteristics of the star mean that it may be experiencing a very unstable phase accompanied by heavy mass loss," says co-author Markus Wittkowski from ESO. "We estimate that the belt of gas and dust that surrounds it contains between 3 and 9 solar masses, which means that the star has already lost between one tenth and a third of its initial mass."

To reach this conclusion, the team of astronomers used the MIDI instrument to combine the light collected by three pairs of 8.2-m Unit Telescopes of the VLT. This is the first time that MIDI has been used to study an individual star outside our Galaxy.

The observations allowed the astronomers to clearly resolve the star. Comparisons with models led them to conclude that the star is surrounded by a gigantic, thick torus, expanding from about 15 stellar radii (or 120 times the distance between the Earth and the Sun - 120 AU!) to more than 250 stellar radii (or 30 000 AU!).

"Everything is huge about this system. The star itself is so big that it would fill almost all the space between the Sun and the orbit of Saturn," says Ohnaka. "And the torus that surrounds it is perhaps a light-year across! Still, because it is so far away, only the power of interferometry with the VLT could give us a glimpse on this object. "

The name WOH G64, refers to the fact that it is the 64th entry in the catalogue by Westerlund, Olander, and Hedin, published in 1981, and based on observations made at ESO La Silla.

The team is comprised of K. Ohnaka, T. Driebe, K.-H. Hofmann, G. Weigelt (Max-Planck Institute for Radio Astronomy, Bonn, Germany), and M. Wittkowski (ESO).

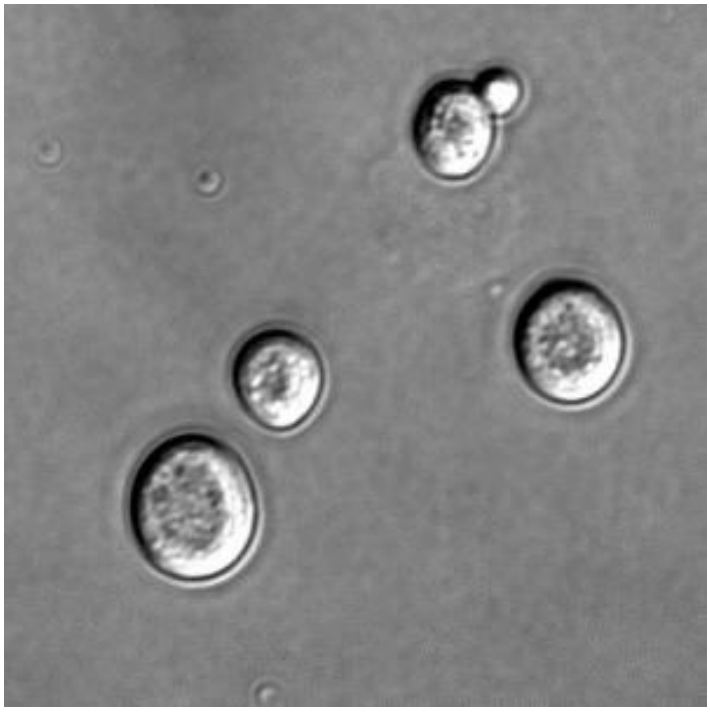
Journal reference:

1. K. Ohnaka et al. Spatially resolved dusty torus toward the red supergiant WHO G64 in the Large Magellanic Cloud. Astronomy and Astrophysics, 484, 371. doi:10.1051/0004-6361:200809469

Adapted from materials provided by ESO.

http://www.sciencedaily.com:80 /releases/2008/05/080527110944.htm

DNA Clues To Reproductive Behavior



Saccharomyces cells. (Credit: Wikimedia Commons)

ScienceDaily (May 27, 2008) — A species of wild yeast goes through a cycle of sexual reproduction once in every 1,000 asexual generations, according to new research by Imperial biologists published in the PNAS journal in April.

The study focused on the wild yeast Saccharomyces paradoxus, which is able to reproduce both sexually and asexually. The scientific team used this yeast to examine how sexual and asexual reproduction cause different types of variations in an organism's DNA sequence. A DNA sequence is like an organism's 'blueprint' - a complete set of chemical instructions needed for it to grow and function.

The researchers analysed the DNA sequences of wild yeast and discovered how infrequently the yeast reproduces sexually by noting the unique 'signatures' sexual and asexual reproduction leave in the yeast's DNA sequence.

When the yeast reproduces asexually a mother cell generates a bud, which becomes detached, creating a new daughter cell, identical to the mother cell. During the budding process, the original DNA of the mother cell is copied, and occasionally mistakes are made, known as mutations. As these mutations occur in every generation, they can be used to distinguish asexual lineages and their total number can be used to estimate the number of asexual generations in a population.

On the other hand, if the yeast reproduces sexually, the mother cell's genetic material undergoes a process of division and recombination to create a new living organism. As a result of this recombining process new combinations of genes can be found in the offspring's DNA sequence, which indicate that the new organism was created by sexual, as opposed to asexual, reproduction.

Isheng Jason Tsai, a postgraduate student in Imperial's Department of Life Sciences, one of the authors of the paper, explains why being able to identify when different reproductive methods have occurred is important:

"Finding the unique signatures left by different types of reproduction on the yeast's DNA gives us valuable insights into the life cycle of this species, which is otherwise very difficult to study. This research has shed new light on the study of microbes, and their patterns of reproduction."

Jason and his colleagues analysed variations in the DNA sequence of one particular chromosome in two populations of the wild yeast Saccharomyces paradoxus.

By analysing the yeast's DNA sequences, the researchers were able to estimate rates of DNA variation caused by asexual reproduction, and rates of DNA variation caused by sexual reproduction. Both these two rates increase with the number of individuals in the population and can be used to estimate population size.

Comparing the estimates from these two different types of DNA variation enabled them to conclude that S. paradoxus goes through a sexual cycle approximately once every thousand asexual generations.

The paper, "Population genomics of the wild yeast Saccharomyces paradoxus: Quantifying the life cycle" was published online on 14 March. Download the paper.

Adapted from materials provided by Imperial College London.

http://www.sciencedaily.com:80 /releases/2008/05/080523200910.htm

'Avalanche Effect' In Solar Cells Demonstrated

ScienceDaily (May 27, 2008) — Researchers at TU Delft and the FOM Foundation for Fundamental Research on Matter have found irrefutable proof that the so-called avalanche effect by electrons occurs in specific, very small semiconducting crystals. This physical effect could pave the way for cheap, high-output solar cells. The findings are to be published in scientific journal Nano Letters.

Solar cells provide great opportunities for future large-scale electricity generation. However, there are currently significant limitations, such as the relatively low output of most solar cells (typically fifteen percent) and high manufacturing costs.

One possible improvement could derive from a new type of solar cell made of semiconducting nanocrystals (crystals with dimensions in the nanometre size range). In conventional solar cells, one photon (light particle) can release precisely one electron. The creation of these free electrons ensures that the solar cell works and can provide power. The more electrons released, the higher the output of the solar cell.

In some semiconducting nanocrystals, however, one photon can release two or three electrons, hence the term avalanche effect. This could theoretically lead to a maximum output of 44 percent in a solar cell comprising the correct semiconducting nanocrystals. Moreover, these solar cells can be manufactured relatively cheaply.

The avalanche effect was first measured by researchers at the Los Alamos National Laboratories in 2004. Since then, the scientific world has raised doubts about the value of these measurements. Does the avalanche effect really exist or not?

Within the Joint Solar Programme TU Delft's Prof. Laurens Siebbeles has now demonstrated that the avalanche effect does indeed occur in lead selenide (PbSe) nanocrystals. It has been established, however, that the effect in this material is smaller than previously assumed. Siebbeles' results are more reliable than those of other scientists thanks to more careful and more detailed measurement using ultra-fast laser methods.

Siebbeles believes that this research paves the way for further unravelling the secrets of the avalanche effect.

Adapted from materials provided by Delft University of Technology, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com:80 /releases/2008/05/080527091942.htm

Neuromuscular Activation By Means Of Vibrations

Neuromuscular stimulation on a vibration platform (model Galileo 900, Novotec, Pforzheim, Germany). (Credit: Image courtesy of Universidad Politécnica de Madrid)

ScienceDaily (May 27, 2008) — A researcher from the Universidad Politécnica de Madrid has collaborated with the University of Granada in the development of a research study on the possible effects of vibrations as a mean of neuromuscular activation to improve jumping performance. The results suggest that the effect could be dependent on the level of training.

Lately, new technologies applied to improving performance and health have experienced a booming rise. One of those has been the use of vibrating platforms to improve athletic performance in general and muscular strength in particular.

The application of mechanical vibrations through technologies like vibrating platforms has been proposed by many recent studies as tool capable of increasing muscular performance. Nevertheless, the results offered are contradictory. This has motivated the group EFFECTS-262 of the Universidad de Granada, in collaboration with the Facultad de Ciencias de la Actividad Física y del Deporte at the Universidad Politécnica de Madrid, to try to clear this situation by evaluating the possible effects of a short vibration on the jumping abilities of young adults of both sexes.

A group of 114 university students, 37 of them male and 77 female, with an average of 19.6 years of age has been used as test subjects for an experiment to evaluate the height reached by the subjects when jumping, and compare the results with the height reached after a short stimulation by the vibration platform.

The main parameters to be controlled, since they accurately represent the characteristics of the vibration training, are: the frequency of the vibrations (number of vibration cycles per second, measured in hertz Hz), the time duration of the training measured in seconds or minutes, the amplitude of movement of the vibration source measured in millimeters and the vibration charge that is generated (g).

The results of the study indicate that vibration stimuli ranging from 20 to 30 Hz and lasting from 90 to 120 seconds would generate a short decrease in the jumping heights achieved immediately after the application of the stimulation. However, such decrease seems to completely disappear after a short resting period. The test subjects recovered their normal jumping ability after a minute of recovery.

The researchers believe that vibration stimulation could cause a local temporal muscular fatigue that would be the cause of the decrease on the heights reached.

If the results from this study are compared with those presented by experiments with a similar focus, it could be suggested that such stimulation has stronger effects proportional to the level of the training that the subjects are accustomed to. The inclusion of test subjects with low training levels in this study could account for the decrease in jumping heights. The researchers involved concluded that in subjects that are not actively training, it is convenient to have resting periods of at least a minute after stimulation before jumping to their full potential.

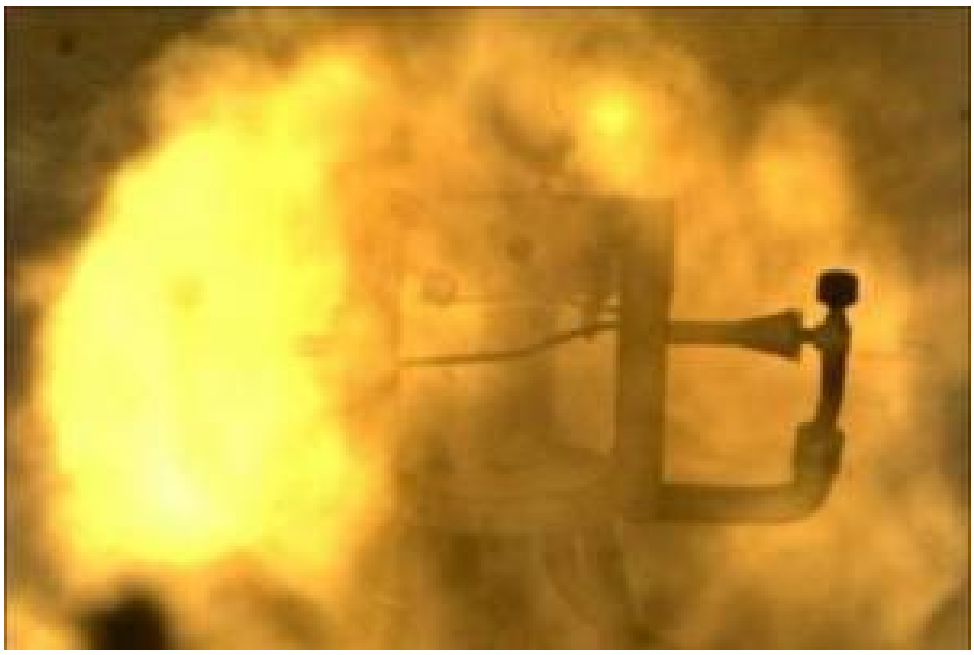
Journal reference:

1. Artero EG, España-Romero V, Ortega FB, Jiménez-Pavón D, Carreño-Gálvez F, Ruiz JR, Gutiérrez A, Castillo MJ. Use of whole-body vibration as a mode of warming up before counter movement jump. Journal of Sports, Science and Medicine, 6: 574-5, (2007).

Adapted from materials provided by Universidad Politécnica de Madrid, via AlphaGalileo.

http://www.sciencedaily.com:80 /releases/2008/05/080522082716.htm

Next-generation Explosives: More Power And Safety Without The Pollution



Biochemists report that a full detonation of a sample of a new type of nitrogen-rich explosive produces fewer toxic byproducts and is easier to handle than its carbon-rich counterparts. (Credit: Courtesy of Michael Goebel, Ludwig-Maximilians University)

ScienceDaily (May 27, 2008) — Scientists in Germany are reporting development of a new generation of explosives that is more powerful than TNT and other existing explosives, less apt to detonate accidentally, and produce fewer toxic byproducts.Their study of these more environmentally friendly explosives is scheduled for the June 24 issue of ACS' Chemistry of Materials, a bi-weekly journal.In the new study, Thomas M. Klapötke and Carles Miró Sabate point out that conventional explosives such as TNT, RDX and HMX, widely-used in military weapons, are rich in carbon and tend to produce toxic gases upon ignition.

In addition to polluting the environment, these materials are also highly sensitive to physical shock, such as hard impacts and electric sparks, making their handling extremely dangerous. Greener, safer explosives are needed, the researchers say. To meet this need, Klapötke and Sabate turned to a recently explored class of materials called tetrazoles, which derive most of their explosive energy from nitrogen instead of carbon. They identified two promising tetrazoles: HBT and G2ZT. The researchers developed tiny "bombs" out of these materials and detonated them in the laboratory. The materials showed less sensitivity to shock than conventional explosives and produced fewer toxic products when burned, the researchers say.

Journal reference:

1. Klapötke, Thomas M. and Sabaté, Carles Miró. Bistetrazoles: Nitrogen-Rich, High-Performing, Insensitive Energetic Compounds. Chem. Mater., 2008 doi: 10.1021/cm703657k

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

http://www.sciencedaily.com:80 /releases/2008/05/080526153255.htm

New Target For Cancer Drugs? Gatekeepers Are Discovered In The Human Cell 'Shredder'

Ivan Dikic and Koraljka Husnjak in their laboratory at the Institute for Biochemistry, Frankfurt University. (Credit: Uwe Dettmar)

ScienceDaily (May 27, 2008) — Human cells make use of a "shredder," the proteasome, to degrade proteins that are old, misfolded or no longer needed. If the system does not work, illnesses such as Alzheimer's or Parkinson's disease may occur. Biochemist report finding a long-awaited receptor for ubiquitin on the proteasome which may have a key role in fighting tumors.

Insulin, a hormone released in large quantities when food is consumed, is reduced by 50% only three to five minutes later. However, if the cell's internal waste disposal system malfunctions, illnesses such as Alzheimer's or Parkinson's disease may occur. To prevent this from happening, the complex process of protein degradation first needs to be fully understood at an atomic level so that appropriate drugs can be developed. Biochemists at Frankfurt University, collaborating with an international team of scientists have just taken an important step towards unravelling the workings of this mechanism. In the current edition of the scientific journal "Nature" they report finding the long-awaited receptor for ubiquitin on the proteasome. This receptor may well turn out to have a key role in fighting tumours.

"A discovery of this kind happens only once in a researcher's lifetime" comments Professor Ivan Dikic, in whose group at the Institute for Biochemistry the significant finding was made. The editors of "Nature" agree and have accepted two manuscripts describing this discovery: an article (leading manuscript in the issue) and a letter (regular publication). The Institute's director Professor Werner Müller-Esterl states "We are delighted by his success of a member of our Cluster of Excellence on Macromolecular complexes. This sort of recognition is only achieved by one in a thousand scientists".

However, things were looking very different only a year ago when it appeared that the research groups involved in this project - in Frankfurt, Munich, Minnesota and Harvard - were treading water. The scientists were hoping to solve structure of the portal protein from yeast using protein crystallography but the protein refused to crystallize. However, Koraljka Husnjak, a postdoctoral researcher found a way to isolate the ubiquitin binding domain in the mammalian protein, that was amenable for rapid crystallization and subsequent determination of its structure.

Already some 30 years ago, the basic mechanism of cellular waste disposal was elucidated by three scientists, Aaron Ciechanover, Avram Hershko, and Irwin Rose, for which they won Nobel Prize in Chemistry in 2004. Since then it has been known that proteins due for disposal are marked with ubiquitin molecules, which are present throughout the cell. They reach the barrel-like proteasome complex via 'shuttle' molecules or through diffusion.

On the upper side of the proteasome there is a kind of gatekeeper's lodge with a narrow entrance leading to an inner chamber, where aggressive enzymes cleave the protein. But first the protein is subjected to a strict control procedure to ensure that it is indeed destined for the shredder. If the gatekeeper - a receptor - recognizes that the protein is tagged with ubiquitin, the tagged protein is unfolded and can then pass through the narrow opening. While this takes place the ubiquitin separates from the protein, ready to be re-used. Until now, only one such gatekeeper, a proteasomal receptor called Rpn 10, was known.

The scientists then conducted experiments to genetically remove Rpn 10 from the cell and were surprised to discover that the proteasome continued to function normally. This led them to suspect that there must be an additional protein in the cell, which compensates in the absence of Rpn 10 and serves a similar purpose. This has now been discovered: protein Rpn 13.

According to Koraljka Husnjak the first breakthrough occurred about four years ago, when they found out that ubiquitin binds to a subunit in the gatekeeper's lodge. "So it became clear to us that the proteasome subunit might act as ubiquitin receptor on the proteasome. But first of all we had to clarify this binding site's function and understand the details of the binding process at an atomic level". Ivan Dikic then asked other leading international groups for their expertise in helping to solve this complex research problem.

The X-ray structural analysis was carried out by Prof. Michael Groll and his group at the Technical University in Munich, and a group led by Prof. Kylie Walters at the University of Minnesota, Minneapolis undertook the NMR structure work. As soon as the binding mechanism had been understood at an atomic level, Professor Finley and his group at Harvard Medical School conducted experiments with various yeast strains in which they were able to prove that in living cells the process was indeed identical to that already suggested by the structural model.

The discovery of this second receptor on the proteasome is of particular significance in cancer research since it has the potential to be blocked by specific drugs. This would then prevent the proteins in the cell from being broken down. Since developing cancer cells depend on the breakdown of specific proteins in signalling cascades, which appear critical for tumour cell survival and proliferation, the cancer cells would no longer be able to multiply. It is likely that both these receptors react selectively to certain groups of proteins. So even if one is blocked, the other continues to ensure that the proteins that are no longer needed nevertheless still gain access to the proteasome.

Adapted from materials provided by Goethe University Frankfurt, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com:80 /releases/2008/05/080522093344.htm

Public Schools As Good As Private Schools In Raising Math Scores, Study Says

Illinois education professors Sarah and Christopher Lubienski have completed another studying comparing math education in public schools and private schools. "It is worth noting," the researchers write in analyzing their results, "how little variation school type really accounts for in students' growth in achievement." (Credit: Photo by L. Brian Stauffer)

ScienceDaily (May 27, 2008) — Students in public schools learn as much or more math between kindergarten and fifth grade as similar students in private schools, according to a new University of Illinois study of multi-year, longitudinal data on nearly 10,000 students.

The results of the study appear in the May issue of the education journal Phi Delta Kappan.

“These data provide strong, longitudinal evidence that public schools are at least as effective as private schools in boosting student achievement,” according to the authors, education professor Christopher Lubienski, doctoral student Corinna Crane and education professor Sarah Theule Lubienski.

The new study is the first published study to show that public schools are at least as effective as private schools at promoting student learning over time, they say.

Combined with other, yet-unpublished studies of the same data, which produced similar findings, “we think this effectively ends the debate about whether private schools are more effective than publics,” said Christopher Lubienski, whose research has dealt with all aspects of alternative education.

This is important, he said, because many current reforms, such as No Child Left Behind, charter schools and vouchers for private schools, are based on that assumption.

The debate essentially began three years ago with the publication in Phi Delta Kappan of a previous study by the Lubienskis, which challenged the then-common wisdom – supported by well-regarded but dated research – that private schools were superior.

In that 2005 study, they found that public school students tested higher in math than their private school peers from similar social and economic backgrounds.

In another, more-extensive study in early 2006, they built on those findings, and also raised similar questions about charter schools.

Both studies were based on fourth- and eighth-grade test data from the National Assessment of Educational Progress (NAEP).

The conclusions of the husband-and-wife team seemed "crazy radical" at the time, Sarah Lubienski said, and generated significant controversy. They were supported, however, later in 2006, with similar findings in U.S. Department of Education studies comparing public schools with privates and with charters, which looked at NAEP test data on both math and reading.

(Unlike literacy, math is viewed as being less dependent on a student's home environment and more an indication of a school's effectiveness, Sarah Lubienski said.)

Critics of these previous studies, however, have cited the lack of longitudinal data showing the possible effect over time of different types of schooling. The studies of NAEP data were only snapshots, they said, showing student achievement at a single point in time. The studies did not address the possibility that some students may have entered private school at a lower level of achievement.

The new study was designed, in part, to address that issue, the authors say in their PDK article.

The data for the new study came from the database produced by the Early Childhood Longitudinal Study, Kindergarten Class of 1998-99 (or ECLS-K), administered by the National Center for Education Statistics (NCES), part of the U.S. Department of Education.

The ECLS-K database includes both student achievement and comprehensive background information drawn from a nationally representative sample of more than 21,000 students, starting with their entry into kindergarten in the fall of 1998.

The most recent data available for the U. of I. study was gathered in 2004, in the spring of the students' fifth-grade year. The sample used for the study included 9,791 students in 1,531 schools (1,273 public, 140 Catholic and 118 other private schools).

To better determine the effects of attending different types of schools, the sample included only students who had stayed in the same type of school – though not necessarily the same school – throughout the years covered.

As in the previous studies, the researchers used a statistical technique known as hierarchical linear modeling to control for demographic differences between students, as well as schools. Among the demographic variables included in looking at students were measures of socioeconomic status; race and ethnicity; gender; disability; and whether the child spoke a language other than English at home.

Among the variables included in looking at schools was the average socioeconomic level of its students, its racial or ethnic composition, and its location (urban or rural).

The NAEP data had included similar information, but its quality and controls on its collection were not as strong as for ECLS-K, according to Sarah Lubienski, who studies math education and specializes in statistical research. “It’s one reason this study feels more definitive than the NAEP studies,” she said.

After controlling for demographic differences among students and schools, the researchers’ found that public school students began kindergarten with math scores roughly equal to those of their Catholic school peers. By fifth grade, however, they had made significantly greater gains, equal to almost an extra half year of schooling.

Part of the explanation, Sarah Lubienski said, might lie in the fact that Catholic schools have fewer certified teachers and employ fewer reform-oriented mathematics teaching practices – something they found in research for another study, accepted for publication in the American Journal of Education.

Public school students also “rivaled the performance of students in other (non-Catholic) private schools,” the researchers wrote. After adjusting for demographics and initial kindergarten scores, they found that achievement gains between kindergarten and fifth grade were roughly equal.

The number of private schools in the study did not allow for drawing conclusions about other subcategories of private schools, such as Lutheran, conservative Christian or secular, Sarah Lubienski said. In their earlier NAEP research, they found that Lutheran schools, for instance, performed on par with publics, while conservative Christian schools performed lower than all other school types.

“It is worth noting,” the researchers write in analyzing their results, “how little variation school type really accounts for in students’ growth in achievement … Specifically, while all of the variables in our model together explained 62 percent of the achievement differences between schools, school type alone accounted for less than 5 percent of these differences, with demographic considerations accounting for a much greater share.”

Put another way by Sarah Lubienski, “school type alone doesn’t explain very much of why these scores vary … in truth, whether the school is public or private doesn’t seem to make that much difference.”

The researchers go on to write that they “personally see private schools as an integral part of the American system of education” and “there are many valid reasons why parents choose private schools and why policymakers may push for school choice.”

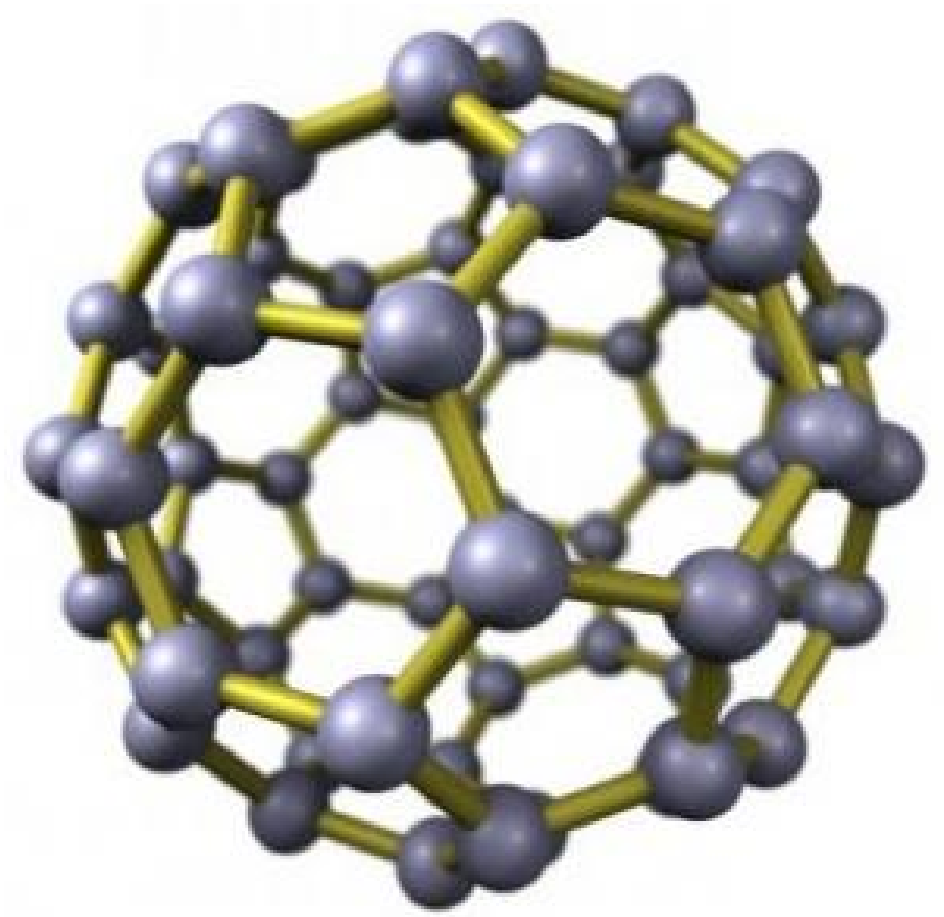
Academic achievement, however, may no longer be one of those reasons, they write. “Claims that simply switching students from one type of school to another will result in higher scores appear to be unfounded.”

They suggest “moving away from a simple focus on school type and instead examining what happens within schools.”

Adapted from materials provided by University of Illinois at Urbana-Champaign.

http://www.sciencedaily.com:80 /releases/2008/05/080523162916.htm

Nanotechnology Risks: How Buckyballs Hurt Cells



A model of a molecule of buckminsterfullerene -- C_{60}. (Credit: iStockphoto/Martin McCarthy)

ScienceDaily (May 27, 2008) — A new study into the potential health hazards of the revolutionary nano-sized particles known as 'buckyballs' predicts that the molecules are easily absorbed into animal cells, providing a possible explanation for how the molecules could be toxic to humans and other organisms.

Using computer simulations, University of Calgary biochemist Peter Tieleman, post-doctoral fellow Luca Monticelli and colleagues modeled the interaction between carbon-60 molecules and cell membranes and found that the particles are able to enter cells by permeating their membranes without causing mechanical damage.

"Buckyballs are already being made on a commercial scale for use in coatings and materials but we have not determined their toxicity," said Tieleman, a Senior Scholar of the Alberta Heritage Foundation for Medical Research who specializes in membrane biophysics and biocomputing. "There are studies showing that they can cross the blood-brain barrier and alter cell functions, which raises a lot of questions about their toxicity and what impact they may have if released into the environment."

Tieleman's team used the high-powered computing resources of WestGrid, a partnership between 14 Western Canadian institutions, to run some of the cell behaviour simulations. The resulting model showed that buckyball particles are able to dissolve in cell membranes, pass into cells and re-form particles on the other side where they can cause damage to cells.

Spherical carbon-60 molecules were discovered in 1985, leading to the Nobel Prize in physics for researchers from the University of Sussex and Rice University who named the round, hollow molecules Buckminsterfullerene after renowned American architect Richard Buckminster Fuller, the inventor of the geodesic dome.

Popularly known as buckyballs, carbon-60 molecules form naturally in minute quantities under extreme conditions such as lightning strikes. They can also be produced artificially as spheres or oblong-shaped balls, known as fullerenes, and can be used to produce hollow fibers known as carbon nanotubes. Both substances are considered to be promising materials in the field of nanotechnology because of their incredible strength and heat resistance. Potential applications include the production of industrial materials, drug delivery systems, fuel cells and even cosmetics.

In recent years, much research has focused on the potential health and environmental impacts of buckyballs and carbon nanotubes. Fullerenes have been shown to cause brain damage in fish and inhaling carbon nanotubes results in lung damage similar to that caused by asbestos.

"Buckyballs commonly form into clumps that could easily be inhaled by a person as dust particles," Tieleman said. "How they enter cells and cause damage is still poorly understood but our model shows a possible mechanism for how this might occur."

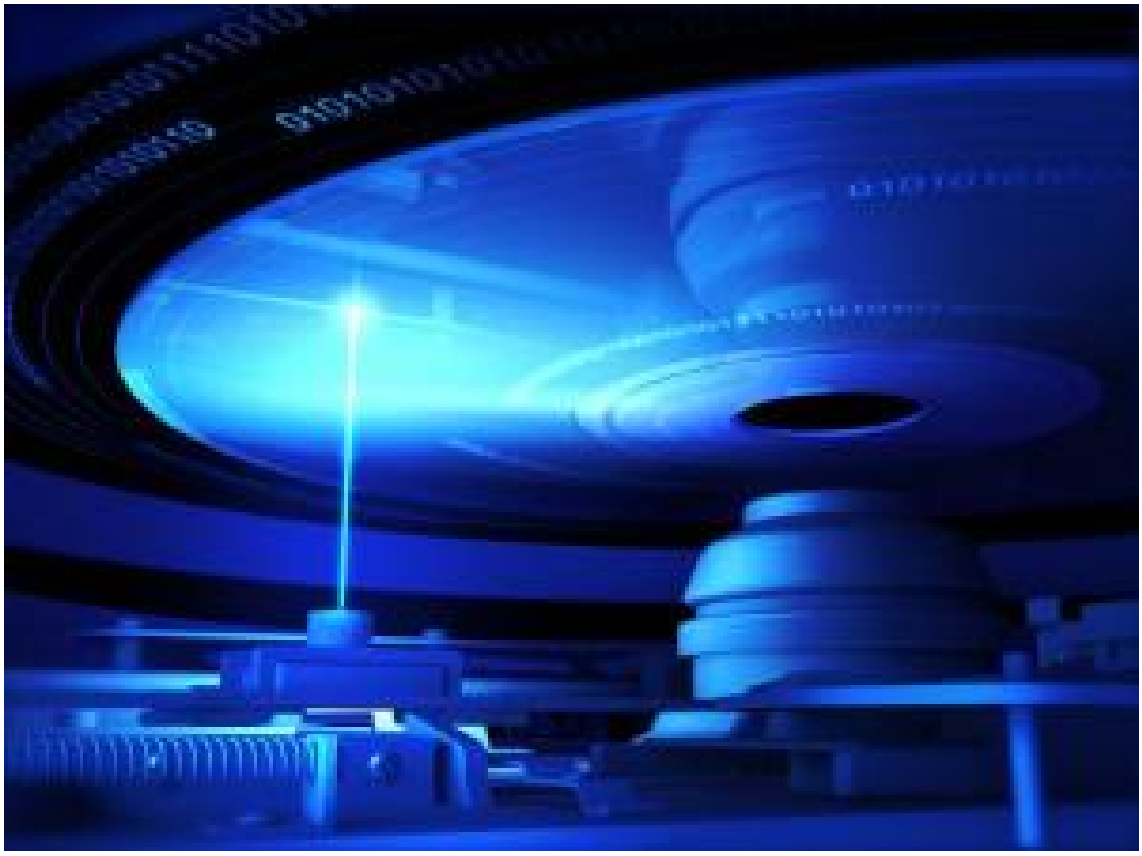
Journal reference:

1. Jirasak Wong-Ekkabut, Svetlana Baoukina1, Wannapong Triampo, I-Ming Tang, D. Peter Tieleman1 & Luca Monticelli1. Computer simulation study of fullerene translocation through lipid membranes. Nature Nanotechnology. doi:10.1038/nnano.2008.130

Adapted from materials provided by University of Calgary.

http://www.sciencedaily.com:80 /releases/2008/05/080527091910.htm

Bright Sparks Make Gains Towards Plastic Lasers Of The Future



The researchers hope lasers in CD players may one day use plastic laser diodes. (Credit: iStockphoto/Andrey Volodin)

ScienceDaily (May 27, 2008) — Imperial researchers have come one step closer to finding the 'holy grail' in the field of plastic semiconductors by demonstrating a class of material that could make electrically-driven plastic laser diodes a reality.

Conventional electrically-powered laser diodes used in everyday consumer goods like DVD players are currently based on inorganic semiconductor materials such as gallium arsenide, gallium nitride and related alloys. The term 'semiconductor' describes the material's ability to pass an electric current, which lies somewhere between that of a metallic conductor and that of an insulator.

In the case of a laser diode, the current comprises positive and negative charges that combine inside the material and produce the initial light required to begin the lasing process. If the initial light can be forced to pass back and forth through the semiconducting material many times, in a way that amplifies its strength on each pass, then after a short time a spectrally narrow, intense and directional laser beam emerges.

The last two decades have seen tremendous developments in new organic-molecule-based semiconductors, including a special class of plastics. Many important devices based on such plastics have successfully been developed, including light emitting diodes for displays and lighting, field effect transistors for electrical circuits, and photodiodes for solar energy conversion and light detection. However, despite over a decade of worldwide research, plastic laser diodes remain the only major device type not yet demonstrated.

One of the main stumbling blocks is that, until now, it was widely considered that plastic semiconductor laser diodes would be impossible to produce because scientists had not found or developed any plastics that could sustain a large enough current whilst also supporting the efficient light emission needed to produce a laser beam.

Now a team of Imperial physicists, publishing their findings in Nature Materials in April, have done just that. The plastics studied, synthesised by the Sumitomo Chemical Company in Japan, are closely related to PFO, an archetype blue-light emitting material. By making subtle changes in the plastic's chemical structure the researchers produced a material that transports charges 200 times better than before, without compromising its ability to efficiently emit light - indeed the generation of laser light was actually improved.

Professor Donal Bradley, lead author of the new study and head of Imperial's Department of Physics said: "This study is a real breakthrough. In the past designing polymers for electronic and optoelectronic devices often involved maximising one key property in a material at a time. When people tried to develop plastic semiconductors for laser diode use, they found that optimising the material's charge transporting properties had a detrimental effect on its ability to efficiently emit light, and vice versa."

"The modifications made to the PFO structure have allowed us to convincingly overcome this perceived incompatibility and they suggest that plastic laser diodes might now be a realistic possibility", added co-author Dr Paul Stavrinou.

Low cost manufacturing and easy integration possibilities are not the only potential advantages of developing lasers based on plastics. Currently available laser diodes do not readily cover the full visible spectrum, which limits display and many spectroscopic applications, and precludes access to the full range of wavelengths supported by the standard plastics used for waveguides and optical fibres.

Professor Bradley, Dr Stavrinou and their colleagues point out that plastic laser diodes could operate across a much more substantial wavelength range spanning the near ultraviolet to the near infrared.

The Imperial College physics team, in conjunction with polymer synthesis teams at the Sumitomo Chemical Company and in collaborating university groups, now plans to explore the generality of their approach to manipulating chemical structure to target specific device requirements. They will also study electrically driven structures, paying particular attention to understanding and managing the additional optical losses that can arise from the presence of conductive electrode layers in close proximity to the light emission material.

Adapted from materials provided by Imperial College London.

http://www.sciencedaily.com:80 /releases/2008/05/080523201046.htm

Melting Glaciers May Release DDT And Contaminate Antarctic Environment

Scientists report that high levels of the banned pesticide DDT drain into coastal waters each year in Antarctica, harming the environment while adding another consequence to global warming. (Credit: Courtesy of Heidi N. Geisz)

ScienceDaily (May 27, 2008) — In an unexpected consequence of climate change, scientists are raising the possibility that glacial melting is releasing large amounts of the banned pesticide DDT, which is contaminating the environment in Antarctica.

The study is scheduled for the June 1 issue of ACS' bi-weekly journal Environmental Science & Technology.

In the study, Heidi N. Geisz and colleagues estimate that up to 2.0-8.8 pounds of DDT are released into coastal waters annually along the Western Antarctic Ice Sheet from glacial meltwater. The researchers point out that DDT reaches Antarctica by long-range atmospheric transport in snow, and then gets concentrated in the food chain.

DDT has been banned in the northern hemisphere and has been regulated worldwide since the 1970s. Geisz found, however, that DDT levels in the Adelie penguin have been unchanged since the 1970s, despite an 80 percent reduction in global use.

Global warming may explain that contradiction, they say. As the annual winter temperature on the Antarctic Peninsula has increased by about 10 degrees Fahrenheit in the last 30 years, glaciers have retreated. The possibility that glacial meltwater has contaminated Antarctic organisms with DDT, the study says, "has compelling consequences" if global warming should continue and intensify.

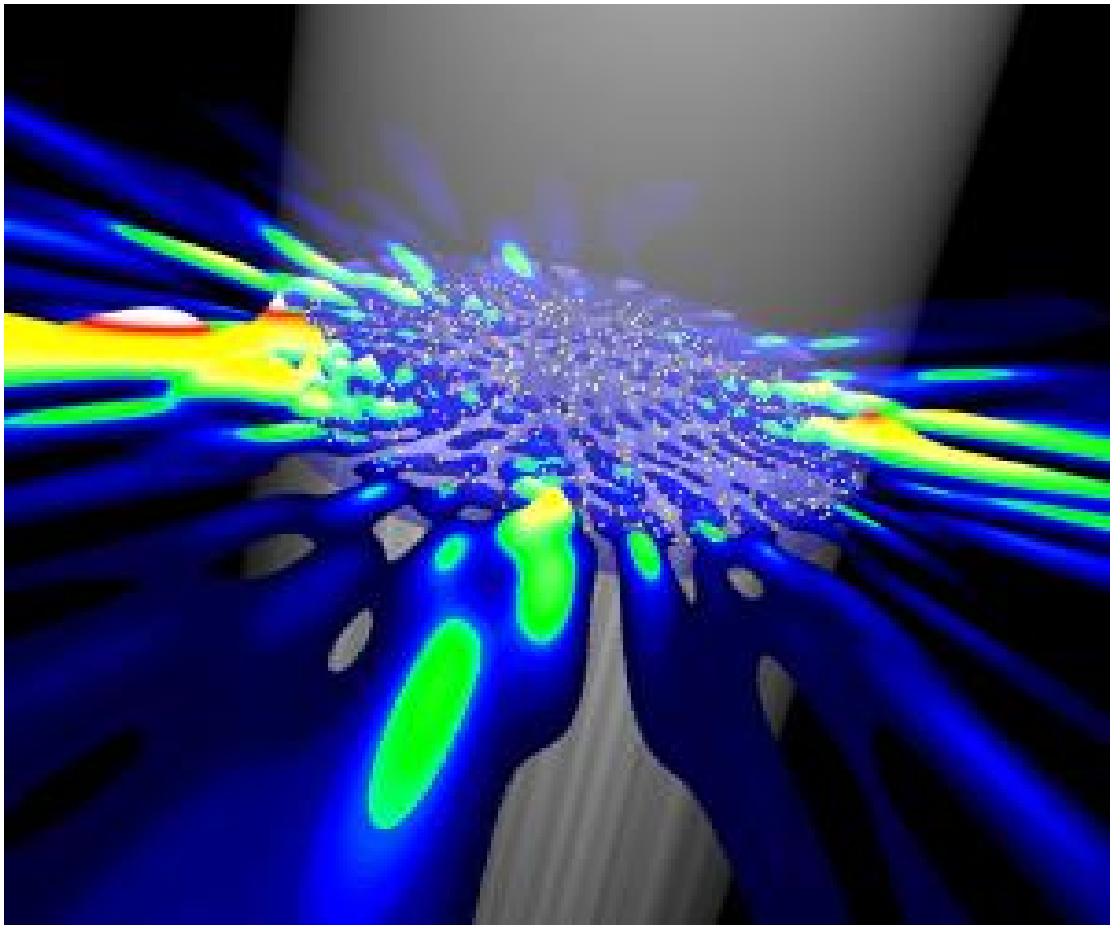
Journal reference:

1. Geisz, Heidi N., Dickhut, Rebecca M., Cochran, Michele A., Fraser, William R., and Ducklow, Hugh W. Melting Glaciers: A Probable Source of DDT to the Antarctic Marine Ecosystem. Environ. Sci. Technol., 2008 doi: 10.1021/es702919n

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

http://www.sciencedaily.com:80 /releases/2008/05/080526153152.htm

Chaotic Lasers Tamed



Diagrammatic illustration of a diffusive random laser. White indicates high light intensity and blue low intensity. (Credit: H. Türeci, ETH Zurich)

ScienceDaily (May 27, 2008) — "Classical" laser light has become part of everyday life. There is a laser in every CD player, lecturers point to their slides with laser pointers and surgeons carry out medical operations with laser beams. Nevertheless there are numerous unusual kinds of laser light that are still largely unexplored, one of them being Diffusive Random Lasers (DRLs).

The quantum physicist Hakan Türeci from the Quantum Photonics Group of the ETH Zurich Institute for Quantum Electronics says "The basic idea behind DRLs is amazingly simple." He and colleagues from Yale University and Vienna University of Technology describe new knowledge about the physics of DRLs in a paper published in Science. They have also developed a new formula with which lasers can be re-computed from first principles. This means they have created a framework to understand the properties and development of such complex, exotic lasers.

Lasers without mirrors

A normal laser beam is generated in a cavity between two mirrors. The light flashes to and fro, passing through an amplifying medium on the way. An external "pump" supplies energy. One of the mirrors is semi-transparent and allows the laser beam to emerge. It is important that the light inside the cavity is not scattered, for example by impurities, as this would reduce the power of the laser beam. This kind of laser beam is directional and has a particular frequency, i.e. colour.

On the other hand the development of DRLs is still in its infancy, although the principle was already postulated by a Russian researcher in 1968. The advantage of a DRL: no expensive polished mirrors are needed to generate the laser light. The amplifier medium can be a dye solution containing nano-particles such as titanium dioxide. These particles are randomly distributed in the solution, which is excited by a light source and "pumped" with energy from outside.

Random spectrum

The input light is scattered randomly on the nano-particles, bouncing from one particle to another and being amplified at the same time. This does not need a cavity like a conventional laser. With optimum pump power, i.e. the supply of external energy in the form of light or electric current, laser light finally emerges from the medium. However, the hot-spots with the maximum light intensity are unpredictable, but in most cases they are in a ring-shaped pattern at the edge of the amplifier medium.

A random laser of this kind also does not have a sharply defined frequency. Countless frequencies that can mutually cancel each other out occur in a DRL system, i.e. they operate a kind of frequency Darwinism. In the end only the "strongest" frequencies remain. "However, the intensity of these winners is also unstable and fluctuates from one pulse to the next," says Türeci.

The researchers have also designed a new mathematical model in their paper, an ab initio laser theory, a fundamental starting point that allows them to predict the power of lasers. The physicist explains: "We have a completely new formula with which we can calculate all the physical properties." He says these can be used to develop novel laser methods, for example, and will become important in the future.

Laser ink for documents

According to the post-doc, DRL already has one interesting application, a kind of "laser ink". This particle-enriched ink can be printed onto documents, for example. In this process the distribution of the nano-particles scattering the laser light is absolutely random and is individually different for each printed impression. To verify a document, it is irradiated with light and a detector is used to analyse the emerging laser light spectrum. This enables the authenticity of a document to be established definitively. This laser ink has already been patented in the USA.

DRL technology could also be used to reveal chemical impurities in water or for novel displays with extremely high switching speed and definition. Türeci also imagines that the technique could be used to detect injuries in human tissues. In this respect the tissue plays the part of the scattering medium, which would need to be dyed. Its properties – for example cellular composition and density – determine the spectral signature of the light formed by the tissue. If an organ contains a tumour, the light will be scattered differently compared to a healthy organ.

However, the researchers have not yet reached that point. More research on different DRLs is planned, for example to show how the intensity fluctuations of the frequencies that are generated can be brought under control.

Journal reference:

1. Hakan E. Türeci, Li Ge, Stefan Rotter, A. Douglas Stone: Strong Interactions in Multimode Random Lasers, Science, 2 May 2008, Vol. 320. no. 5876, pp. 643 - 646 DOI: 10.1126/science.1155311

Adapted from materials provided by ETH Zurich.

http://www.sciencedaily.com:80 /releases/2008/05/080523074709.htm

Berlin unveils 'crewed spaceship'

By Jonathan Amos
Science reporter, BBC News

A model of a proposed European manned spaceship has gone on show at the Berlin Air Show.

The design, which has been produced by EADS Astrium, is based on the unmanned "Jules Verne" freighter recently sent to the International Space Station.

Astrium says a crewed version of the truck is a logical evolution, and could fly in the next decade if it received support from European governments.

Key states - Germany, France, and Italy - are said to be very interested.

The model unveiled at the International Aerospace Exhibition (ILA) in Berlin is one-for-one in scale.

The idea is to combine what is essentially the avionics and propulsion end of Jules Verne (also known as the Automated Transfer Vehicle - ATV) with a crew compartment taking the place of the current cargo section.

European dependence

"From the outside, the overall shape is representative," explained Frank Pohlemann, the vice-president for strategy and market development at EADS Astrium Space Transportation.

"The interior is more PR-orientated. We have three leather benches in there; we have touch screens - we can show simulated flights on the monitors; but of course the accessible volume is a lot larger than the real vehicle, which would have lots of equipment, a docking port, and these kinds of things."

But if the interior of the model has a somewhat playful feel for ILA showgoers, Astrium says it is very serious about wanting to take its space freighter to a new level of capability.

At the moment, European Space Agency (Esa) astronauts must fly into orbit in a Russian Soyuz or an American shuttle.

The issue of an *independent* European crew transportation system is currently a hot topic and likely to be on the agenda when space ministers meet for their meeting in The Hague in November.

Two steps

Astrium, which has funded the latest concept work itself, says the costs involved in developing its "ATV Evolution" would be very reasonable. It proposes the work be done in two stages.

The first would be to give the freighter a means of returning non-human items to Earth safely - something it cannot do at present.

This would be much appreciated by Europe's space partners who will have very limited means of returning materials - science results and failed components - from the International Space Station (ISS) once the US shuttles are retired in 2010.

Astrium says this stage could be flying by 2013 and would cost "well below one billion euros" to achieve.

If ministers agreed, the re-entry freight capsule could then be upgraded to carry three astronauts in a second stage of development.

The maiden mission of a crewed capsule could come in perhaps 2017.

Mr Pohlemann said the cost of achieving this objective would be "in the frame of a couple of billion" euros.

Ariane role

The two-stage approach would be a clear strategy that space ministers could follow and assess, the Astrium VP added.

"By having flights of the cargo system first, you can already contribute to the qualification of the later crew version," he told BBC News.

JULES VERNE - ATV
The ship was produced by a consortium of European companies led by EADS Astrium
The ATV is the first completely automated rendezvous and docking ship to go to the ISS
Once the US shuttle is retired, it will be the largest supply vessel going to the space station
Astrium believes it to be a versatile vehicle that could be adapted for crew transportation

"For us, this is about opening up options. Instead of diving into studies and spending the next five or six years with no concrete development, what we propose is to do something now and open up options." Astrium is buoyed by the success of Jules Verne, which is packed with sophisticated navigation, rendezvous and docking technologies; and by its work done on the Columbus science module which was also despatched to the space station this year. The pan-European company believes both vessels amply demonstrate just how far European competence in space technology has come in recent years; and that a crewed ship is now the obvious direction in which to go.

It would need a rocket to take it into orbit and the Ariane 5 is considered to be the most suitable option by Astrium. The rocket dominates the market for commercial satellite launches but was originally designed with human flights in mind.

"We believe you could take the existing Ariane-5 lower-composite and outfit it with a series of sensors to tell the vehicle riding on top that something might be going wrong or everything is fine," Mr Pohlemann said. "We don't have these sensors at the moment, but for the rest we think we can take the existing Ariane 5."

'Small step'

The ATV Evolution is not the only concept work being undertaken in this arena.

Astrium itself is part of a separate Esa-funded study that is looking at the possibility of developing a crew capability in tandem with the Russians. Known as the Crew Space Transportation System (CSTS), this project envisages a bigger, more capable ship than Russia's existing Soyuz system. However, this is almost certainly a more expensive option because it would require the use of an entirely new rocket.

Europe's biggest space company describes its ATV Evolution study as "an important contribution to the political decision-making process" - and it is timely. Esa boss Jean-Jacques Dordain has spoken frequently of his desire to see an independent system; and the US space agency (Nasa) chief, Mike Griffin, has also urged Europe to build its own crew carrier.

Speaking in March at the time of the launch of Jules Verne, Mr Griffin said Europe needed only to take a "small step" to have that capability.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7419793.stm

Published: 2008/05/28 00:22:47 GMT

Nature's greatest architects

How do animals manage their feats of engineering, and what does it tell us about their minds?

James Gould

From bird nests and beaver dams to spider webs and the display arenas of bowerbirds, the architecture of animals has fascinated our species from the dawn of history. The order and regularity of honey bee comb has inspired human builders and philosophers alike. Paper-making wasps and adobe-using birds may have opened our eyes to important technological innovations, and the relentless works of coral colonies dwarf human achievements. How do animals manage their feats of engineering, and what does it tell us about their minds?

Mike Hansell, an emeritus professor at the University of Glasgow, has written extensively on the building behaviour of caddis-fly larvae, wasps and birds. Two of his previous books, Animal Architecture and Building Behaviour (1984) and Bird Nests and Construction Behaviour (2000) are classics: wonderfully detailed and extensively illustrated. They focus on how structures are built, and discuss with great insight the physical and chemical constraints imposed by natural materials.

Built by Animals represents a complete change of pace. Hansell's focus here is far more on the mental processes behind the behaviour. The style could hardly be more different: Hansell writes entirely in the first person, as though he is reminiscing. The result is a highly personal narrative, which may strike the audience as warm and friendly, or disconcertingly informal. Certain termites, for instance, build "rather charming little nests of mud that look like fat-stemmed toadstools about 35cm high that, if painted red and yellow would look just right alongside some plastic gnomes in an English suburban garden". He also opines that few crickets sing "in the fitted kitchens of the smart bungalows now populating the land".

Although Hansell brings a wealth of personal observations to his discussion, some readers may find him distractingly discursive. In the chapter on the evolution of swallow and martin nests, the narrative wanders somehow to hummingbirds, spiders, garden peas, mice, parasitic wasps, grasshoppers, hairworms, the development of Victorian greenhouses and railway stations, yellow-jackets, termites and ants. There are also descriptions of Buffon, Lamarck (particularly his statue in the Jardin des Plantes), and Mendel (with a few pages on genotypes, phenotypes and dominance). I lost the thread. In the chapter on traps we are told a great deal about amino acids, proteoglycans, aerodynamic damping and hysteresis, but the original story (about caddis-fly traps, which are fascinating) somehow gets forgotten in the process.

Alas, the reader is not similarly distracted by diagrams and photos: there are fewer than two dozen illustrations in the book. The audience must depend on the author's powers of description. Thus we are forced to imagine the internal structure of a beaver dam, the elaborate stepwise building of weaverbird nests, the remarkable repetitive structure of wasp nests, the intricate design of caddis-fly traps, and so on. But then the object of Hansell's book is not so much to describe and explain as to argue that building behaviour in animals is innate and unintelligent; for this, illustrations might be counterproductive.

Hansell's primary target is cognitive ethology, and in particular the late Donald Griffin. He takes umbrage at the title of an uncited article: "Thinking about thinking". Even as loosely defined as Griffin had in mind, apparently "thought" should be a forbidden term. Hansell's strategy for arguing that animals are intellectually dead is three-pronged. The first step is to discount the abilities of animals on the basis of brain volume. The second is to invoke Occam's razor (the simplest possible explanation is likely to be – or for some, is inevitably – the correct one). The last step is to describe animals that fit the mindless-builder model.

Brain size, Hansell tells us, should lead "to certain expectations" – namely, that smaller animals are simple and have limited, stereotyped repertoires. Using this simple rule of thumb, we can apparently conclude thats ince female humans have, on average, significantly smaller brain volumes than males, their behaviour should be simpler and more stereotyped – one of Darwin's few mistaken inferences. Humans, by the same token, should be less behaviourally elaborate than whales and elephants. In fact, it is relative

brain volume that seems to matter. When researchers plot brain mass against weight for warm-blooded animals, the points cluster rather tightly around an upward-slanting line. On average, an animal weighing ten times as much has a brain about five times as heavy. All other things being equal, brain mass scales with the number of sensory receptors and muscles the animal possesses, and these increase more slowly than weight. (Cold-blooded animals generate a line of the precisely same slope, though they are able to make do with one-tenth the number of neurones. Insects, because so much of their nervous system is in ganglia outside the head, fall on a different line.)

This brain-to-mass relationship is the biological reason that female brains are smaller, while at least as intellectually potent as those of males. The generally accepted measure (one Hansell even cites when discussing bowerbirds) is the scaled ratio of brain volume to body weight. By this measure, animals with more brain mass than is predicted by the general trend (eg humans, porpoises and crows) stand out, as do those with a shortfall (opossums, for instance). Birds with the most elaborate bowers do indeed have the largest brain-to-body ratios.

Hansell is particularly unimpressed with social insects, including that epitome of all-round complexity, the honey bee. Bees may have astonishing memory, navigational abilities, the capacity to form concepts and cognitive maps, and the planet's second most complex language, but we can ignore them because their brains are small. Their building behaviour is trivial, we are told: they build repetitive cells (except when they don't) and use their own bodies to measure size (as, however, do almost all species, birds most especially). Spiders able to plan circuitous routes to prey, or others that make and carry portable trap nets to ambush their victims, suffer from the same disqualifier: small body size, and thus small brains. By this measure, a book on animal building could be restricted to elephants and aquatic mammals – except that these creatures do not build anything.

Occam's razor can be a useful check on any tendency to formulate overly elaborate explanations of phenomena, but its utility in ethology has proved rather mixed. The behaviourist school of psychology, which held stultifying sway over the study of behaviour in the first six or seven decades of the twentieth century, "simplified" the analysis of humans and animals by eliminating any role for instinct and insight, instead explaining everything on the basis of learned associations – even the circulation of the blood.

One of Griffin's main arguments was that a mindless devotion to Occam's razor blinds us to unusual abilities in animals. The history of ethology is in large part a series of surprises, showing animals to be cleverer and better equipped than human imagination was prepared for. Fettered by the restrictive razor, who could have discovered that animals can have language, cognitive maps, echolocation, UV and polarized-light orientation, magnetic field navigation, social cognition, innovation, concept formation, self-awareness and even practise deceit?

A better measure of animal intelligence ought perhaps to be found in the behaviour that brains generate. Instances of apparently foolish builders are common (and not unknown even among humans), as are cases in which creatures simply follow a set of rote instructions. This is typical of animals living in predictable or unchallenging niches. Neurones are expensive to build and very costly to operate; selection will work to keep brain size to a minimum. But the more complex animals seem to have built on their inborn repertoires. The extra layers of cognitive flexibility involve learning, an ability to reorder and reorient innate components, and a capacity to innovate in what seem to be sensible ways.

Consider the beaver, a species with iconic status among animal builders. Hansell, armed with his sharp, ever-ready razor, dismisses them summarily. Being impressed by beaver achievements, we are told, depends on careless, uncritical anthropomorphism, an emotional response to plush fur and human-like behaviour. And yet why should human-like behaviour not be based on human-like creativity in some species? Surely some analysis of the building activities should precede dismissal of the species into cognitive outer darkness. Beavers, for instance, seem to have at least six alternative internal designs for dams (and, given how little this has been studied, probably many more); is Occam best served by assuming that there are at least six alternative programmes, or is it simpler to suppose that there is some element of evaluation and decision-making here, based on context and the availability of materials?

When beavers incorporate novel elements such as plywood sheets and plastic tarpaulins into dams, are their innate circuits misfiring or is there some basic level of understanding of the goal they are working towards that encourages flexibility? It seems worthwhile at least to explore these possibilities rather than dismiss outright Darwin's suggestion of evolutionary continuity in mental processing. Alas, Occam's razor has relentlessly sliced these paragraphs and pages from Mike Hansell's book; the animals we read about are the helpless, hapless pawns of their instincts, blindly bumbling their way through life, incredibly lucky that the world is simple and unvarying enough to accommodate so many races of robots. How odd that natural selection has never worked to favour the sorts of cognitive prowess so evident in nearly all other classes of behaviour.

Mike Hansell
BUILT BY ANIMALS
The natural history of animal architecture
268pp. Oxford University Press. £16.99 (US $29.95).
978 0 19 920556 1

James Gould is Professor of Ecology at Princeton University. He is the author of Ethology: The mechanisms and evolution of behavior, 1982.

http://entertainment.timesonline.co.uk:80/tol/arts_and_entertainment/the_tls/article3991335.ece

From Break Dancing to Ballet

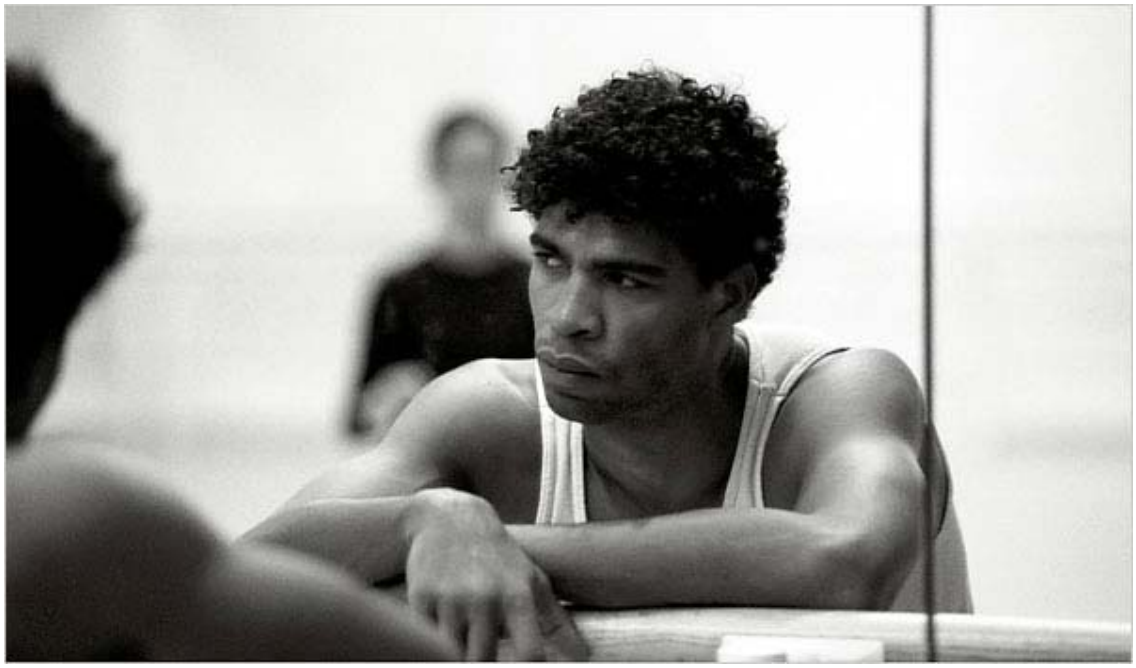
By JENNIFER BALDERAMA

NO WAY HOME

A Dancer's Journey From the Streets of Havana to the Stages of the World.

By Carlos Acosta.

Illustrated. 293 pp. Scribner. $27.50.



The day Carlos Acosta learned he was to study ballet, he climbed to the roof of his apartment, took a pigeon in his hands, stroked its feathers and sobbed. Today, Acosta is a star with the Royal Ballet whose name is not infrequently uttered in the same breath as Nureyev's and Baryshnikov's. That moment atop the pigeon roost, as he recounts in his memoir, "No Way Home," marked his first step from indigence in Cuba to a life of fame and glamour. But here was the rub: The 9-year-old wanted to be Pelé, not a prince. And although this is a Cinderella story — ragamuffin running wild in the streets metamorphoses into ballet god — it is one in which the hero spends a dizzying amount of time pining for his position amid the squalor of the hearth.

Luckily, the hearth — here, a crumbling Cuba — provides the most indelible images in a ballet memoir that ultimately isn't much about ballet at all. Acosta, born in 1973, grew up in Los Pinos, a Havana suburb near an "enchanted forest" whose trees left people smelling "of guava in April, of custard-apple in May and of mango in June." His fair-skinned mother was of Cuban-Spanish blood. His truck-driver father, Pedro, was descended from sugar-mill slaves. "On moonless nights his black skin was camouflaged by the darkness," Acosta writes, and to find him, "you had to follow his cigarette smoke as it floated in the air."

The Acostas lived on meager rations in a building with no running water, its walls crawling with termites. Carlos spent his days obsessing about soccer, stealing fruit and swimming in the "noxious waters" of the forest reservoir. Then the '80s came, along with the break-dancing craze. Carlos fell in with a gang of

Michael Jackson mimics and at his first big rumble took top prize: “a trophy with a picture of Lenin surrounded by the hammer and sickle.”

The cardinal force in Acosta’s life, and the source of this book’s liveliest pages, was his father — violent yet sentimental, extravagant in his worship of his Santerian gods, and fiercely ambitious for his son. Worried about Carlos’s running around “like a bandit,” Pedro seizes on a memory of himself as a child, sneaking into the cinema and seeing the women on screen spinning “like Japanese parasols, elegant, delicate and light.” Ballet, he prophesies, will lift his son out of the slum. When Carlos arrives home one night, it is to ominous words: “Sit down,” his parents say. “We’ve got something to tell you.” As noted, this does not go over well.

Carlos loathes the monotony of practice. Feeling shackled to the barre, he gazes wistfully through the window at the boys playing soccer outside. Then, things at home deteriorate. His mother has a debilitating stroke. His father is thrown into prison for a traffic accident he didn’t cause. Traumatized, Carlos plays truant, gets expelled and at 13 is shuttled off to a school far from home, where he’s so desperately isolated he starts talking to the cockroaches. “They and I had much in common,” he thought. “Everyone detested us.”

Yet “it was here,” he writes, that “I found my passion.” At a performance, he’s spellbound by the high-leaping Alberto Terrero, and pow: epiphany. “I had to adapt my muscles to flight.” The art he once fled becomes a refuge, and a polarity is established — his “struggle between ambition and apathy, between my desire to succeed and the terrible loneliness that surrounded me.”

Cut to the highlight reel: Acosta wins the gold medal at the Prix de Lausanne in Switzerland, age 16; at 18, he’s a principal dancer with the English National Ballet; later he joins the Cuban National Ballet, then the Houston Ballet, where he’s a sensation (“Air Acosta,” he’s called). Soon he realizes that triumph in Houston is not the same as glory on “the stages of the world,” and at 22, he goes to see Kevin McKenzie, the artistic director of American Ballet Theater, demanding a principal dancer’s contract. The meeting is unfruitful. “I heard,” Acosta writes, “he thought I was very pushy.” Eventually he finds a home at the Royal in London, but his perpetual transience has done little to quell the tumult in his heart.

There are injuries and recoveries, tortured romances and melodramatic attempts to cling to home. Acosta’s love for family and country inspires some ecstatic prose, and he charms in the role of stranger in a strange land. (Alighting in America, he panics at a neon sign beckoning “resident aliens”: “All I could think about was the film ‘Alien,’ and I felt that was what I was ... an alien, a terrifying creature and, even worse, a Cuban alien.”)

But when he writes about ballet, the narrative sags. He is prone to hyperbole and cliché (“my legs had turned into eagle’s wings”) and offers little to evoke a tremor of recognition in the veteran dancer’s bones. Also missing is the acute introspection required to deepen the understanding of the artist or his art. His assessment upon arriving in Houston is that “one thing was quite clear: ballet, like any other art form, is competitive.” And recalling a pivotal confrontation with Alicia Alonso, the grande dame of Cuban ballet, he is bafflingly coy: “I came out of that meeting ... with the strange feeling that ... all my achievements had been nothing more than a stroke of luck.” And? Did she insult his dancing? His manhood? Beats me. All he musters is a ho-hum “No matter.”

Many ballet memoirs revel in a sort of martyrdom in service to a calling. In “No Way Home” we see a man who spent years in blunt defiance of his calling. The result is a bittersweet, uneven but spirited testament to Acosta’s prodigious talent: despite it all, when he finally leapt, he flew.

Jennifer Balderama is an editor at the Book Review.

http://www.nytimes.com/2008/05/25/books/review/Balderama-t.html?partner=rssnyt&emc=rss

Antiquities, the World Is Your Homeland

By EDWARD ROTHSTEIN

To what culture does the concept of "cultural property" belong? Who owns this idea?

It has, like much material property in the last 50 years, often changed hands. And in doing so, it has also changed meanings and grown in importance. It now affects the development of museums, alters the nature of international commerce and even seems to subsume traditional notions of property.

It was brought to modern prominence in 1954 by Unesco as a way of characterizing the special status of monuments, houses of worship and works of art — objects that suffered "grave damage" in "recent armed conflicts." In its statement Unesco asserted that such "cultural property" was part of the "cultural heritage of all mankind" and deserved special protection.

But the framers of that doctrine with its universalist stance would hardly recognize cultural property in its current guise. The concept is now being narrowly applied to assert possession, not to affirm value. It is used to stake claims on objects in museums, to prevent them from being displayed and to control the international trade of antiquities.

It is critically surveyed in an illuminating new book, "Who Owns Antiquity? Museums and the Battle Over Our Ancient Heritage" (Princeton) by James Cuno, the director of the Art Institute of Chicago and former director of the Harvard University Art Museums. The idea is as troubling as Mr. Cuno suggests. It has been used not just to protect but also to restrict.

In the United States, for example, the 1990 Native American Graves Protection and Repatriation Act required every museum getting public funds to survey its collections; identify Indian remains and funerary, sacred and other objects; and consult with Indian tribes and "repatriate" the artifacts if requested. Such objects may have been legitimately purchased a century ago from the tribes or have no issue clouding their provenance, but claims of ordinary property give way before claims of cultural property. The grievous sins of the past are now being repaid with a vengeance. And the risks of repatriation and the requirements of tribal consultation have led to promotional, uninformative and self-indulgent themes in exhibitions about American Indians.

The idea of cultural property also led to the Army Corps of Engineers' bulldozing an archaeological site in Washington State in 1998 that had yielded a 9,200-year-old skeleton, known as Kennewick Man, the oldest ever found in North America. Without any evidence local Indian tribes claimed the skeleton was their cultural property — the bones of an ancestor — and they successfully prevented a complete scientific examination. The bulldozing was apparently a new form of protection, philistinism triumphing in the name of enlightened ideas.

The idea of cultural property has become a political trump card. At a conference in Athens in March, organized in part by a Unesco intergovernmental committee, the concept expanded even further: "Certain categories of cultural property are irrevocably identified by reference to the cultural context in which they were created (unique and exceptional artworks and monuments, ritual objects, national symbols, ancestral remains, dismembered pieces of outstanding works of art). It is their original context that gives them their authenticity and unique value."

Those artworks, objects, symbols and relics do not just merit protection; they should be "returned" to their "countries of origin," the only places, supposedly, where they can be fully appreciated. This has nothing to do with whether they were obtained illicitly or inappropriately.

The countries of origin, of course, are modern states, which are increasingly asserting control, a point emphasized by Mr. Cuno. In 1970 another Unesco agreement said it was "incumbent upon every state" to protect its cultural property. Cultural property — almost by definition beyond the control or disposition of individuals — is linked to the powers of the modern state and its political demands.

On the one hand, this idea might seem commonplace. We expect a state to protect its citizens, so why shouldn't it also protect works of art or monuments? The demand may be ineffective; it hardly prevented the Taliban from smashing non-Islamic objects in the Kabul Museum in Afghanistan or from destroying the great stone Bamiyan Buddhas. But the Taliban's deliberate demolition of cultural property was indeed an offense against mankind's heritage, and this concept helped make that violation clear.

The idea of state responsibility also lay behind criticism of the United States' failure to prevent the looting of Baghdad's museum during the early months of the Iraq war and may be fairly leveled at any nation's failure to control the illicit markets in antiquities.

This is the main reason why the idea of cultural property has so many advocates: It seems to establish a bulwark against the plunder of antiquities. The state asserts its control over cultural property and asks that other states intervene in improper trade. Many recent cases of objects' being returned to their regions of origin — like the Metropolitan Museum's ceding the Euphronios krater to Italy — are based on assertions of illicit transmission.

But Mr. Cuno points out that the claims go far beyond concern over looting. Italy, for example, affirms as its cultural property "virtually every kind of object produced in or imported to the land we now call Italy over 1,200 years of recorded human history."

One result of such demands and restrictions, Mr. Cuno says, is not a decrease in the world's looting and plunder at all; there is simply a shift in the market, with fewer and fewer objects purchased for public museum display.

Meanwhile, as the Athens conference suggests, an imperial notion of "cultural property" is taking shape. It is as if some states were seeking to nationalize all artworks and antiquities, wherever they are situated and whatever their provenance, even those objects that have nothing to do with the modern state staking the claims. Recently the Greek authorities told The Guardian of London, "Whatever is Greek, wherever in the world, we want back."

And while touring the Metropolitan Museum in 2006, Zahi Hawass, the secretary general of Egypt's Supreme Council of Antiquities, said that even nonlooted objects were "icons of our Egyptian identity," adding: "They should be in the motherland. They should not be outside Egypt."

Archaeology, of course, has always had a political element, but here the sweep is enormous. What is fueling this fever is another kind of conviction: that the great Western museums are stocked with items of plunder, and that it is time for restitution.

There are more than enough historical examples of such looting. (That is, for example, how the Rosetta Stone made its way to England.) But that practice is not historically peculiar to the West; such plunder, as many ancient objects show in their carvings and images, has long been commonplace.

What was profound in the West was not the looting but attempts to end it, along with ambitions that went beyond assertions of power and possession. The desires of the greatest collectors and museums have been to preserve and to understand (leading, for example, to the decoding of the Rosetta Stone and the preservation of artifacts that would have otherwise been lost). This gave birth to what Mr. Cuno calls "encyclopedic museums," those that encompass the world's cultures while seeking an Enlightenment ideal of universalist understanding.

Seen in this light the very notion of cultural property is narrow and flawed. It is hardly, as Unesco asserted, "one of the basic elements of civilization." It illuminates neither the particular culture involved nor its relationship to a current political entity. It may be useful as a metaphor, but it has been more commonly used to consolidate cultural bureaucracies and state control.

But if cultural property really did exist, the Enlightenment museum would be an example of it: an institution that evolved, almost uniquely, out of Western civilization. And the cultural property movement could be seen as a persistent attempt to undermine it. And take illicit possession.

Connections is a critic's perspective on arts and ideas.

http://www.nytimes.com/2008/05/27/arts/design/27conn.html?ref=arts&pagewanted=print

Where have all the old books gone?

By Shiri Lev-Ari

The life blood of book publishers is their backlist - books which they continue to publish for years. In order to continue to exist, publishers require a backlist that is alive and kicking: in other words, ongoing sales of previously published titles which provide continuous income. This rule is always valid, even when market conditions change, and they have indeed changed in recent years.

In a very competitive culture that emphasizes newness and fashion, and promotes the reading of a current blockbuster which is forgotten in a moment's time, the backlist is a vanishing phenomenon. The volume of sales of one-year-old or older books is shrinking, while newer books capture an increasing share of the market. Most major publishers realize that this ratio has changed. The scope of the decrease is estimated to be 20 percent: the backlist which once accounted for 60 percent to 70 percent of the sales volume now represents 40 percent to 50 percent, depending on the size and age of the publisher.

Thus good books, which are also fairly new, vanish from cultural memory. This is not only true of classic literature, which can always find someone to fight on its behalf, but it is mainly true of good books released two, three, or 10 years ago, which disappeared without leaving a sign. It appears that anything produced in the gap between Cervantes and Harlan Coben is likely to pay a price.

"This change is part of a major cultural shift, which is hard to examine in depth because we are still in the throes of the process," says Dov Eichenold, CEO of Yedioth Books. "It's not just the discount war among the chains - leisure culture has also changed. The shelf life of a book is getting shorter. Once, it was measured in months. Now, it is two weeks. Classic books also sell a lot less. That's a result of a very large selection. Original literature is thriving. Everyone writes endlessly, and all of the world's literature is translated into Hebrew. It is a very difficult mission, nowadays, to maintain steady sales of a book."

A few years ago, Yedioth Books published new translations of Bulgakov's "The Master and Margarita" and Dostoevsky's "Crime and Punishment."

"We used to sell 3,000 copies a year of classic books like that - now we sell 1,500 copies a year," Eichenold reports. "There are books on the backlist that we print all the time, but in smaller numbers. On the other hand, when Tsomet Sfarim [a major bookstore chain] discounts 60 books to commemorate Israel's 60th anniversary, they are mainly books on the publisher's backlist, so that during a period like that, those books sell in greater numbers. The problem is that a sale like that takes place about once a decade."

'Apartment for Rent' forever

One sector where sales remain stable is children's books. Parents typically want to provide their children with the classic children's literature that they read. But here as well, the market has slowed.

"Children's books like 'A Story of Five Balloons,' 'Where is Pluto?', and 'Apartment for Rent' continue to sell well," notes Nahman Gil, director of sales for Kibbutz Hameuhad publishers, "But there as well, we sense that sales have decreased by 10 percent to 20 percent during the past year. In children's books, too, if you don't hold sales you don't sell."

Gil says that even old books by the finest writers sell less now.

"Popular books like David Grossman's 'The Zigzag Kid' and 'Someone to Run With' sell a few thousand copies a year," he said. "But, in general, that is less than in the past."

How do new publishers establish themselves in these market conditions?

"A backlist is built up over time, in any case," says publisher Yosef Cohen of Ivrit Publishing. The publisher's catalog has accumulated 50 titles to date, and he says steady monthly sales of a few dozen copies of a book are enough to keep that book alive.

"Some of the books are still active, and others were not even active when they were first released," Cohen said. "Sometimes a book that was not initially a hit sells well over time. But in any case, it appears that a backlist as it is classically defined - which includes books that sell solidly over time - doesn't work as well nowadays."

One-year-old for sale

One suggestion for toning down competition in the industry and shoring up the backlist is a bill that would establish a stable price law for books. A law of that type would ban discounts of new books during the first year of their release. Publishers are still arguing the efficacy and potential damage of such a law, but most of them would support it.

If such a law was passed, it would to some extent contribute to the recovery of the backlist, based on the assumption that bookstores would continue to hold sales, but discounts would pertain only to books that are more than a year old.

The cultural price of such a law is that new books may be neglected, and Israeli publishers would, in general, release fewer new books making the industry less vibrant and current than it is now.

For now, several publishers led by Racheli Edelman of Schocken Books - who chairs the Publishers Association - accepted the task of promoting such a bill, in collaboration with MK Michael Melchior. At this point, the language of a similar law is being translated from French to Hebrew.

"We received information about the law and its implications from other countries," Edelman says. "After it is translated, we will turn to the Knesset Education Committee again in an attempt to promote it. In my opinion, publishers could put a stop to this situation - on their own - without a law. They accustomed the public and the stores to discount prices. But, now, the law appears to be the only choice."

Mendele is once again selling books

But there is a positive side to this phenomenon. In a sort of reverse reaction to the weakening of the backlist, there is renewed publishing of new editions of older books. Am Oved, Hakibbutz Hameuhad, Keter, Kinneret, and other publishers have rediscovered hidden treasures within their own catalogs and they are re-releasing them, sometimes in new printings and sometimes in new editions or new translations.

Thus, Am Oved published a new edition of "The Wanderings of Benjamin III" by Mendele Mocher Sforim, in the series that Nir Baram is currently editing; Keter released Simone de Beauvoir's "A Very Easy Death;" Kinneret republished Gogol's "Dead Souls," and Menachem Peri, editor of Hasifriya Hahadasha, established "Hasifriya Haktana," a series which revives original and translated classics, from Yosef Haim Brenner and David Fogel to Tolstoy and Natalia Ginzburg.

"The initial need for 'Sifriya Haktana' was to revive things which people no longer get to these days," Peri explains. "Theoretically, you can obtain a copy of 'Musical Moment' by Kenaz, but in practice, it's not available in stores. 'Hasifriya Haktana' may not succeed to the extent of dozens of thousands of copies, but it earns the publisher a profit, and some of the books sell as many as 7,000 copies."

The average is 3,000 copies sold per title in the series. Until now, the biggest sellers have been "Momik," by David Grossman, "Haifa Stories," by Yehudit Katzir, "That's How it Happened," by Natalia Ginzburg, "The Kreutzer Sonata," by Tolstoy, and "In the Presence of the Sea," by David Fogel. "They sell more on the Hasifriya Hahadasha Internet site and less in stores, because it's a book that costs NIS 49 and it doesn't pay for the stores to sell at that [low] cost," Peri says.

From the point of view of the backlist, Israel Book Week exhibitions represent tremendous potential. These fairs display books from many publishers, including small publishing houses. Publishers display a considerable portion of the titles in their catalogs in their booths, including books that are difficult to find in stores.

But Book Week has changed, as well. Over the years, because of mounting expenses, fewer publishers erect fewer booths at the exhibitions, and there is therefore a smaller selection of books. If 340 booths were established in Rabin Square in Tel Aviv during Book Week in 1998, this year only 315 booths will display books - in other words, a decrease of 10 percent.

Despite that, Book Week is still an opportunity to revive the backlist and preserve cultural memory.

"People who really want to choose the books that interest them should attend Book Week," Edelman says. "It's an opportunity to employ free choice rather than what is pushed in the book chains, discounted books which are sold based on financial interests."

A decade ago, Menachem Peri issued a call to publishers to reinstate the original character of Book Week displays.

"I spoke about the need for publishers to sell only their backlists in the exhibitions - books that are a year old or older, at significant discounts of 40 percent or 50 percent; and to sell their new books - which are less than a year old - in the stores, at a predetermined discount. I suggested that for five years, from 1990 to 1995, and everyone laughed at me. They can continue to laugh, but in another five years, that's what's going to happen."

http://www.haaretz.com/hasen/pages/ShArt.jhtml?itemNo=987724&contrassID=2&subContrassID=11

Museum redesign sheds new light on Picasso masterpiece

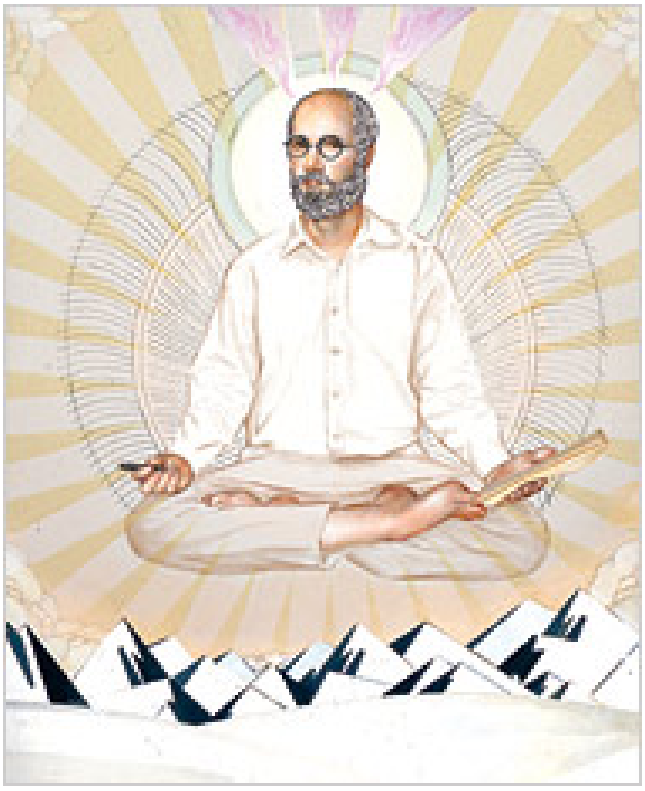
By Elizabeth Nash in Madrid
Saturday, 24 May 2008

Picasso's anti-war masterpiece Guernica, the jewel in the crown of Madrid's Reina Sofia Museum, has been given a flattering new look by the city's principal gallery of Spanish modern art. The museum has replaced yellow spotlights with a pale diffused light as near as possible to natural daylight, making the canvas's monochrome tones appear fresher and warmer. The new setting enables viewers to appreciate a range of greys and whites formerly obscured by dazzling glare. The walls surrounding the work have been cleared of sketches made while the artist was working on Guernica. These have been hung in adjoining rooms, enabling the huge canvas to dominate a clear space. The gallery has been reconfigured, and walls dismantled, so you can approach the painting head on from afar, instead of scuttling in sideways as before. Further opening up of the space is planned to display the painting as if it were the screen of a cinema. "Guernica was created to be seen full-on, and not approached from the side," said the museum's director, Manuel Borja-Villel, when presenting the new arrangement this week. "We've achieved the change not by moving the painting, but by turning the museum round." Viewing Guernica was always a hectic business, with bustling crowds and competing pictures distracting the eye, but it is now a calmer experience. You can even contemplate, without being hurried along a corridor, creases and cracks in the canvas and paintwork that testify to the painting's turbulent history. "You can appreciate the rich subtleties, the variations of tones and textures that were almost imperceptible before," said Mr Borja-Villel. The reform recreates the open space and natural light of the Spanish pavilion at the Paris Universal Exhibition of 1937, for which Picasso created the work. It was a cry of protest at the Nazis' bombardment of the Basque town that April during Spain's Civil War. Picasso conceived his work as a giant propaganda poster, and argued that "painting does not exist to decorate sitting rooms. It's an instrument of offensive and defensive war against the enemy", said Mr Borja-Villel. The museum's rethink is timely. Guernica apart, the Reina Sofia's artworks are often said to be overshadowed by the spectacular collections of the Prado and Thyssen-Bornemisza museums nearby. This despite Jean Nouvel's flashy 2005 extension.Mr Borja-Villel, who took over as the Reina Sofia's director last December, is aware of the competition: the new display gives Guernica the same prominence "that the Prado gives to Velazquez's Las Meninas", he says, for example, commanding the far end of the museum's finest gallery. Guernica travelled to New York's Museum of Modern Art after its inauguration in Paris, then criss-crossed the world suffering damage with each journey before it returned to Spain in 1981 amid national rejoicing. Picasso did not want his finest painting on Spanish soil until after the dictator Franco's death, when he hoped it would enter the Prado. "That was because the Reina Sofia didn't exist then," Mr Borja-Villel insisted this week. "He would have wanted his work to be here."

http://www.independent.co.uk/news/europe/museum-redesign-sheds-new-light-on-picasso-masterp.html-833586.html

Lotus Therapy

By BENEDICT CAREY



The patient sat with his eyes closed, submerged in the rhythm of his own breathing, and after a while noticed that he was thinking about his troubled relationship with his father.

“I was able to be there, present for the pain,” he said, when the meditation session ended. “To just let it be what it was, without thinking it through.”

The therapist nodded.

“Acceptance is what it was,” he continued. “Just letting it be. Not trying to change anything.”

“That’s it,” the therapist said. “That’s it, and that’s big.”

This exercise in focused awareness and mental catch-and-release of emotions has become perhaps the most popular new psychotherapy technique of the past decade. Mindfulness meditation, as it is called, is rooted in the teachings of a fifth-century B.C. Indian prince, Siddhartha Gautama, later known as the Buddha. It is catching the attention of talk therapists of all stripes, including academic researchers, Freudian analysts in private practice and skeptics who see all the hallmarks of another fad.

For years, psychotherapists have worked to relieve suffering by reframing the content of patients’ thoughts, directly altering behavior or helping people gain insight into the subconscious sources of their despair and anxiety. The promise of mindfulness meditation is that it can help patients endure flash floods of emotion during the therapeutic process — and ultimately alter reactions to daily experience at a level that words cannot reach. “The interest in this has just taken off,” said Zindel Segal, a psychologist at the Center of Addiction and Mental Health in Toronto, where the above group therapy session was taped.

"And I think a big part of it is that more and more therapists are practicing some form of contemplation themselves and want to bring that into therapy."

At workshops and conferences across the country, students, counselors and psychologists in private practice throng lectures on mindfulness. The National Institutes of Health is financing more than 50 studies testing mindfulness techniques, up from 3 in 2000, to help relieve stress, soothe addictive cravings, improve attention, lift despair and reduce hot flashes.

Some proponents say Buddha's arrival in psychotherapy signals a broader opening in the culture at large — a way to access deeper healing, a hidden path revealed.

Yet so far, the evidence that mindfulness meditation helps relieve psychiatric symptoms is thin, and in some cases, it may make people worse, some studies suggest. Many researchers now worry that the enthusiasm for Buddhist practice will run so far ahead of the science that this promising psychological tool could turn into another fad.

"I'm very open to the possibility that this approach could be effective, and it certainly should be studied," said Scott Lilienfeld, a psychology professor at Emory. "What concerns me is the hype, the talk about changing the world, this allure of the guru that the field of psychotherapy has a tendency to cultivate."

Buddhist meditation came to psychotherapy from mainstream academic medicine. In the 1970s, a graduate student in molecular biology, Jon Kabat-Zinn, intrigued by Buddhist ideas, adapted a version of its meditative practice that could be easily learned and studied. It was by design a secular version, extracted like a gemstone from the many-layered foundation of Buddhist teaching, which has sprouted a wide variety of sects and spiritual practices and attracted 350 million adherents worldwide.

In transcendental meditation and other types of meditation, practitioners seek to transcend or "lose" themselves. The goal of mindfulness meditation was different, to foster an awareness of every sensation as it unfolds in the moment.

Dr. Kabat-Zinn taught the practice to people suffering from chronic pain at the University of Massachusetts medical school. In the 1980s he published a series of studies demonstrating that two-hour courses, given once a week for eight weeks, reduced chronic pain more effectively than treatment as usual.

Word spread, discreetly at first. "I think that back then, other researchers had to be very careful when they talked about this, because they didn't want to be seen as New Age weirdos," Dr. Kabat-Zinn, now a professor emeritus of medicine at the University of Massachusetts, said in an interview. "So they didn't call it mindfulness or meditation. "After a while, we put enough studies out there that people became more comfortable with it."

One person who noticed early on was Marsha Linehan, a psychologist at the University of Washington who was trying to treat deeply troubled patients with histories of suicidal behavior. "Trying to treat these patients with some change-based behavior therapy just made them worse, not better," Dr. Linehan said in an interview. "With the really hard stuff, you need something else, something that allows people to tolerate these very strong emotions."

In the 1990s, Dr. Linehan published a series of studies finding that a therapy that incorporated Zen Buddhist mindfulness, "radical acceptance," practiced by therapist and patient significantly cut the risk of hospitalization and suicide attempts in the high-risk patients.

Finally, in 2000, a group of researchers including Dr. Segal in Toronto, J. Mark G. Williams at the University of Wales and John D. Teasdale at the Medical Research Council in England published a study that found that eight weekly sessions of mindfulness halved the rate of relapse in people with three or more episodes of depression.

With Dr. Kabat-Zinn, they wrote a popular book, “The Mindful Way Through Depression.” Psychotherapists’ curiosity about mindfulness, once tentative, turned into “this feeding frenzy, of sorts, that we have going on now,” Dr. Kabat-Zinn said.

Mindfulness meditation is easy to describe. Sit in a comfortable position, eyes closed, preferably with the back upright and unsupported. Relax and take note of body sensations, sounds and moods. Notice them without judgment. Let the mind settle into the rhythm of breathing. If it wanders (and it will), gently redirect attention to the breath. Stay with it for at least 10 minutes.

After mastering control of attention, some therapists say, a person can turn, mentally, to face a threatening or troubling thought — about, say, a strained relationship with a parent — and learn simply to endure the anger or sadness and let it pass, without lapsing into rumination or trying to change the feeling, a move that often backfires.

One woman, a doctor who had been in therapy for years to manage bouts of disabling anxiety, recently began seeing Gaea Logan, a therapist in Austin, Tex., who incorporates mindfulness meditation into her practice. This patient had plenty to worry about, including a mentally ill child, a divorce and what she described as a “harsh internal voice,” Ms. Logan said.

After practicing mindfulness meditation, she continued to feel anxious at times but told Ms. Logan, “I can stop and observe my feelings and thoughts and have compassion for myself.”

Steven Hayes, a psychologist at the University of Nevada at Reno, has developed a talk therapy called Acceptance Commitment Therapy, or ACT, based on a similar, Buddha-like effort to move beyond language to change fundamental psychological processes.

“It’s a shift from having our mental health defined by the content of our thoughts,” Dr. Hayes said, “to having it defined by our relationship to that content — and changing that relationship by sitting with, noticing and becoming disentangled from our definition of ourselves.”

For all these hopeful signs, the science behind mindfulness is in its infancy. The Agency for Healthcare Research and Quality, which researches health practices, last year published a comprehensive review of meditation studies, including T.M., Zen and mindfulness practice, for a wide variety of physical and mental problems. The study found that over all, the research was too sketchy to draw conclusions.

A recent review by Canadian researchers, focusing specifically on mindfulness meditation, concluded that it did “not have a reliable effect on depression and anxiety.”

Therapists who incorporate mindfulness practices do not agree when the meditation is most useful, either. Some say Buddhist meditation is most useful for patients with moderate emotional problems. Others, like Dr. Linehan, insist that patients in severe mental distress are the best candidates for mindfulness.

A case in point is mindfulness-based therapy to prevent a relapse into depression. The treatment significantly reduced the risk of relapse in people who have had three or more episodes of depression. But it may have had the opposite effect on people who had one or two previous episodes, two studies suggest.

The mindfulness treatment “may be contraindicated for this group of patients,” S. Helen Ma and Dr. Teasdale of the Medical Research Council concluded in a 2004 study of the therapy.

Since mindfulness meditation may have different effects on different mental struggles, the challenge for its proponents will be to specify where it is most effective — and soon, given how popular the practice is becoming.

The question, said Linda Barnes, an associate professor of family medicine and pediatrics at the Boston University School of Medicine, is not whether mindfulness meditation will become a sophisticated therapeutic technique or lapse into self-help cliché.

“The answer to that question is yes to both,” Dr. Barnes said.

The real issue, most researchers agree, is whether the science will keep pace and help people distinguish the mindful variety from the mindless.

A variety of meditative practices have been studied by Western researchers for their effects on mental and physical health.

Tai Chi

An active exercise, sometimes called moving meditation, involving extremely slow, continuous movement and extreme concentration. The movements are to balance the vital energy of the body but have no religious significance.

Studies are mixed, some finding it can reduce blood pressure in patients, and others finding no effect. There is some evidence that it can help elderly people improve balance.

Transcendental Meditation

Meditators sit comfortably, eyes closed, and breathe naturally. They repeat and concentrate on the mantra, a word or sound chosen by the instructor to achieve state of deep, transcendent absorption. Practitioners “lose” themselves, untouched by day-to-day concerns. Studies suggest it can reduce blood pressure in some patients.

Mindfulness Meditation

Practitioners find a comfortable position, close the eyes and focus first on breathing, passively observing it. If a stray thought or emotion enters the mind, they allow it to pass and return attention to the breath. The aim is to achieve focused awareness on what is happening moment to moment.

Studies find that it can help manage chronic pain. The findings are mixed on substance abuse. Two trials suggest that it can cut the rate of relapse in people who have had three or more bouts of depression.

Yoga

Enhanced awareness through breathing techniques and specific postures. Schools vary widely, aiming to achieve total absorption in the present and a release from ordinary thoughts. Studies are mixed, but evidence shows it can reduce stress.

http://www.nytimes.com/2008/05/27/health/research/27budd.html?nl=8hlth&emc=hltha1

Experts Question Placebo Pill for Children

By CHRISTIE ASCHWANDEN

Jennifer Buettner was taking care of her young niece when the idea struck her. The child had a nagging case of hypochondria, and Ms. Buettner's mother-in-law, a nurse, instructed her to give the girl a Motrin tablet.

"She told me it was the most benign thing I could give," Ms. Buettner said. "I thought, why give her any drug? Why not give her a placebo?"

Studies have repeatedly shown that placebos can produce improvements for many problems like depression, pain and high blood pressure, and Ms. Buettner reasoned that she could harness the placebo effect to help her niece. She sent her husband to the drugstore to buy placebo pills. When he came back empty handed, she said, "It was one of those 'aha!' moments when everything just clicks."

Ms. Buettner, 40, who lives in Severna Park, Md., with her husband, 7-month-old son and 22-month-old twins, envisioned a children's placebo tablet that would empower parents to do something tangible for minor ills and reduce the unnecessary use of antibiotics and other medicines.

With the help of her husband, Dennis, she founded a placebo company, and, without a hint of irony, named it Efficacy Brands. Its chewable, cherry-flavored dextrose tablets, Obecalp, for placebo spelled backward, goes on sale on June 1 at the Efficacy Brands Web site. Bottles of 50 tablets will sell for $5.95. The Buettners have plans for a liquid version, too.

Because they contain no active drug, the pills will not be sold as a drug under Food and Drug Administration rules. They will be marketed as dietary supplements, meaning they can be sold at groceries, drugstores and discount stores without a prescription.

"This is designed to have the texture and taste of actual medicine so it will trick kids into thinking that they're taking something," Ms. Buettner said. "Then their brain takes over, and they say, 'Oh, I feel better.' "

But some experts question the premise behind the tablets. "Placebos are unpredictable," said Dr. Howard Brody, a medical ethicist and family physician at the University of Texas Medical Branch at Galveston. "Each and every time you give a placebo you see a dramatic response among some people and no response in others."

He added that there was no way to predict who would respond.

"The idea that we can use a placebo as a general treatment method," Dr. Brody said, "strikes me as inappropriate."

Ms. Buettner does not spell out the conditions that her pills could treat. As a parent, she said, "you'll know when Obecalp is necessary."

Franklin G. Miller, a bioethicist at the National Institutes of Health, is skeptical. "As a parent of three now grown children," he said, "I can't think of a single instance where I'd want to give a placebo."

Much of the power of the placebo effect seems to lie in the belief that it will work, and some experts question whether this expectation can be sustained if the person giving it knows it is a sham.

Most clinical trials that have shown benefits from placebos are double blinded. Neither the recipient nor the giver knows that the pills are fake.

"For this to work really well as placebo, you cannot let the parents know that it's a sugar pill," Dr. Brody said. "You have to lie to the parents, too, if you expect them to fool their kids."

At least one study has shown that placebos can be effective even when the patients know that they are inert. In a study in 2007, 70 children with attention deficit hyperactivity disorder were asked to reduce their medications gradually by replacing some of their drugs with placebo pills. The children and their parents were explicitly told that these "dose extender" pills contained no drug.

After three months, 80 percent of the children reported that the placebo had helped them. Although that study used a placebo in a different context from Obecalp, it did suggest that deception might not be necessary for a placebo to work, said the senior author, Gail Geller, a bioethicist at the Berman Institute of Bioethics at Johns Hopkins.

Even if Obecalp proved helpful, some doctors worry that giving children "medicine" for every ache and pain teaches that every ailment has a cure in a bottle.

"Kids could grow up thinking that the only way to get better is by taking a pill," Dr. Brody said. If they do that, he added, they will not learn that a minor complaint like a scraped knee or a cold can improve on its own.

Dr. David Spiegel, a psychiatrist who studies placebos at the Stanford School of Medicine, said conditioning children to reach for relief in a pill could also make them easy targets for quacks and pharmaceutical pitches later. "They used to sell candied cigarettes to kids to get them used to the idea of playing with cigarettes," he said.

Ms. Buettner acknowledged that "we expect controversy with this," but she added, "We are not promoting drug use."

Despite his misgivings, Dr. Brody predicted that Obecalp would entice many parents. "Anybody who has ever been up in the middle of the night with a crying child would be tempted to try something like this," he said. "You're so desperate for anything that could quiet down your poor, miserable kid."

Doctors themselves have been known to dole out placebos to overwhelmed parents, said Dr. Brian Olshansky, a physician at the University of Iowa Hospitals. A screaming child with an earache may leave the emergency room with a prescription for antibiotics, even though the drug will not speed recovery and could potentially cause harm.

Ms. Buettner said her pill could satisfy that need while reducing potential harms from unnecessary medications. "The overprescription of drugs is a serious problem, and I think there needs to be an alternative," she said.

Some experts question whether an alternative should involve deception. "I don't like the idea of parents lying to their kids," said Dr. Steven Joffe, a pediatrician and bioethicist at the Dana-Farber Cancer Institute in Boston. "It makes me squeamish."

Dr. Geller, the bioethicist, agrees that parents should not deceive their children. But she added that a parent who truly believed in the power of the placebo was not really being deceptive. "In principle," she said, "I don't have a problem with the thoughtful use of placebo. The starting premise and your own belief about what you're doing matters a lot."

Dr. Brody said parents did not need a pill to induce the placebo effect. Mothers have long promised to "kiss it and make it better" and it is that type of placebo children really yearn for, he said.

"Does a sick child really want X-rays or M.R.I.'s or the latest antibiotic?" he asked. "No. All the sick child wants is comforting."

http://www.nytimes.com/2008/05/27/health/27plac.html?nl=8hlth&emc=hltha1

New Repellents Without DEET Show Promise in Tests on Humans

By DONALD G. McNEIL Jr.

Researchers have found several new mosquito repellents that appear to work more than three times as long as DEET.

DEET — or N,N-diethyl-m-toluamide — has been used for 50 years and is still the gold standard. But new repellents are always needed because the threat from mosquito-borne diseases like malaria, yellow fever, West Nile virus and Rift Valley fever is growing.

Chemists at the University of Florida and the United States Department of Agriculture screened many acylpiperidines, which are related to the active ingredient in pepper. Their study was published online Monday in The Proceedings of the National Academy of Sciences.

In tests on humans, they found that some acylpiperidines could repel mosquitoes for up to 73 days, while DEET typically lasted only 17 days. However, the tests did not replicate typical exposures. Volunteers wore thick gloves with holes, over which were taped pieces of muslin soaked in repellent, and their arms were thrust into cages of mosquitoes for only one minute. “Failure to repel” was recorded on the first day that five mosquitoes bit through the cloth.

Tests of commercial repellents in 2002 done with bare skin found that the most effective were those that contained the most DEET — and they lasted only about five hours.

Further tests will be needed to see whether the acylpiperidines irritate skin, evaporate, dissolve in sweat or fail in ways that other repellents do.

http://www.nytimes.com/2008/05/27/health/research/27glob.html?nl=8hlth&emc=hltha2

Well red: Nasa's literary mission to Mars

By Jim Gilchrist
When Nasa's new lander was launched nine months ago, it was stocked with a library of literature and art illustrating our vision of Mars. Jim Gilchrist wonders what alien eyes might make of it
IT HAS been described as "the first interplanetary library", stashed onboard Nasa's Phoenix Mars lander nine months ago and scheduled to touch down in the Martian "Arctic" in the early hours of this morning. Once ensconced on the planet's brick-coloured landscape, it will await any… er, callers.

If, following its long voyage from Earth, the unmanned spacecraft survived the nail-biting seven-minute descent through the Martian atmosphere – and avoided the so-called "curse of Mars" which has afflicted half of all probes dispatched to the planet since the 1960s – its robotic arm will delve into the Martian surface. There it will seek, to quote Nasa's mission statement, "clues to the geologic history and biological potential of the Martian Arctic", where water ice is now known to exist just below ground level.

But while the robot probe establishes the hard reality of Mars, its onboard "library", a DVD compiled by the Planetary Society, will offer anybody – or should that be anything? – which cares to investigate it a comprehensive if bewildering sample of how humankind has visualised the Red Planet over the past century and more, in sometimes luridly fanciful science fiction, art and broadcast material, as well as scientifically informed speculation.

Christened "Visions of Mars", the silica glass DVD, designed to last for several centuries, was compiled by the Pasadena-based Planetary Society – the world's largest grassroots space interest organisation. Yesterday it hosted a 700-delegate gathering in Pasadena, "Planetfest '08: New Visions of Mars", and other related events across the United States. The DVD was the idea of Louis Friedman, executive director and co-founder of the Society, who describes it as "the Planetary Society's gift to those who will someday expand the human presence to other worlds. We hope astronauts will one day retrieve this first Martian library and enjoy the visionary works and good wishes sent from our time to theirs."

In the unlikely eventuality of there being Martians (with region-free DVD players to boot) they will see themselves as others see them – and may not be too impressed. The compilation contains work by such giants of science fiction as Isaac Asimov, Ray Bradbury, Paul Anderson and Arthur C Clarke. But it also includes early classics such as H G Wells's War of the Worlds, published in 1898, which set the template for an entire genre of malevolent invaders from the Red Planet. Accompanying images will include Flash Gordon film posters (complete with cardboard spaceship interiors), and cover artwork for Edgar Rice Burrough's Martian tales which set a trend in the kind of pneumatic spacewomen (was it the effects of low gravity, we used to wonder) who adorned the covers of pulp sci-fi comics in the 1950s.

Audio files include Orson Welles's famous 1938 radio adaptation of War of the Worlds, with its "news bulletin" said to have ignited widespread panic across the United States, while other recordings include the actor Patrick Stewart – Captain Picard of Star Trek: The Next Generation – introducing a "Mars Radio" section of the DVD.

On a more serious level, the DVD, which also carries the names of some 250,000 people from throughout the world in a token of goodwill across space and time, includes recorded messages from some of the real visionaries whose writings and broadcasts have spurred the exploration of space. Against a backdrop of tropical birdsong in his Sri Lankan haven, the late Arthur C Clarke, recorded in 1993, sends greetings to those future generations whom he envisages as engaged in the epic task of "terraforming" Mars – changing its inhospitable environment (average temperature minus 60C, atmosphere 95 per cent carbon dioxide, unfeasibly low atmospheric pressure) to render it ultimately inhabitable by human colonists, in what Clarke calls "a home of heart's desire".

Carl Sagan, the evangelising astronomer and communicator who helped found the Seti (Search for Extraterrestrial Life) Institute, addresses the "new Martians" from near his home at Ithica, New York (listeners can hear the nearby waterfall – a truly alien concept on Mars). Sagan, recorded before his death in 1996, talks about the "kind of dance" performed by science fiction and science over the past century, particularly regarding Mars. "The scientists make a find which inspires the science-fiction writers," he

says, "and a host of young people read the science fiction and are excited and inspired to find out more about Mars, which they do, and that feeds again into another generation of science fiction and science.

"That sequence has played a major role in out present ability to get to Mars.

"I don't know why you're on Mars," the astronomer continues, speculating that his future listeners may be on the planet as part of a mission to perhaps deflect an asteroid which is threatening to impact on Earth. "Maybe you're there because we recognise that if there are human communities on many worlds, the chances of us being rendered extinct by some catastrophe on one world is much less." Or perhaps, he concludes, humans will be living on Mars simply because "there is a deep nomadic impulse built into us by the evolutionary process. For 99 per cent of our tenure on Earth we've been wanderers, and the next place to wander to is Mars."

One can't help thinking of another author and visionary enshrined in the little disc, Ray Bradbury, who was due to address yesterday's conference in Pasadena, and whose Martian Chronicles did something to steer Mars fiction away from the bug-eyed monster camp to a more lyrical image of the planet. Interviewed back in 1976 when the first images were transmitted from Mars by the Viking probe, Bradbury, regarded by some as Mars's first poet-in-non-residence, famously exclaimed: "Fools, fools. There is life on Mars, and it's us. We are the Martians now."

Whether we admit it or not, most of us would probably like there to be life on Mars – of the benign sort, naturally. However, it's pretty certain that if and when the "Visions of Mars" DVD is eventually listened to, the listener will be human. The only speculation remaining is whether that human will be clad in a spacesuit, protection against an implacably hostile environment, or whetherhe or she will be a fully acclimatised "human Martian", a true space colonist living on a dramatically terraformed Mars with a breathable atmosphere.

Whatever their circumstances, the DVD will offer them an bewildering multiplicity of visions of their adopted planet. "Take me to your leader" was the classic introductory gambit of many a B-movie alien. Now that we're doing a bit of planet-invading ourselves, "Let me take you to our library" doesn't have quite the same ring to it.

• For further details, visit www.planetary.org
http://living.scotsman.com:80/features/Well-red-Nasa39s-literary-mission.4118905.jp

NO, IT'S NOT BANKSY...
By Ben Lewis, Evening Standard 23.05.08

Paint job: Putting finishing touches to Os Gemeos's trademark yellow figure

Towering presence: Works by (left to right) Sixeart, JR and Faile on Tate Modern's exterior

Transformation: Leake Street, SE1, site of Banksy's recent Can Festival

Wall game: Nunca's contribution to the Tate's Street Art exhibition

On the wow-o-meter it scores 11, but it barely registers a blip on my art critic's cardiogram. In other words, it's fun but dumb.
The exterior walls of Tate Modern have been covered with six towering works of Street Art, all around 15 metres high.
Each is by one of the world's leading international street artists but there's one figure who is glaringly absent - the most famous one of them all. Where's Banksy?
It's a bravura piece of curating. The façade of the gallery makes a great canvas for anti-establishment art. There's something deeply gratifying (even smirk-inducing) about seeing the walls of London's temple of modern art defaced.
There are incredible views from the other side of the river. There is continuity: Street Art is part of the populist side of the Tate's programme - like Carsten Holler's slides, which dressed up a funfair ride as conceptual art.
And it slots very neatly into what art theorists call the "spectacularisation" of art today - the trend to create ever bigger and brasher works of art, monumental and iconic, fuelled by the emergence of celebrity artists, massive "starchitect" art galleries and new billionaire collectors.
Even the location of the exhibition is clever: by putting the artwork on the *outside* of the Tate, the museum appears to be respecting the street in Street Art. At the same stroke, it's a cunning way of avoiding the big issue of whether the work really is art in the same sense as the stuff inside.
Still, it's weird there's no Banksy. He surely should be working on a surface as culturally loaded as the Tate Modern.
"We wanted to bring international Street Artists to London, whose work the British public couldn't normally see. Banksy's work is very familiar to people in London," Street Art's curator Cedar Lewisohn told me.
I didn't quite buy that and when pushed, Lewisohn admitted that he'd put some feelers out to Banksy's people and he'd been given the hint that Stencil-Man would say no.
Banksy was unavailable for comment, but a source close to him was as cagey as the Tate's curator, first denying that he'd been approached and then adding, perhaps a little more truthfully: "Isn't the exhibition sponsored by Nissan? Street Art is not supposed to be sponsored."
Banksy's absence does not reflect well on the museum or the artist. The Tate's first ever Street Art exhibition should undoubtedly have featured Britain's world-renowned leading artist of that genre.
Banksy, with his unprecedented public profile, his use of the British media and his commercial ventures - like the exhibition he held in Los Angeles where he sold millions of dollars of his art to Hollywood celebs, more on which later - has no good reason not to play ball with a public institution-which has done so much to bring art to a wider public. I'm not Banksy's biggest fan - but I missed him.
Instead of Britain's spray-can pop artist, there are six foreign exponents of what is a worldwide cultural phenomenon, the second flowering of what used to be called graffiti art and is now known as Street Art.
From left to right, across the Tate's façade, there is Sixeart from Barcelona, aged 33, who creates flat graphic work with bright colours and simple patterns populated by bugeyed creatures. It's South Park meets the Japanese pop artist Murakami meets the Spanish surrealist Joan Miró.
Next along, separated by the Tate's long windows, is 25-year-old French Street Artist JR. He illustrates how radically the American graffiti art of the Seventies and Eighties has been reinvented by a new generation.
Back then, Street Art meant spraying tags, words and images on subway trains and walls in New York. Three artists rose to fame, calculatedly painting their designs on the walls around New York's galleries and subsequently getting exhibitions in them - Keith Haring, Jean Michel Basquiat and Kenny Scharf.
Nowadays Street Artists are as likely to use stencils, rollers, photographs and glue as spray-cans. The walls of the city for them have become simply surfaces on which to apply art.
JR's medium is usually blown-up photographic portraits. His most celebrated work to date was a series of mugshots of Palestinians and Israelis hung in pairs along the "wall of separation" the Israelis built to fence off the West Bank.
For the Tate, JR has pasted up a grainy, massively enlarged photograph of a man cradling a video-camera like a Kalashnikov - the camera is now the weapon of urban resistance, the image says.
Also in the line-up are two artists come from S"o Paolo, perhaps the most active centre of Street Art in the world. Here graffiti is tolerated by the authorities, and so the artists can execute their works at their leisure in daylight. Once again it's miles removed from the illegal graffiti of Seventies New York.
Os Gemeos, twin brothers, make meticulously painted and skilfully drawn cartoons, whose characters wear checked trousers and patterned shirts, recalling illustrations in a Maurice Sendak children's book.

The brothers have contributed one of their trademark yellow figures to the Tate.
"When we dream, everything we dream has yellow tones. This is something of ours, myself and my brother," they say rather unrevealingly.
This time their character conceals his face behind a white scarf. They've come incognito, a way perhaps to indicate their ambivalence towards being transported from the favelas of their megacity to a gleaming European art gallery.
Nunca, the other Sao Paolo resident, says the same thing in a different way on his section of brown bricks. His walking figure influenced by Pre-Columbian art, and painted in the red hue popular with indigenous Brazilian tribes, is drinking a cup of tea while treading on a severed hand.
Faile, a New York collective established in 1999, who pioneered f lyposting as Street Art, offer an image which combines a Native American out of an old comic book, behind which float brand logos as if on ripped off posters underneath. It's an aesthetic that itself rips off the Italian artist Mimmo Rotella, who made collages from torn advertising posters in the Fifties.
Finally there is Blu from Barcelona, whose trippy work is usually full of monsters, half-man, half-human, and people removing their heads. For the Tate he's painted an enormous head in profile in which he has drawn various scenes - a domestic living room, a nuclear power station which appears to have suffered an accident, a library.
It's a shame the Tate didn't rope in any of the Street Artists from Berlin, another centre for this activity, and that they didn't devote some of their interior to the subject - if they had they could have shown Blu's technically staggering though somewhat repetitive animations of his drawings across real walls (available at http://www.vimeo.com/993998).
There may be no Banksys at the Tate but there is an intense Banksy experience to be had nearby in a tunnel running underneath Waterloo train station on Leake Street.
Here, there are literally hundreds of stencils, posters, paintings, graffiti and tags on view - not all by Banksy but the remains of his Can Festival on the first May bank holiday weekend, which drew an astonishing 28,000 visitors in three days (a popular Tate Modern show reaches that figure in two to three weeks).
It's a remarkable, historic site which should immediately be given Grade I listed status. Behind or around the stencils the walls are covered in dripping paint, marks and scuffs - the kind of textures that many studio artists spend weeks trying to create on canvas.
There are rabbits in shorts, flying toasters, buddhas, children, angels bearing placards saying "Go to Hell", men imprisoned in upturned shopping trolleys, and on the pavement someone's drawn a Scalextric track with model cars whizzing around on it.
Banksy's innovation in Street Art has been to create this storytelling, trompe l'oeil stencil style. His cute children with balloons turn derelict sites into playgrounds and the forces of law and order are mocked (by stencilling, for instance, "What are you looking at?" on the wall in front of a security camera).
It's funny political satire - Hogarth does graffiti - with an ongoing narrative in which the kids rewrite the laws of the land ("By order of the national Highways Agency: this wall is a designated Graffiti Area"), and there are tons of art-historical references, often to Warhol. But it's more sentimental than it is revolutionary, one reason why it has caught the popular imagination
Today the Banksy phenomenon has become so market-driven that it's difficult to assess the art itself.
His collaboration with Damien Hirst - a spot painting lifted up in one corner in illusionistic fashion by one of Banksy's stencil characters - went for almost £1 million at a Sotheby's charity auction last November.
And the prices are almost as daft when the money's not going to a good cause. I went to Bonhams' Urban Art auction last February and watched Banksy's portrait of Kate Moss in the style of Warhol's Marilyn fetch £100,000, even though it was a print in an edition of 50.
Behind me was a woman in a gorgeous pink outfit talking on the phone to someone called Steve. I put two and two together and guessed she was talking to Banksy's dealer Steve Lazarides.
I kept trying to catch her eye but she knew I was a journalist and was avoiding my gaze. Then, finally, when one Banksy print went for £11,000 she couldn't contain herself - "But it's unsigned," she exclaimed to me in horror. "The guy who bought that doesn't know what he's doing."
Banksy's role in this market is ambiguous. The artist, by all accounts a clever and generous member of the human race, is known to give away large amounts of his profits to charity.
Banksy had nothing to do with the Bonhams auction, his people say, and he has nothing to do with the latest manifestation of the commercialisation of Street Art - an exhibition at Selfridges of work by Banksy and others which will later be auctioned in Shoreditch.

A few years ago, he sold people his prints on his website for a modest £150 - now the same work is traded on eBay by small-time dealers for thousands. Having said that, Banksy is not as innocent as he claims. He unleashed the whirlwind by staging an exhibition of his work in LA in 2006 and selling it for millions to the Hollywood glitterati. Brad Pitt and Angelina Jolie bought a charming picture depicting Michael Jackson trying to coax young children into a cottage in a spoof on Hansel and Gretel. That was when Banksy's prices took off.

The problem with assessing Banksy is not the amount of money sloshing around but the quality of ideas. The Dutch landscape paintings with helicopter gunships and CCTV cameras in them, the stencilled gorillas with the slogan "Laugh now, but one day we'll be in charge", the old ladies playing boules with bombs, the Diana banknotes - once upon a time Banksy's cartoons would have been designs on birthday cards on sale in the ICA bookshop or T-shirts sold in Hoxton, not "works of art".

The "Danger radioactivity" sign placed in a pond in St James's Park, the framed works of art snuck into the Tate and the kid apparently lifted aloft by a McDonald's balloon would have been stunts on a TV show like Michael Moore's TV Nation or even Beadle's About.

But the history of modern art has often been the story of "low" art forms raised to the level of fine art by collectors and critics so Banksy cannot be easily dismissed as a witty graphic designer.

Nevertheless, Street Art has limits that are plain to see at Tate Modern. It's basically a blend of sci- fi and fantasy graphic art writ large across the urban landscape.

However wonderful it is, it has no more to do with the art in galleries than do Marvel comics, cartoons and graphic novels. It carries the overly familiar message that the grey and decaying city should be brightened up, or presents a vague sense of urban alienation. There is no self-examination - but plenty of self-pity and self-importance.

The art on the outside walls of the Tate is not going to pass by osmosis into the interior galleries unless the street artists improve their act.

It's telling that people who take this art seriously usually avoid thinking too hard about the subject matter. Instead they concentrate on the conceptual gestures of the work. A real urban space is transformed into a fictional cartoon realm; the images empower their authors and are symbols of resistance against poverty, oppression and exploitation; the work is popular, anti- capitalist and it's generous-spirited.

You can't criticise it without sounding like a slipperwearing, toffee-nosed art critic. I guess that's why I really don't like it.

http://www.thisislondon.co.uk/arts/artexhibition-20642757-details/Street+Art/artexhibitionReview.do

New Faberge egg to be hatched

Last Updated: Friday, May 23, 2008 | 5:40 PM ET

CBC News

A revived Fabergé luxury goods group will unveil the first jewel-encrusted egg since 1917, when the Fabergé family was scattered by the Bolshevik revolution in Russia.

Pallinghurst Resources LLP, which bought the rights to Fabergé last year, plans to mine the wealth of the Fabergé name by restoring the firm to its origins with the help of the Russian founder's relatives, the firm told Reuters. In recent years, the Fabergé brand has been used to market cosmetics.

The elaborate jewel and enamel Easter eggs, which have become a synonym for luxury, were designed for Russian czars and some wealthy private clients by the Fabergé company in St. Petersburg, founded in 1892 by Russian jeweller Gustav Fabergé.

Fabergé eggs can be found today in museums and private collections, and command high prices at art auctions.

"Fabergé will announce its first new collection, the first authentic, family-blessed collection since 1917, in the course of the new year," Sean Gilbertson, a partner at London-based Pallinghurst, told Reuters.

Tatiana and Sarah Fabergé, descendants of Gustav Fabergé, will sit on a council the firm says will restore the exclusive nature of the luxury-goods company, which will focus on fine jewelry and objects of art — including the new Fabergé eggs.

http://www.cbc.ca/arts/artdesign/story/2008/05/23/faberge-egg.html?ref=rss

Turning Schools From Death Traps Into Havens

By ANDREW C. REVKIN

The potential for a modest school to survive a powerful earthquake is perhaps nowhere better illustrated than in Balakot, Pakistan, one of hundreds of communities near the border with India shattered by a devastating tectonic jolt on Oct. 8, 2005.

About 80,000 people died in all, including 17,000 children in more than 7,000 schools that collapsed. Balakot, draped on a rugged hilltop, became a field of rubble. Out of several school buildings, the only one that remained standing was the one that had been reinforced two years earlier with a couple of extra columns and roof beams.

Garry de la Pomerai, a British rescue expert who spent days seeking survivors amid wreckage in the region in the days after the quake, said he marveled at the surviving schoolhouse when he returned to tour the town on May 15, just three days after another devastating quake in a different part of the world left hundreds of children and staff members crushed in their classrooms.

Mr. de la Pomerai was attending a long-planned international conference on school safety in Islamabad even as armies of rescuers were clawing at the remains of collapsed schools in China's Sichuan province.

"I'm sick to death of going to schools where there are no survivors," Mr. de la Pomerai, 49, said in a telephone interview from the safety conference. "That's the very future of a community."

After the Pakistan quake, he joined a growing international coalition of engineers, safety and community activists, earthquake experts and disaster agency officials trying to transform schools from death traps into havens when disaster strikes.

The movement really began in California in 1933, when 70 schools collapsed around Los Angeles in the so-called Long Beach earthquake and a mob sought to lynch a city school-building inspector. It was after hours when the quake occurred, and the inspector escaped the mob. But a month later the legislature passed what is now called the Field Act, a school earthquake-safety law with strict standards and penalties, requiring careful design and independently inspected construction.

Since then, no student or teacher has been hurt during a quake in a school built under the Field Act's terms. And the cost of repairing damage to those schools has ranged from 10 to 100 times below repair

costs for other schools, said Brian E. Tucker, an earth scientist and the founder of GeoHazards International, a group working to limit predictable losses in such calamities. Moreover, the quake-resistant schools cost only about 4 percent more than they otherwise would, he said.

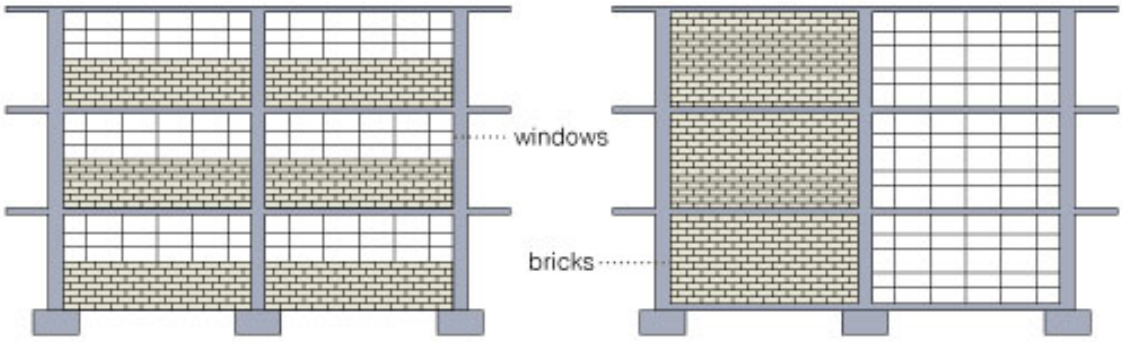
In Balakot, new, sturdier school buildings — built with the help of a Swiss development agency — stand near the repaired surviving structure. But also nearby are the small graves of some of the children killed in 2005.

Despite progress in California and a few other places, including Bogotá, Colombia, vulnerability prevails around the world's seismic hot spots, from the Pacific Northwest to the Philippines.

Why Schools Are Vulnerable to Collapse

FUNVISIS

School buildings in developing countries are often designed in similar ways, with long horizontal windows above shallow walls, as on the left. Researchers have found, however, that a simple structural change will help make a building more resistant to collapse in an earthquake. The building on the right, though not earthquake-proof, is far less vulnerable. Both structures require approximately the same amount of material and labor.



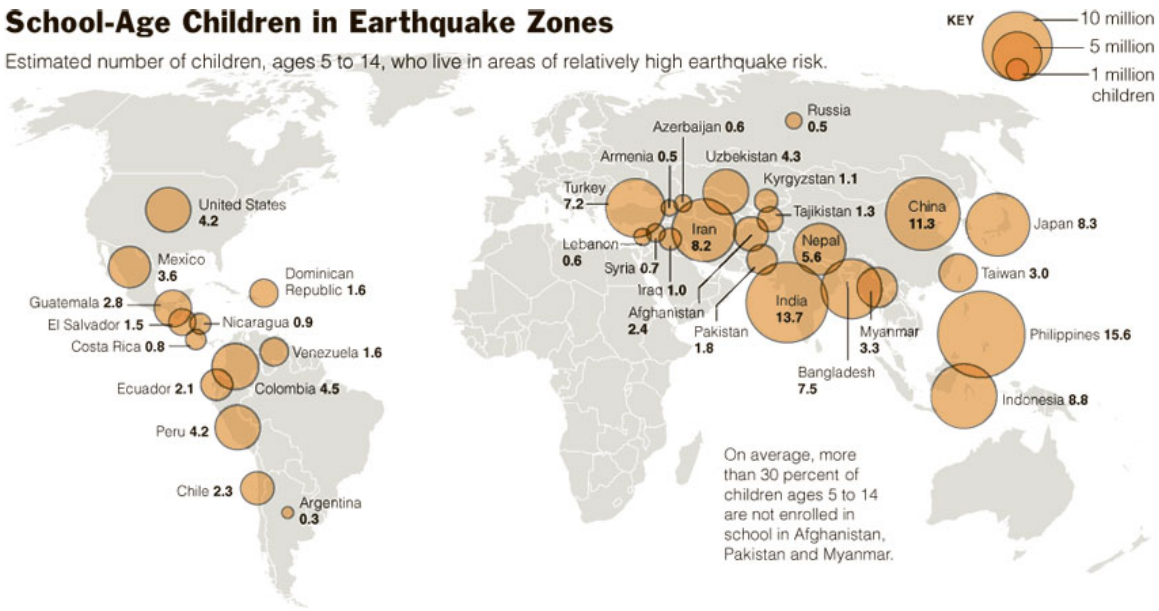
Source: Santiago Pujol, Purdue University

THE NEW YORK TIMES

Pakistan has barely begun to deal with the threat. Mr. de la Pomerai, in a speech at the conference, noted that 80 percent of the country's quake-threatened schools remained unfortified.

In India's most populous state, Uttar Pradesh, a massive existing school-construction program — producing about 30 new schools each day over the last several years — has begun to incorporate earthquake-resistant features and training for 10,000 masons and more than 1,100 junior engineers. But 125,000 existing schools remain "unsafe and in need of retrofit," according to a 2007 report from the Asian Disaster Preparedness Center.

The persistent vulnerability is not limited to remote regions of developing countries, but extends to the city centers of places as cosmopolitan as Portland, Ore., and Istanbul, both of which face looming seismic shocks.



Sources: Susana Adamo and Maria Muñiz, Center for International Earth Science Information Network, Columbia University. Population estimates are based on data from the 2005 Gridded Population of the World data set and from the United Nations (with the exception of China, which is based on the Statistical Yearbook of the Republic of China, 2006). Earthquake hazard estimates are based on data from the Global Seismic Hazard Program.

THE NEW YORK TIMES

Yumei Wang, the director of Oregon's geohazards team, said a quick evaluation last year found that 1,300 of the state's schools (housing 340,000 students) and emergency-services buildings had a "high or very high" risk of collapse in a substantial earthquake.

And the region faces the near-inevitable prospect of a great earthquake on the Cascadia fault, possibly a 9.0 — 32 times more powerful than the 8.0-magnitude temblor in Sichuan. The last such quake there occurred in 1700, raising a tsunami potent enough to be recorded in Japan.

While money is slowly flowing to retrofitting programs in Oregon, Washington state and British Columbia, decades of work will be required to bolster all schools. "We don't just need a few demonstration projects," Ms. Wang said. "We have to start fixing dozens of buildings and then hundreds. Otherwise we're going to have this tremendous disaster and huge cleanup like you've seen in other places."

Retrofitting is advancing far faster in schools serving wealthier areas than those in poor ones, frustrating many earthquake experts. That pattern was revealed in some stricken Chinese cities. But it exists in Oregon as well, Ms. Wang said. "The poor districts don't even know about this risk because they are struggling with everything else," Ms. Wang said. "It's ugly to talk about, but there's this disparity. The rich school districts are getting better education, better textbooks, better sports — and safer schools."

The main challenge in bolstering resilience to such geophysical shocks, Ms. Wang, Mr. Tucker and many other experts said, is not the structural engineering. There is no mystery to adding and securing iron rods in concrete, securing floors to beams, boosting the resilience of columns, monitoring the size of gravel mixed with cement.

It is not cost, either. In California, Dr. Tucker notes, the premium for building earthquake resistance into new schools is less than 4 percent. The payoff, beyond saved lives, is significantly lower repair costs after a temblor — 10 to 100 times less than in unimproved buildings. (In poorer countries, the differential in cost could be substantially higher, other experts note, but the payoff, they say, is priceless.)

Rich or poor, the big challenge lies in overcoming social and political hurdles that still give priority to pressing daily problems over foreseeable disasters that may not occur for decades, scores of years, or

longer. In some developing countries there is a tendency to ascribe earthquakes and their consequences to fate, but Dr. Tucker and other experts say that lets the authorities off the hook.

“I can’t hold a government responsible for protecting its citizens against a meteorite falling out of the sky,” Dr. Tucker said. “But I can and do hold a government in a country with known seismic risk responsible for protecting its children, who are compelled to attend school, from the school collapsing during an earthquake.”

Dr. Tucker has written or co-written a lengthening string of reports pointing to the building risks worldwide as more populations shift to urban areas, often into shoddy, hastily built structures, with children sent to schools in similar, and often worse, condition.

Arthur Lerner-Lam, who maps disaster risks at Columbia University’s Lamont-Doherty Earth Observatory, agrees that urbanization in earthquake zones is setting the world up for its first true megadisaster — a million-casualty earthquake that many seismologists say is only a matter of time. The greatest risk, he said, lies in a belt from Italy and Turkey through central Asia and the Himalayas into central China.

In such regions, Dr. Tucker said, the best blueprints and materials are no guarantee of safety without adequate building codes, laws, training, inspections and enforcement.

The biggest challenge of all may simply be redefining security, and building societies that demand that government investments match risks, said Fouad Bendimerad, an engineering and risk-management consultant in California and chairman of the Earthquakes and Megacities Initiative.

“The typical government spends around 15 percent of its G.D.P. to defend against exterior military threats that may never occur during the lifetime of generation,” Dr. Bendimerad said. “Why do we want to exonerate governments from dedicating a small portion of that 15 percent to protect against the threats of natural hazards that we know will happen?”

http://www.nytimes.com/2008/05/27/science/27schoo.html?th&emc=th

Curriculum Designed to Unite Art and Science

By NATALIE ANGIER

Senator Barack Obama likes to joke that the battle for the Democratic presidential nomination has been going on so long, babies have been born, and they're already walking and talking.

That's nothing. The battle between the sciences and the humanities has been going on for so long, its early participants have stopped walking and talking, because they're already dead.

It's been some 50 years since the physicist-turned-novelist C.P. Snow delivered his famous "Two Cultures" lecture at the University of Cambridge, in which he decried the "gulf of mutual incomprehension," the "hostility and dislike" that divided the world's "natural scientists," its chemists, engineers, physicists and biologists, from its "literary intellectuals," a group that, by Snow's reckoning, included pretty much everyone who wasn't a scientist. His critique set off a frenzy of hand-wringing that continues to this day, particularly in the United States, as educators, policymakers and other observers bemoan the Balkanization of knowledge, the scientific illiteracy of the general public and the chronic academic turf wars that are all too easily lampooned.

Yet a few scholars of thick dermis and pep-rally vigor believe that the cultural chasm can be bridged and the sciences and the humanities united into a powerful new discipline that would apply the strengths of both mindsets, the quantitative and qualitative, to a wide array of problems. Among the most ambitious of

these exercises in fusion thinking is a program under development at Binghamton University in New York called the New Humanities Initiative.

Jointly conceived by David Sloan Wilson, a professor of biology, and Leslie Heywood, a professor of English, the program is intended to build on some of the themes explored in Dr. Wilson's evolutionary studies program, which has proved enormously popular with science and nonscience majors alike, and which he describes in the recently published "Evolution for Everybody." In Dr. Wilson's view, evolutionary biology is a discipline that, to be done right, demands a crossover approach, the capacity to think in narrative and abstract terms simultaneously, so why not use it as a template for emulsifying the two cultures generally?

"There are more similarities than differences between the humanities and the sciences, and some of the stereotypes have to be altered," Dr. Wilson said. "Darwin, for example, established his entire evolutionary theory on the basis of his observations of natural history, and most of that information was qualitative, not quantitative."

As he and Dr. Heywood envision the program, courses under the New Humanities rubric would be offered campuswide, in any number of departments, including history, literature, philosophy, sociology, law and business. The students would be introduced to basic scientific tools like statistics and experimental design and to liberal arts staples like the importance of analyzing specific texts or documents closely, identifying their animating ideas and comparing them with the texts of other times or other immortal minds.

One goal of the initiative is to demystify science by applying its traditional routines and parlance in nontraditional settings — graphing Jane Austen, as the title of an upcoming book felicitously puts it. "If you do statistics in the context of something you're interested in and are good at, then it becomes an incremental as opposed to a saltational jump," Dr. Wilson said. "You see that the mechanics are not so hard after all, and once you understand why you're doing the statistics in the first place, it ends up being simple nuts and bolts stuff, nothing more."

To illustrate how the New Humanities approach to scholarship might work, Dr. Heywood cited her own recent investigations into the complex symbolism of the wolf, a topic inspired by a pet of hers that was seven-eighths wolf. "He was completely different from a dog," she said. "He was terrified of things in the human environment that dogs are perfectly at ease with, like the swishing sound of a jogging suit, or somebody wearing a hat, and he kept his reserve with people, even me."

Dr. Heywood began studying the association between wolves and nature, and how people's attitudes toward one might affect their regard for the other. "In the standard humanities approach, you compile and interpret images of wolves from folkloric history, and you analyze previously published texts about wolves," and that's pretty much it, Dr. Heywood said. Seeking a more full-bodied understanding, she delved into the scientific literature, studying wolf ecology, biology and evolution. She worked with Dr. Wilson and others to design a survey to gauge people's responses to three images of a wolf: one of a classic beautiful wolf, another of a hunter holding a dead wolf, the third of a snarling, aggressive wolf.

It's an implicit association test, designed to gauge subliminal attitudes by measuring latency of response between exposure to an image on a screen and the pressing of a button next to words like beautiful, frightening, good, wrong.

"These firsthand responses give me more to work with in understanding how people read wolves, as opposed to seeing things through other filters and published texts," Dr. Heywood said.

Combining some of her early survey results with the wealth of wolf imagery culled from cultures around the world, Dr. Heywood finds preliminary support for the provocative hypothesis that humans and wolves may have co-evolved.

"They were competing predators that occupied the same ecological niche as we did," she said, "but it's possible that we learned some of our social and hunting behaviors from them as well." Hence, our deeply conflicted feelings toward wolves — as the nurturing mother to Romulus and Remus, as the vicious trickster disguised as Little Red Riding Hood's grandmother.

In designing the New Humanities initiative, Dr. Wilson is determined to avoid romanticizing science or presenting it as the ultimate arbiter of meaning, as other would-be integrationists and ardent Darwinists have done.

"You can study music, dance, narrative storytelling and artmaking scientifically, and you can conclude that yes, they're deeply biologically driven, they're essential to our species, but there would still be something missing," he said, "and that thing is an appreciation for the work itself, a true understanding of its meaning in its culture and context."

Other researchers who have reviewed the program prospectus have expressed their enthusiasm, among them George Levine, an emeritus professor of English at Rutgers University, a distinguished scholar in residence at New York University and author of "Darwin Loves You." Dr. Levine has criticized many recent attempts at so-called Literary Darwinism, the application of evolutionary psychology ideas to the analysis of great novels and plays. What it usually amounts to is reimagining Emma Bovary or Emma Woodhouse as a young, fecund female hunter-gatherer circa 200,000 B.C.

"When you maximize the importance of biological forces and minimize culture, you get something that doesn't tell you a whole lot about the particularities of literature," Dr. Levine said. "What you end up with, as far as I'm concerned, is banality." Reading the New Humanities proposal, by contrast, "I was struck by how it absolutely refused the simple dichotomy," he said.

"There is a kind of basic illiteracy on both sides," he added, "and I find it a thrilling idea that people might be made to take pleasure in crossing the border."

http://www.nytimes.com/2008/05/27/science/27angi.html?th&emc=th

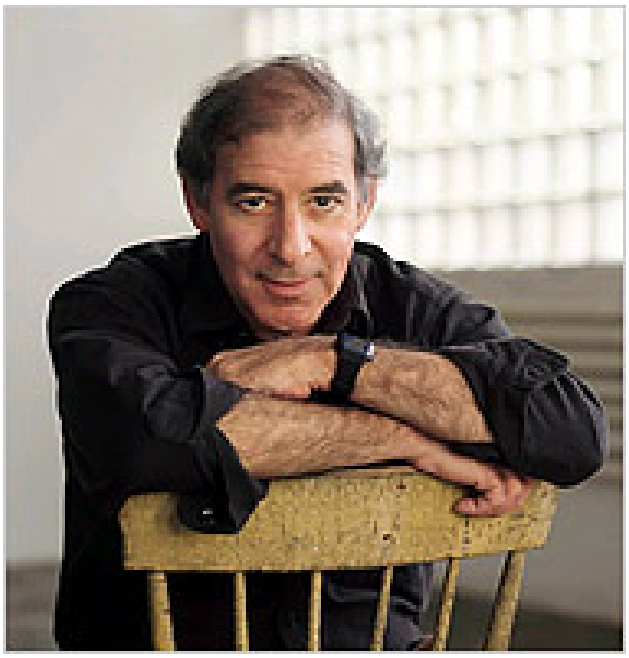
Espionage and Dread, With War Offstage

By JANET MASLIN

THE SPIES OF WARSAW

By Alan Furst

266 pages. Random House. $25.



On a train bound from Warsaw to Belgrade, Col. Jean-François Mercier, the immensely attractive hero of Alan Furst's sinuous new novel, cannot decide what to read. Should it be Stendhal's "Red and the Black," which a teacher once told him was "a political novel, very nearly a spy novel, one of the first ever written"? Or should it be "The Bar on the Seine," an early Georges Simenon detective story featuring Commissaire Jules Maigret?

One is a much-admired classic, the other a more forthright page-turner. Mercier winds up devouring both. And no wonder: Mr. Furst's instant espionage classics are equally indebted to both kinds of fiction. His stories combine keen deductive precision with much deeper, more turbulent and impassioned aspects of character. Since they are also soigné and steamy, there is the inevitable woman in the dining car, with whom Mercier will have this perfectly succinct conversation:

" 'So,' she said, 'an adventure on a train.'

" 'No,' he said. 'More.' "

And, two pages and one change of venue later, in Mercier's sleeping car: "They paused, shared a look of exquisite complicity, and she raised her hips." This is one of those Furst one-sentence erotic marvels that truly could stop a train in its tracks.

If Mr. Furst wrote arid, mechanical spy books, such steam heat might be surprising. But he can invest even the most humdrum situation with similarly elegant acuity. In this latest brooding, sophisticated period piece, "The Spies of Warsaw," winter does not simply arrive. Instead, "out in the countryside, the first paw prints of wolves were seen near the villages." It is late 1937 in Poland, and the atmosphere is charged with peril. The wolves are both metaphorical and real.

Mercier is a French aristocrat, a contemporary of Charles de Gaulle who, after lengthy military service, has become the military attaché to Poland. France and Poland are allies, and Mr. Furst observes with characteristic worldliness, that "allies were, for reasons of the heart more than the brain, supposed to trust each other." But as Mercier acknowledges to his Polish counterpart, Col. Anton Vyborg ("tall and well-built and thin-lipped, with webbed lines at the corners of eyes made to squint into blizzards"), the reality

is different. With a second World War looming before military men old enough to have fought in the first one, Mercier says: “You know what I think, Anton. If the worst happens, and it starts again, you must be prepared to stand alone.”

As Mr. Furst has acknowledged, the outcomes of his pre-World War II novels are never in doubt. And much of the plot of “The Spies of Warsaw” hinges on a question answerable in hindsight: Yes, Germany will invade France. But this book is set at a point when a knowledge of Germany’s precise plans is all-important. And so, as the book begins, Mercier meets not only with fellow dignitaries but also with a character whom he holds in slight contempt.

Mercier is cultivating Edvard Uhl, a German who can provide the particulars about how German tanks are constructed. Uhl does this gladly because his monthly trips to Warsaw allow him to conduct an affair with a woman he thinks is royalty. But the woman is deceiving him. “I rather like her, actually,” the female spy says of the countess she impersonates when Uhl comes to town.

When Uhl arouses German suspicions, Mercier starts trying to protect him. And when questions of tank traps and border fortifications arise, Mercier abandons any complaints about being bored by his work. As Mr. Furst plays his usual cat-and-mouse games, he lures both Mercier and the reader into high-stakes espionage activities in which prescience about a possible tank attack is all-important. To the extent that “The Spies of Warsaw” has a central thread, this is it.

But Mr. Furst has created this book on a broad canvas. And he succeeds in doing so without losing sight of his narrative focus. Mercier deals with an arch, international mixture of characters, all of whom share a kind of anxiety that is anything but dated. “A bad dream,” Vyborg says about tank information found in Wehrmacht journals. “They write books and articles about what they intend to do, but nobody seems to notice, or care.”

As always, but with especially great efficacy in “The Spies of Warsaw,” Mr. Furst asks how life can go on in the face of encroaching menace. And in the book’s uncommonly fine-tuned portrait of Mercier, it has some kind of answer. The Mercier family history, tradition and even physiognomy (“the determined, pale Mercier forehead”) is well examined. So is the recently widowed colonel’s sense of isolation. A visit to his ancestral home just north of Provence, surrounded by lavender fields, still finds him experiencing melancholy, and realizing, “not for the first time, that beautiful places were hard on lonely people.”

So, the woman on the train. Her name is Anna and she is a lawyer for the League of Nations. At the start of the book, she lives in Warsaw with a Russian émigré named Maxim who writes what another Russian man, this one a spy named Viktor, tells Mercier are “feuilletons” for local newspapers. Why, Viktor’s wife asks, did Maxim abandon his life as a well-known Moscow journalist in order to write these glorified gossip items? “Not everyone wants to build socialism, my love,” Viktor replies. That remark alone is perfect, languid, razor-sharp evidence that Mr. Furst, conjuring a web of Warsaw spies who constantly weigh patriotism against self-interest and anticipate one another’s sly strategies, is an incomparable expert at this game.

http://www.nytimes.com/2008/05/29/books/29masl.html?_r=1&th&emc=th&oref=slogin

An Artist Breathes New Life Into Renaissance Ways With Wood

By CAROL KINO

On a recent spring morning, the artist Alison Elizabeth Taylor paced nervously around the second floor of an architectural woodworking firm in East Harlem, watching closely as three sinewy men prepared one of her delicate wood inlay compositions for the veneering press.

“I feel like I’ve got some open wound until these are glued down,” she said as they fitted the piece onto a slab of Baltic birch plywood that they had just slathered with urea resin. “I feel very vulnerable.”

gUnusually for a 35-year-old contemporary artist, Ms. Taylor’s favored medium is wood marquetry, a

craft that, like oil painting, flourished during the Renaissance. She had come to the woodworking firm

William Somerville to finish “Room,” a massive installation that is the highlight of her second solo show at James Cohan Gallery in Chelsea.

Most of the smaller pieces in Ms. Taylor’s show — she calls them “paintings” — present the kind of enigmatic narrative one might expect from, say, Eric Fischl. In “Era of Argus” a man feeds a peacock outside a Unabomber-like shack beneath a sky of flat-cut maple and mottle-figured aspen. In “Slab City” a pair of white-oak hands can be seen poking out of a lake as two men on the bank hurriedly strip off their clothes.

Yet “Room,” which Ms. Taylor describes as “an architectural portrait,” is singularly devoid of people. From the outside the 8-by-10-foot installation resembles a white open-topped box; inside, the viewer encounters a trompe l’oeil furnished domestic space whose windows look out onto a trompe l’oeil landscape that suggests the desert near Las Vegas, where Ms. Taylor grew up.

The panel that the men were hoisting into the press that morning was a small slice of this project: it depicted a Victorian gun safe, a maroon nail-head armchair and an open window framing a vista of desert hills. Over the last year Ms. Taylor had assembled this piece and its fellows in her Brooklyn studio, using close to 200 types of exotic wood and a lot of elbow grease.

Normally she presses her paintings there too, using a homemade vacuum press. But the installation was too big for her studio to handle, so her gallery had arranged the trip to William Somerville.

“I actually feel more confident about these guys doing my pieces than I feel about me doing them,” Ms. Taylor said. But once they had levered the piece back onto a table, she took over, running her fingertips over the smoking-hot surface to check for bumps as they stood back and watched respectfully.

“Now I’ve just got to sand for seven days straight,” she said ruefully. In the dusty workroom her artificially red ponytail glowed like padauk, one of the exotic veneers she uses in her work.

Ms. Taylor began inching toward her current métier in 2001, shortly after graduating from Art Center College of Design in Pasadena, Calif., when she found some wood-grain contact paper in a 99-cent store and suddenly got the urge to use it to make a portrait of her best friend as she had looked in first grade. At art school her interest in figurative painting had been something that “always got me in trouble,” she said. “Most of my teachers were abstract painters and conceptualists."

She also liked drawing indie comics, and the contact paper soon became another one of her many storytelling mediums.

In 2004, after moving to New York to attend graduate school at Columbia University, Ms. Taylor visited the Metropolitan Museum of Art and happened upon the Studiolo from the Ducal Palace in Gubbio, Italy, one of the most important surviving examples of Renaissance marquetry. Commissioned in the late 15th century by the Duke of Urbino, it is fitted with trompe l'oeil furniture and cupboards whose open doors reveal objects that tell the patron's life story: items like armor, books, and musical and mathematical instruments. As soon as she saw it, Ms. Taylor said, "I thought, 'I've got to work with real wood.' "

So at graduate school, along with studying conceptualism and critical theory, she researched marquetry in hobby books and on the Internet. "I think I was being kind of ornery," she said. One of her earliest works presents two girls cuddling in a hot tub, with one wearing a zebrawood bikini. In another, made after she had taken an art history class about 19th-century Orientalism, a woman stands in a tract house filled with chinoiserie.

Although these pieces seem a bit clunky by comparision with Ms. Taylor's current work, they drew the attention of a visiting critic, the artist Andrea Zittel, who appreciated that Ms. Taylor was using a craft with hobbyist associations to make scenes that suggested both comics and genre paintings, without descending to kitsch.

"She was always trying to figure out where she fit in between high and low culture," said Ms. Zittel, who is now a friend. "She's created this really interesting hybrid."

Elyse Goldberg, the director of James Cohan, discovered Ms. Taylor at her 2005 master of fine arts show. She was similarly struck by the young artist's ability to blend "incompatible information," using a craft

originally developed to decorate European palaces to depict contemporary American scenes. “I think of her as a conceptual artist who is using story,” she said, “but story in a way that you’d find in a Gus Van Zandt film.”

Ms. Taylor starts by making a drawing in a sketchbook, constantly reworking as she scales up in size. Then she cuts out her veneer pieces and fits them together like a puzzle, keeping them in place with sticky film from a sign warehouse.

Even a small panel can use up to 50 types of wood. “I try to make every piece a different variety,” she

said. “I really try not to repeat myself.” After assembling a scene, she frequently reworks it with new species to modify the look or mood. “The struggle,” she said, “is to use the grain in a way that can create form and contrast and value, just the way you would use paint.”

Over time she has figured out a few guidelines. The gumwood’s fine grain is “great for reflections,” she said, while walnut burl works better “for ambiguous space.” To create an overcast sky she likes maple; for moody skies she prefers the striped violet grain of kingwood.

The idea for “Room” arose in early 2007 on a road trip through the desert in Nevada and California. En route she was struck by the tiny houses she saw that had been abandoned as tract developments mushroomed nearby. “I got really interested in the way that all this is a tradition — that if you’re a little misanthropic, you could go west and escape.” But now, “all the things that you’re trying to get away from — congestion, suburbs, shopping malls,” she said, have forced the early utopia seekers out.

So, mindful of the Studiolo, she decided to tell the story of one such person, using only his possessions. The piece shows all the disparate memorabilia of a man’s life: his tools, his microwave, an old Army helmet, even photographs, and, seen through a doorway, the corner of a solitary camp bed.

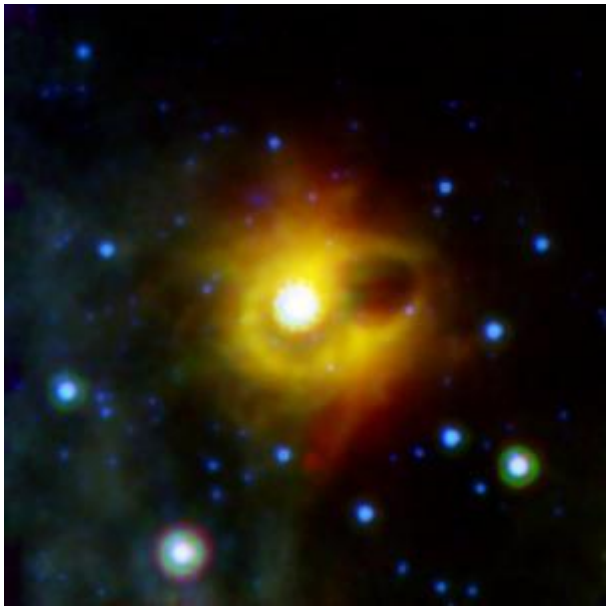
Yet in contrast to the Duke of Urbino’s artisans, she noted, she doesn’t aim exactly to exalt her subject; she tried to make sure that what he represents is not ignored.

Like most of the stories she tells, this is one is “mundane and ugly,” she said. “But people are drawn to the beauty of the wood, and when they’re looking at the wood, they have to look at the image.”

Alison Elizabeth Taylor’s exhibition continues through June 21 at James Cohan Gallery, 533 West 26th Street, Chelsea; (212) 714-9500 or jamescohan.com.

http://www.nytimes.com/2008/05/27/arts/design/27marq.html?ref=design

Strange Ring Found Circling Dead Star



This image shows a ghostly ring extending seven light-years across around the corpse of a massive star. (Credit: NASA/JPL-Caltech)

ScienceDaily (May 29, 2008) — NASA's Spitzer Space Telescope has found a bizarre ring of material around the magnetic remains of a star that blasted to smithereens.

The stellar corpse, called SGR 1900+14, belongs to a class of objects known as magnetars. These are the cores of massive stars that blew up in supernova explosions, but unlike other dead stars, they slowly pulsate with X-rays and have tremendously strong magnetic fields.

"The universe is a big place and weird things can happen," said Stefanie Wachter of NASA's Spitzer Science Center at the California Institute of Technology, Pasadena, who found the ring serendipitously. "I was flipping through archived Spitzer data of the object, and that's when I noticed it was surrounded by a ring we'd never seen before." Wachter is lead author of a paper about the findings in this week's Nature.

Wachter and her colleagues think that the ring, which is unlike anything ever seen before, formed in 1998 when the magnetar erupted in a giant flare. They believe the crusty surface of the magnetar cracked, sending out a flare, or blast of energy, that excavated a nearby cloud of dust, leaving an outer, dusty ring. This ring is oblong, with dimensions of about seven by three light-years. It appears to be flat, or two-dimensional, but the scientists said they can't rule out the possibility of a three-dimensional shell.

"It's as if the magnetar became a huge flaming torch and obliterated the dust around it, creating a massive cavity," said Chryssa Kouveliotou, senior astrophysicist at NASA's Marshall Space Flight Center, Huntsville, Ala., and a co-author of the paper. "Then the stars nearby lit up a ring of fire around the dead star, marking it for eternity."

The discovery could help scientists figure out if a star's mass influences whether it becomes a magnetar when it dies. Though scientists know that stars above a certain mass will "go supernova," they do not know if mass plays a role in determining whether the star becomes a magnetar or a run-of-the-mill dead star. According to the science team, the ring demonstrates that SGR 1900+14 belongs to a nearby cluster of young, massive stars. By studying the masses of these nearby stars, the scientists might learn the approximate mass of the original star that exploded and became SGR 1900+14.

"The ring has to be lit up by something, otherwise Spitzer wouldn't have seen it," said Enrico Ramirez-Ruiz of the University of California, Santa Cruz. "The nearby massive stars are most likely what's heating the dust and lighting it up, and this means that the magnetar, which lies at the exact center of the ring, is associated with the massive star-forming region."

Rings and spheres are common in the universe. Young, hot stars blow bubbles in space, carving out dust into spherical shapes. When stars die in supernova explosions, their remains are blasted into space, forming short-lived beautiful orbs called supernova remnants. Rings can also form around exploded stars whose expanding shells of debris ram into pre-existing dust rings, causing the dust to glow, as is the case with the supernova remnant called 1987A.

But the ring around the magnetar SGR 1900+14 fits into none of these categories. For one thing, supernova remnants and the ring around 1987A cry out with X-rays and radio waves. The ring around SGR 1900+14 only glows at specific infrared wavelengths that Spitzer can see.

At first, the astronomers thought the ring must be what's called an infrared echo. These occur when an object sends out a blast wave that travels outward, heating up dust and causing it to glow with infrared light. But when they went back to observe SGR 1900+14 later, the ring didn't move outward as it should have if it were an infrared echo.

A closer analysis of the pictures later revealed that the ring is most likely a carved-out cavity in a dust cloud -- a phenomenon that must be somewhat rare in the universe since it had not been seen before. The scientists plan to look for more of these rings.

"This magnetar is still alive in many ways," said Ramirez-Ruiz. "It is interacting with its environment, making a big impact on the young star-forming region where it was born."

Other paper authors include V. Dwarkadas of the University of Chicago, Ill.; J. Granot of the University of Hertfordshire, England; S.K. Patel of the Optical Sciences Corporation, Huntsville, Ala.; and D. Figer of the Rochester Institute of Technology, N.Y.

Journal reference:

1. S. Wachter, E. Ramirez-Ruiz, V. V. Dwarkadas, C. Kouveliotou, J. Granot, S. K. Patel & D. Figer. **An infrared ring around the magnetar SGR 1900 14**. *Nature*, 453, 626-628 DOI: 10.1038/nature06987

Adapted from materials provided by NASA/Jet Propulsion Laboratory.

http://www.sciencedaily.com:80 /releases/2008/05/080528132803.htm

Large Hadron Collider Enables Hunt For 'God' Particle To Complete 'Theory Of Everything'

Scientists at the European Organization for Nuclear Research are dwarfed by the Atlas particle detector, part of the Large Hadron Collider. (Credit: CERN)

ScienceDaily (May 29, 2008) — When the world's most powerful subatomic particle collider begins gathering data this summer, it will be a major milestone for a number of University of Washington scientists.

The UW, led by professors Henry Lubatti in physics and Colin Daly in mechanical engineering, played a central role in designing and fabricating nearly 90,000 tubes that are key to the workings of the Atlas detector. Atlas is one of six particle physics experiments that are part of the Large Hadron Collider at the European Organization for Nuclear Research, known as CERN, near Geneva, Switzerland.

Physicists the world over are hoping that Atlas will help unlock some deep scientific mysteries and perhaps even lead to discovery of the Higgs boson, sometimes called "the God particle" because it is believed its discovery will refine the understanding of exactly how the universe came to be and how it functions, and how mass came to be in the first place.

UW researchers are primarily involved with an Atlas subsystem that detects subatomic particles called muons. These particles have little interaction with each other or with other matter and are formed as a byproduct of the collisions between protons, the nuclei of hydrogen atoms. The collider will provide far too much data for scientists to log all of it, so the first appearance of muons can be a signal that scientists need to record information on collisions taking place at that time.

"They are like little messengers that tell us a potentially interesting event may have occurred, a signal that we should look more closely at that event," Lubatti said.

Potentially that could lead to direct evidence of the elusive Higgs boson.

"That's just one example of the detector's value," Lubatti added. "There are many other interactions that produce high-energy muons, so it is very important to be able to observe these."

The scientists are looking for other information that will help them to fill gaps in what they call the Standard Model of particle physics, a framework that explains the fundamental forces of nature. The Standard Model explains the way particle interactions create the strong nuclear force, the electroweak force and electromagnetism, and how those forces work with each other, but aspects of those interactions still are not well understood. The Large Hadron Collider also could lead to better understanding of the fourth fundamental force -- gravity -- in terms of particle interactions, and help solve the puzzle of why gravity, while perhaps most recognizable to a lay observer, is the weakest of the fundamental forces.

The collider is a successor of sorts to the Superconducting Supercollider, a high-energy collider that was to have been built in Texas. The supercollider was first proposed in 1983 and construction began in 1991, but escalating cost estimates and other factors created controversy and Congress cancelled the project in 1993, after about $2 billion had been spent.

UW scientists including Lubatti, who initially worked on the Superconducting Supercollider, began working on aspects of the Large Hadron Collider in the mid 1990s. The collider, which is to begin test operations in late May or early June, will send hydrogen protons racing at nearly the speed of light in opposite directions through parallel underground cylinders that form a large circle about 16.5 miles in circumference straddling the Swiss-French border. The cylinders intersect at various points, allowing proton collisions that produce subatomic particles that can be observed by one of the six detectors, each positioned at one of the intersections.

The Atlas detector contains more than 430 chambers filled with aluminum tubes that range in length from about 5 feet to 10 feet, each resembling a fluorescent light tube. From the early 2000s to 2007, some 30,000 of the tubes were made at the UW and fitted into 80 chambers that were then packed into cargo containers and shipped to Geneva. It cost about $50,000 to ship each chamber, and all arrived undamaged. Another 60,000 tubes made with UW methods and specifications were packed into chambers at two other U.S. sites.

Once in Geneva, the chambers were mounted into 32 sections shaped like giant pie wedges, which fit together into two rings at either end of the main detector. The last segment of the world's largest general-purpose particle detector was lowered into place on leap day this year.

The tubes, critical to the detector's work, have a skin just 1/64th of an inch thick. Each has a gold-plated tungsten wire just half the width of a human hair strung tautly through the center that will detect what happens when subatomic particles collide at nearly the speed of light.

The manufacture required great precision, in some cases with tolerances of less than one-thousandth of an inch, a tall order for instrument makers and machinists in the UW Physics Department. A major part of their success was designing and making the equipment that could replicate such precision. Threading the tiny wires was another great challenge.

"Maintaining that kind of precision can be very difficult when you're working on scales of more than 9 feet, but we were able to do it," Daly said. "We found that students with good eyes were able to thread the wires very easily. If I tried to do it, I couldn't even see the wire."

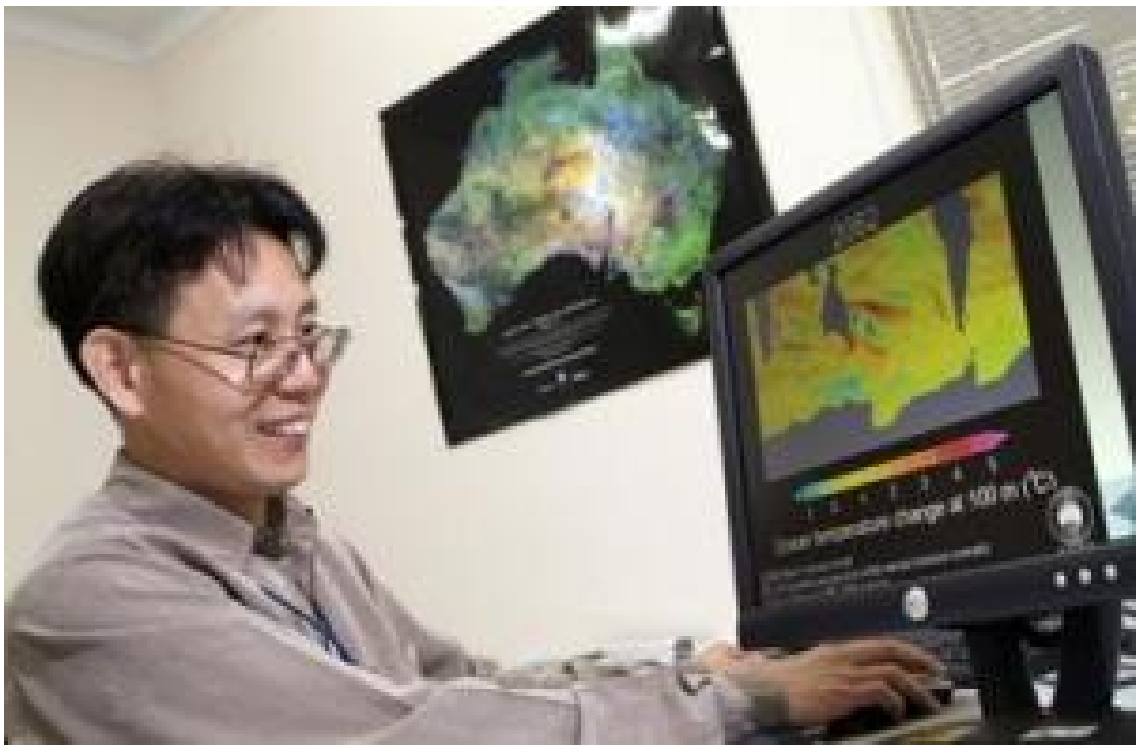
The other institutions that worked on the manufacture of tubes for Atlas using techniques and specifications developed at the UW are the University of Michigan; the University of California, Irvine; Brookhaven National Laboratory; and the Boston Muon Consortium, which includes Harvard University, the Massachusetts Institute of Technology, and Tufts, Boston and Brandeis universities.

In addition to Lubatti, other UW physics participants include professors Tianchi Zhou and Paul Mockett, who retired in 2005, and staff members David Forbush, Joshua Wang and Matt Twomey. Participants from mechanical engineering are Daly and lab engineer William Kuykendall.

Adapted from materials provided by University of Washington.

http://www.sciencedaily.com:80 /releases/2008/05/080527200600.htm

Understanding Autumn Rain Decline In SE Australia



CSIRO Marine and Atmospheric Research scientist, Dr Wenju Cai. (Credit: Image credit – CSIRO)

ScienceDaily (May 29, 2008) — Fluctuations in sea-surface temperatures to the north of Australia and changes in atmospheric circulation patterns over the sub-tropical Indian Ocean have been identified as key factors leading to declining rainfalls in southeastern Australia since 1950.

According to a report from a CSIRO Wealth From Oceans Flagship study – published in the science journal Geophysical Research Letters – since 1950 Victoria has suffered a 40 per cent decline in autumn rainfall (March to May) compared to the average recorded between 1961–90.

The report's authors, CSIRO's Dr Wenju Cai and Tim Cowan, say that the decline has been most prominent in May, which accounts for about half of the total seasonal reduction.

The identified causes show imprints of climate change influences, in part through a reduction in the number of La Niña events, and in part through changing weather systems originating from the subtropical Indian Ocean that are conducive to late autumn rainfall across Victoria.

The researchers found that since 1950 the spatially alternating high and low pressure systems (called pressure wave-trains) conducive to rainfall over southern Victoria in May have been weakening, leading to rising sea level atmospheric pressure over south-east Australia.

"This weakening is reinforced by a warming of the Indian Ocean, which is at least in part due to global warming," Dr Cai says. "This suggests that a component of climate change is active in southern Victoria receiving less rainfall."

Influences from the Indian Ocean sector occur in conjunction with those from the Indonesian Throughflow region, to the north of Australia. Dr Cai says higher sea surface temperatures in the Throughflow region are conducive to rainfall in central and northern south-east Australia, through the familiar tropical northwest cloud bands, which deliver rainfall to the region.

"Through April and May, large increases in sea surface temperatures in the region are usually associated with a transition from an El Niño to a La Niña event, as part of cycle of the El Niño-Southern Oscillation," he says.

Mr Cowan says that in recent decades, there have been more El Niño events than La Niñas. As the system spends more time in an El Niño phase, and less time transitioning to a La Niña, south-east Australia receives less rainfall. "This El Niño-like behaviour pattern of the Pacific system is also consistent with what is expected from climate change, as recent studies have shown," he says.Victoria is not alone among states experiencing rainfall declines. During the past 50 years there has been a decreasing trend in rainfall over much of Australia. In south-west Western Australia the trend is strongest in winter; and in southern Queensland strongest in summer.

Adapted from materials provided by CSIRO Australia.

http://www.sciencedaily.com:80 /releases/2008/05/080523091736.htm

Child Maltreatment Victims Lose 2 Years Of Quality Of Life

ScienceDaily (May 29, 2008) — Child maltreatment is associated with reductions in quality of life even decades later, according to a new University of Georgia study that finds that—on average—victims lose at least two years of quality of life.

UGA College of Public Health associate professor Phaedra Corso and her colleagues at the Centers for Disease Control and Prevention analyzed surveys of more than 6,000 people to assess the deficits in quality of life that victims suffer. Their results appear in the June issue of the American Journal of Public Health.

"We found, with rigorous statistical methods, that there are significant differences in health-related quality of life between people who were maltreated as children and those who were not," Corso said, "and that holds across all age groups."

Childhood maltreatment—which includes physical, sexual and emotional abuse and neglect—has been linked to an increased risk for ailments ranging from heart disease, obesity and diabetes to depression and anxiety. Corso said there are two reasons why. First, childhood maltreatment increases the likelihood of unhealthy behaviors such as smoking, substance abuse and sexual promiscuity. And recent studies suggest that repeated exposure to the stress caused by maltreatment alters brain circuits and hormonal systems, which puts victims at greater risk of chronic health problems.

The researchers found that 46 percent of respondents reported some form of maltreatment during childhood. Of those, 26 percent reported physical abuse; 21 percent reported sexual abuse; 10 percent reported emotional abuse; 14 percent reported emotional neglect; and nine percent reported physical neglect.

Corso said few studies have examined the long-term impact of childhood maltreatment on quality of life, and, until now, none had been designed so that the measures can be used in comparative economic impact analyses. These analyses are important, Corso said, because they allow public health officials to compare the costs and benefits of two unrelated public health interventions.

To assess reductions in quality of life, the team matched responses to a survey that assessed physical functioning, pain, cognitive functioning and social support with data from surveys that explicitly asked people how many years of life they would trade to be free of a given health condition. The result is a score that ranges from 0 to 1, with 0 being equivalent to death and 1 being perfect health. The average score for people who weren't maltreated was .78, while the score for those were was .75 – a difference of .03 per year. Throughout a lifetime, this figure translates to a loss of two years of quality-adjusted life expectancy.

"Every year gets diminished in some respect," Corso said, "because the person who was maltreated has a lower quality of life than the person who wasn't."

"The long-term consequences of child maltreatment are very real and concerning. All children should have safe, stable and nurturing environments in which to grow and develop," said Ileana Arias, director of CDC's National Center for Injury Prevention and Control. "For children and adults to live to their full potential, we must support programs that stop child maltreatment before it ever begins and work to help those who have already experienced it."

The researchers also found significant differences among age groups, with the gap between the non-maltreated and maltreated group growing smaller—but never disappearing—in older age groups. The exception, Corso noted, was in the 70 and above group, where the difference between the non-maltreated and maltreated group is actually larger than in the previous two age groups (60 to 69 and 50 to 59). The exact reasons for this difference are unclear, but Corso said older people might have more time to reflect on past maltreatment.

She cautions that the two-year reduction in quality of life undoubtedly underestimates the true impact of childhood maltreatment. Children experience severe reductions in quality of life as maltreatment is occurring, and surveys of adults don't account for those reductions.

Still, she said her team's study highlights the long-term damage associated with child maltreatment and, by helping to quantify its costs, helps make the case for funding prevention efforts.

"A lot of the time people don't consider violence as a public health issue," Corso said, "but there's a body of evidence that exists now that shows long-term health impacts of childhood maltreatment."

Adapted from materials provided by University of Georgia.

http://www.sciencedaily.com:80 /releases/2008/05/080528152124.htm

Childhood Lead Exposure Linked To Criminal Behavior In Adulthood

Children at play in a 1950s era tenement in Cincinnati, Ohio. (Credit: Cincinnati Historical Society)

ScienceDaily (May 28, 2008) — New research from the University of Cincinnati (UC) reports the first evidence of a direct link between prenatal and early-childhood lead exposure an increased risk for criminal behavior later in life.

Based on long-term data from a childhood lead study in Cincinnati, Ohio, Kim Dietrich, PhD, and his team have determined that elevated prenatal and postnatal blood-lead concentrations are associated with higher rates of criminal arrest in adulthood.

"Previous studies either relied on indirect measures of exposure or failed to follow subjects into adulthood to examine the relationship between lead exposure and criminal activity in young adults," explains Dietrich, principal investigator of the study and professor of environmental health at UC.

"We have monitored this specific sub-segment of children who were exposed to lead both in the womb and as young children for nearly 30 years," he adds. "We have a complete record of the neurological, behavioral and developmental patterns to draw a clear association between early-life exposure to lead and adult criminal activity."

Dietrich says few studies have attempted to evaluate the consequences of childhood lead exposure as a risk of criminal behavior. The UC-led study is the first of its kind to demonstrate an association between developmental exposure to lead and adult criminal behavior.

This new study is part of a long-term lead exposure study conducted through the Cincinnati Children's Environmental Health Center, a collaborative research group funded by the National Institute of Environmental Health Sciences (NIEHS) and U.S. Environmental Protection Agency (EPA) that involved scientists from the UC College of Medicine and Cincinnati Children's Hospital Medical Center.

Led by Dietrich, researchers recruited pregnant women living in Cincinnati neighborhoods with a higher concentration of older, lead-contaminated housing. Recruitment took place at four prenatal clinics between 1979 and 1984. Dietrich's team has monitored this population group since birth to assess the long-term health effects of early-life lead exposure.

Of the original 376 newborns recruited, 250 were identified for the current study. Researchers measured blood-lead levels during pregnancy and then at regular intervals until the children were 6 ½ years old to calculate cumulative lead exposure.

Blood-lead level data was then correlated with public criminal arrest records from a search of Hamilton County, Ohio, criminal justice records. These records provided information about the nature and extent of

arrests and were coded by category: violent, property, drugs, fraud, obstruction of justice, serious motor vehicle, disorderly conduct and other offenses.

Researchers found that individuals with increased blood-lead levels before birth and during early childhood had higher rates of arrest--for both violent and total crimes--than the rest of the study population after age 18.

Approximately 55 percent of the subjects had at least one arrest--the majority of which involved drugs (28 percent) or serious motor vehicle violations (27 percent). The strongest association between childhood blood-lead level and criminal behavior was for arrests involving acts of violence.

Dietrich says that although both environmental lead levels and crime rates in the United States have dropped in the past 30 years, they have not done so in a uniform way.

"Lower income, inner-city children remain particularly vulnerable to lead exposure," he explains. "Although we've made great strides in reducing lead exposure, our findings send a clear message that further reduction of childhood lead exposure may be an important and achievable way to reduce violent crime.

"Aggressive or violent behavioral patterns often emerge early and continue throughout life," adds Dietrich. "Identifying the risk factors that may place youth on an early trajectory toward a life of crime and violence should be a public health priority."

Study coauthor John Wright, PhD, a member of UC's criminal justice faculty who studies the impact of factors like genetics, psychology and biology on criminality, says he had limited expectations for how strong a correlation between lead exposure and criminality could be established.

"I did not expect we would see an effect, much less a substantive effect and even less likely a highly resilient effect," says Wright. "The fact that we are able to detect the effects from childhood exposures now into adulthood stands as a testament of lead's power to influence behavior over a long period of time."

UC coauthors include M. Douglas Ris, PhD, Richard Hornung, PhD, Stephanie Wessel, Bruce Lanphear, MD, Mona Ho, and Mary Rae, PhD. Funding for the study came from grants from the NIEHS and U.S. EPA.

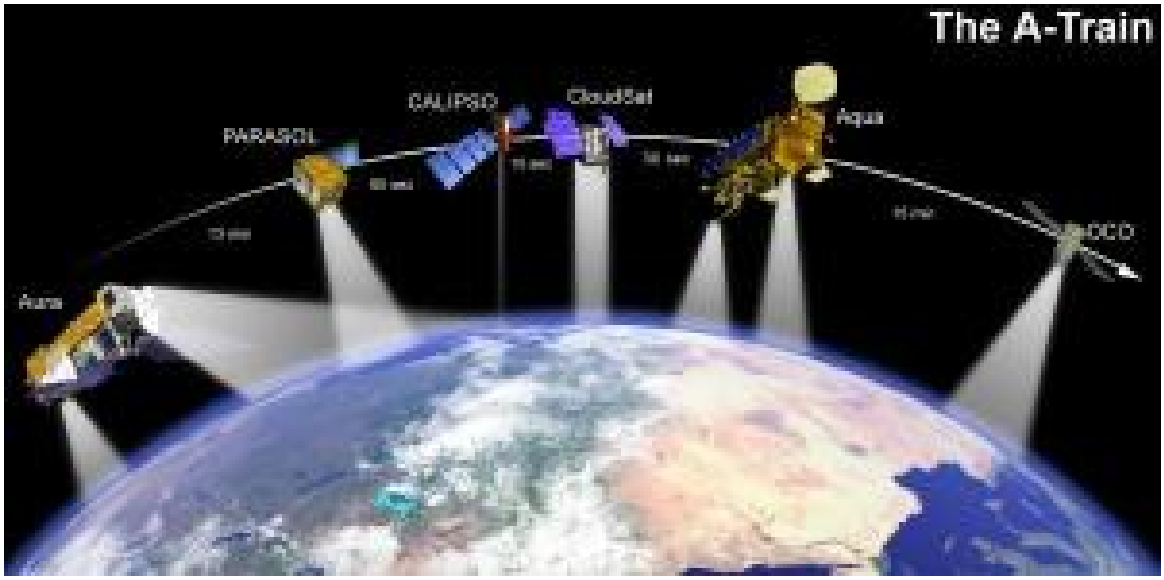
Journal reference:

1. Wright JP, Dietrich KN, Ris MD, Hornung RW, Wessel SD, et al. **Association of prenatal and childhood blood lead concentrations with criminal arrests in early adulthood**. *PLoS Med*, 2008; 5(5): e101 DOI: 10.1371/journal.pmed.0050101

Adapted from materials provided by University of Cincinnati.

http://www.sciencedaily.com:80 /releases/2008/05/080527201839.htm

Satellites Illuminate Pollution's Influence On Clouds



This artist's concept shows how the satellites composing the A-Train fly in formation to make near-simultaneous observations of Earth. (Credit: NASA)

ScienceDaily (May 28, 2008) — Clouds have typically posed a problem to scientists using satellites to observe the lowest part of the atmosphere, where humans live and breathe, because they block the satellite's ability to capture a clear, unobstructed view of Earth's surface. It turns out, however, that these "obstructions" are worth a closer look, as clouds and their characteristics actually serve a valuable role in Earth's climate. That closer look is now available by satellites comprising the Afternoon Constellation, or A-Train.

"The A-Train is providing a new way to examine cloud types," said Mark Schoeberl, A-Train project scientist at NASA's Goddard Space Flight Center, Greenbelt, Md.

Using data from instruments in a constellation of NASA satellites, scientists have discovered that they can see deep inside of clouds. The satellites are taking first-of-a-kind measurements, shedding new light on the link between clouds, pollution and rainfall.

Jonathan Jiang of NASA's Jet Propulsion Laboratory, Pasadena, Calif., and colleagues used these A-Train sensors to find that South American clouds infused with airborne pollution – classified as "polluted clouds" – tend to produce less rain than their "clean" counterparts during the region's dry season. Details of the findings will be presented May 27 at the American Geophysical Union's 2008 Joint Assembly in Fort Lauderdale, Fla.

Discovery of the link between rain and pollution was possible due to near-simultaneous measurements from multiple satellites making up the string of satellites in the Afternoon Constellation, more commonly called the A-Train. "Typically, it is very hard to get a sense of how important the effect of pollution on clouds is," said Anne Douglass, deputy project scientist at Goddard for NASA’s Aura satellite. "With the A-Train, we can see the clouds every day and we're getting confirmation on a global scale that we have an issue here."

Jiang's team used the Microwave Limb Sounder on the A-Train's Aura satellite to measure the level of carbon monoxide in clouds. The presence of carbon monoxide implies the presence of smoke and other aerosols, which usually come from the same emission source, such a power plant or agricultural fire.

With the ability to distinguish between polluted and clean clouds, the team next used Aqua's Moderate Resolution Imaging Spectroradiometer to study how ice particle sizes change when aerosol pollution is present in the clouds. The team also used NASA's Tropical Rainfall Measuring Mission satellite to measure the amount of precipitation falling from the polluted and clean clouds. All three measurements together show the relationship between pollution, clouds and precipitation.

The team found that polluted clouds suppressed rainfall during the June-to-October dry season in South America, which is also a period of increased agricultural burning. During that period it was more difficult for the measurably smaller ice particles in aerosol polluted clouds to grow large enough to fall as rain.

This trend turned up seasonal and regional differences, however, and aerosol pollution was found, on average, to be less of a factor during the wet monsoon seasons in South America and in South Asia. Other physical effects, such as large-scale dynamics and rainy conditions that clear the air of aerosol particles, might also be at play, the researchers suggest.

"The complexity of interactions between aerosols and clouds pose difficult problems that no one satellite instrument can solve," said Jiang. "But when you put parameters from multiple satellites all together, you will find much more information than from a single instrument alone."

The five satellites – NASA's Aqua, Aura, CloudSat and CALIPSO and the French Space Agency's PARASOL – of the A-Train orbit only eight minutes apart and can be thought of as an extended satellite observatory, providing unprecedented information about clouds, aerosols and atmospheric composition.

Adapted from materials provided by NASA/Goddard Space Flight Center.

http://www.sciencedaily.com:80 /releases/2008/05/080527110949.htm

Most Developing Countries Ill-equipped To Ensure Global Biosafety

ScienceDaily (May 28, 2008) — A two-year UN study of internationally funded training programmes in biotechnology and biosafety warns that as many as 100 developing countries are unprepared to effectively manage and monitor the use of modern biotechnologies, leaving the world community open to serious biosafety threats.

The report, from the United Nations University Institute of Advanced Studies, says training and management deficiencies in most countries of Africa, Central Asia, Oceania and the Caribbean, "are so pervasive and broad that there is no effective international system of biosafety at the moment."

In addition, the global resources available from donor countries and agencies, already inadequate to help developing countries meet basic international agreement obligations, are being cut back. It is estimated that, over the past 15 years, just $135 million has been invested globally by public and private sources in capacity building in developing country.

The UNU-IAS assessment, released at this month's Conference of Parties to the Convention on Biological Diversity in Bonn, takes no sides on genetically modified organisms and other biotech-related controversies. It was designed simply to shed a neutral, independent and objective light on international biotechnology and biosafety training programmes intended to allow developing countries to make and implement informed choices.

Among other questions examined:

- Are current capacity building initiatives directed towards particular policy or regulatory outcomes?
- Do they drive the policy process in developing countries?
- Are capacity building initiatives in biosafety and biotech demand driven?
- How can integrated capacity building be provided given lack of international consensus about nature and extent of risks posed by Living Modified Organisms?
- Are regional approaches appropriate for capacity building in biosafety and biotech?
- Is there sufficient donor coordination to avoid inappropriate duplication?
- Are existing activities sustainable?
- How should capacity building differentiate between developing countries at different stages of uptake of modern biotech?
- How can capacity building gaps and problems be addressed?

Authors, Sam Johnston, Catherine Monagle, Jessica Green and Ruth Mackenzie say the use and prevalence of biotechnology in agriculture and other sectors seems certain to increase. And the widespread ratification of the world's Cartagena Protocol on Biosafety (CPB), which will mark the 5th anniversary of its coming into force on Sept. 11, 2008, "demonstrates the desire for biosafety measures to go hand in hand with the development of biotechnology."

However, they cite the lack of technical, policy and enforcement capacities in developing countries as "a potentially contributing factor to the spread of bioterrorism" -- the deliberate release of naturally-occurring or human-modified bacteria, viruses, toxins or other biological agents.

Among other points and observations:

- Globalization, resulting in the increasing flow of information, people and resources, has weakened the power of states to manage technology development and will make it harder to develop an effective international regime;

- The lack of capacities and the associated policy vacuum allow for vested interests to predominate, dampen support for research and create hesitation on the part of governments to properly engage with the issue;
- A country that lacks capacity is more likely to bring in very restrictive systems in order to counterbalance its deficiencies and undermines their ability to consider less contentious uses of biotechnology, such as in diagnostics, industrial enzymes, pollution remediation, combating drought and reversing salinity;
- The lack of capacity creates dependency in developing countries;
- The use of genetically-modified crops in many developing countries makes future trade bans and disruption likely;
- The lack of an effective biosafety regime undermines the potential for developing countries to consider the role of biotechnology in critical areas such as addressing climate change.

Most available capacity building resources to date have been devoted to developing policy and regulatory regimes, including approval procedures and risk assessment. Scientific training has focused mostly on risk assessment and, to a lesser extent, on the detection of genetically modified organisms.

The authors offer a suite of recommendations, emphasizing that capacity needs should be identified locally, not internationally, and point to success stories on which world efforts should be built.

The findings raise fundamental questions about "the extent to which capacity deficits are undermining the promise that advances in biotechnology would directly address the needs of the poor," says UNU-IAS Director A.H. Zakri.

"There may also be broader implications of a capacity deficit in biosafety and biotechnology. These may include an impaired ability to meet the challenges of global issues such as climate change, or to protect humans and the environment against biosecurity risks."

Information for the assessment was assembled from available literature and previous assessments, country visits to the Philippines, Uganda, Bangladesh and Cameroon, stakeholder interviews and participation in several international meetings, overseen by an advisory committee of senior experts and critiqued by a range of reviewers.

The full report is online at http://www.ias.unu.edu/resource_centre/Internationally Funded Training in Biotechnology and Biosafety_Is it Bridging the Biotech Divide.pdf

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Adapted from materials provided by United Nations University, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com:80 /releases/2008/05/080527155543.htm

Little Man And Cosmic Cauldron: Very Large Telescope Images Two Nebulae In Carina

Left: This new image of the luminous blue variable Eta Carinae was taken with the NACO near-infrared adaptive optics instrument on ESO's Very Large Telescope, yielding an incredible amount of detail. The images clearly shows a bipolar structure as well as the jets coming out from the central star. Right: Located 9 000 light-years away, NGC 3576 is a gigantic region of glowing gas about 100 light-years across, where stars are currently forming. The intense radiation and winds from the massive stars are shredding the clouds from which they form, creating dramatic scenery. The black area in the right middle part of the image is dark because of the presence of very dense, opaque clouds of gas and dust. (Credit: Image courtesy of ESO)

ScienceDaily (May 28, 2008) — On the occasion of the 10th anniversary of the Very Large Telescope's First Light, ESO is releasing two stunning images of different kinds of nebulae, located towards the Carina constellation. The first one, Eta Carinae, has the shape of a 'little man' and surrounds a star doomed to explode within the next 100 000 years. The second image features a much larger nebula, whose internal turmoil is created by a cluster of young, massive stars.

Being brighter than one million Suns, Eta Carinae is the most luminous star known in the Galaxy. It is the closest example of a luminous blue variable, the last phase in the life of a very massive star before it explodes in a fiery supernova.

Eta Carinae is surrounded by an expanding bipolar cloud of dust and gas known as the Homunculus ('little man' in Latin), which astronomers believe was expelled from the star during a great outburst seen in 1843 [1].

Eta Carinae was one of the first objects to be imaged during First Light with ESO's VLT, 10 years ago. At the time, the image obtained with a test camera already showed the unique capabilities of the European flagship telescope for ground-based optical and infrared astronomy, as well as of its unique location on the mountain of Paranal. The image had a resolution of 0.38 arcseconds.

The new, recently obtained image reveals even more, with a resolution a factor of 6 to 7 times better. It was obtained with the NACO near-infrared instrument on Yepun, Unit Telescope 4 of the VLT. NACO is an adaptive optics instrument, which means that it can correct for the blurring effect of the atmosphere. And looking at the image, the power of adaptive optics is clear. The image quality is as though the whole 8.2-m telescope had been launched into space [2].

When viewed through the eyepiece of a small telescope, the Homunculus may indeed resemble a little man, but the astounding NACO image clearly shows a bipolar structure. Also very well resolved is the fine structure of the jets coming out from the central star.

Last year, the Very Large Telescope Interferometer also studied Eta Carinae in great detail and provided invaluable information about the stellar wind of Eta Carinae (see ESO 06/07).

The second image was obtained with the ISAAC infrared imager on Antu, Unit Telescope 1.

Located 9 000 light-years away, i.e. farther away than Eta Carinae, NGC 3576 is also in the direction of the southern Carina constellation. NGC 3576 is about 100 light-years across, that is, 25 times larger than the distance between the Sun and its closest neighbouring star.

This intriguing nebula is a gigantic region of glowing gas, where stars are currently forming. The intense radiation and winds from the massive stars are shredding the clouds from which they form, creating dramatic scenery. It is estimated that the nebula is about 1.5 million year old, the blink of an eye on cosmological timescales.

Astronomers from the University of Cologne [3], Germany, have studied this region with ESO's Very Large Telescope and ISAAC to determine the proportion of stars still having a protoplanetary disc from which planets form. Looking at young regions of different ages, the astronomers hope to estimate the lifetime of protoplanetary discs and thereby better understand how planets form. In particular, the scientists are interested in looking at the effect of the strong radiation of the stars, as well as of stellar encounters in these dense regions, on the survival of the discs.

Notes

[1]: In fact, since the distance to Eta Carinae is about 7500 light-years, the eruption must have taken place about 7700 years ago.

[2]: Given the large size of each Unit Telescope of the VLT, the resolution achievable when using adaptive optics (the 'diffraction limit') is as good in the longer near-infrared wavelengths, where NACO observes, as what the HST can achieve in the visible. The resolution is indeed close to 0.05 arcseconds, ten times better than what one can typically obtain without adaptive optics on an excellent site. A resolution of 0.05 arcseconds corresponds to being able to read a book 10 km away.

[3]: The astronomers are C. Olczak, R. Schödel, S. Pfalzner, and A. Eckart.

Adapted from materials provided by ESO.

http://www.sciencedaily.com:80 /releases/2008/05/080527155503.htm

Mind Over Matter: Monkey Feeds Itself Using Its Brain

A brain-controlled robotic arm allows monkeys to feed themselves marshmallows and chunks of fruit while their own arms are restrained. Computer software interprets signals picked up by probes the width of a human hair. (Credit: Image courtesy of University of Pittsburgh Schools of the Health Sciences)

ScienceDaily (May 28, 2008) — A monkey has successfully fed itself with fluid, well-controlled movements of a human-like robotic arm by using only signals from its brain, researchers from the University of Pittsburgh School of Medicine report in the journal Nature. This significant advance could benefit development of prosthetics for people with spinal cord injuries and those with "locked-in" conditions such as Lou Gehrig's disease, or amyotrophic lateral sclerosis.

"Our immediate goal is to make a prosthetic device for people with total paralysis," said Andrew Schwartz, Ph.D., senior author and professor of neurobiology at the University of Pittsburgh School of Medicine. "Ultimately, our goal is to better understand brain complexity."

Previously, work has focused on using brain-machine interfaces to control cursor movements displayed on a computer screen. Monkeys in the Schwartz lab have been trained to command cursor movements with the power of their thoughts.

"Now we are beginning to understand how the brain works using brain-machine interface technology," said Dr. Schwartz. "The more we understand about the brain, the better we'll be able to treat a wide range of brain disorders, everything from Parkinson's disease and paralysis to, eventually, Alzheimer's disease and perhaps even mental illness."

Using this technology, monkeys in the Schwartz lab are able to move a robotic arm to feed themselves marshmallows and chunks of fruit while their own arms are restrained. Computer software interprets signals picked up by probes the width of a human hair. The probes are inserted into neuronal pathways in the monkey's motor cortex, a brain region where voluntary movement originates as electrical impulses. The neurons' collective activity is then evaluated using software programmed with a mathematic

algorithm and then sent to the arm, which carries out the actions the monkey intended to perform with its own limb. Movements are fluid and natural, and evidence shows that the monkeys come to regard the robotic device as part of their own bodies.

The primary motor cortex, a part of the brain that controls movement, has thousands of nerve cells, called neurons, which fire together as they contribute to the generation of movement. Because of the massive number of neurons that fire at the same time to control even the simplest of actions, it would be impossible to create probes that capture the firing pattern of each. Pitt researchers developed a special algorithm that uses limited information from about 100 neurons to fill in the missing signals.

"In our research, we've demonstrated a higher level of precision, skill and learning," explained Dr. Schwartz. "The monkey learns by first observing the movement, which activates his brain cells as if he were doing it. It's a lot like sports training, where trainers have athletes first imagine that they are performing the movements they desire."

In addition to Dr. Schwartz, authors include Meel Velliste, Ph.D., and Sagi Perel, M. Chance Spalding and Andrew S. Whitford, all Pitt bioengineering graduate students.

The study was funded by the National Institute of Neurological Disorders and Stroke at the National Institutes of Health.

Journal reference:

1. Meel Velliste, Sagi Perel, M. Chance Spalding, Andrew S. Whitford & Andrew B. Schwartz. **Cortical control of a prosthetic arm for self-feeding**. *Nature*, Published online 28 May 2008 DOI: 10.1038/nature06996

Adapted from materials provided by University of Pittsburgh Schools of the Health Sciences, via EurekAlert!, a service of AAAS.

from http://www.sciencedaily.com:80 /releases/2008/05/080528140245.htm

Engineering Researcher Seeks Answers To Asteroid Deflection

ScienceDaily (May 28, 2008) — An Asteroid Deflection Research Center (ADRC) has been established on the Iowa State campus to bring researchers from around the world to develop asteroid deflection technologies. The center was signed into effect in April by the Office of the Executive Vice President and Provost.

"In the early 1990s, scientists around the world initiated studies to assess and devise methods to prevent near-Earth objects from striking Earth," said Bong Wie, the Vance D. Coffman Chair Professor in Aerospace Engineering and director of the center. "However, it is now 2008, and there is no consensus on how to reliably deflect them in a timely manner," he noted.

Wie, whose research expertise includes space vehicle dynamics and control, modeling and control of large space structures, and solar sail flight control system development and mission design, joined the Iowa State faculty last August. "I am very happy that Professor Bong Wie has joined the faculty at ISU," said Elizabeth Hoffman, executive vice president and provost. "His work on asteroid deflection is exciting and of great importance."

The ADRC will host an International Symposium on Asteroid Deflection Technology in fall 2008. Scientists and engineers from NASA, the European Space Agency, academia, and the aerospace industry will be invited to the Iowa State campus to formulate a roadmap for developing asteroid deflection technologies.

Despite the lack of an immediate threat from an asteroid strike, scientific evidence suggests the importance of researching preventive measures. Sixty-five million years ago, a six-mile-wide asteroid struck near the Yucatan Peninsula in Mexico and created the 106-mile-diameter Chicxulub Crater. Most scientists now believe that a global climate change caused by this asteroid impact may have led to the dinosaur extinction. Seventy-four million years ago, a smaller one-mile-wide asteroid struck in central Iowa, creating the Manson Crater. Now covered with soil, it is the largest crater in North America at more than 23 miles across.

Just 100 years ago, June 30, 1908, an asteroid or comet estimated at 100–200 feet in diameter exploded in the skies above Tunguska, Siberia. Known as the Tunguska Event, the explosion flattened trees and killed other vegetation over a 500,000-acre area. But if the explosion had occurred four hours later, it would have destroyed St. Petersburg or Moscow with an equivalent energy level of about 500 Hiroshima nuclear bombs.

The potential for such devastation has astronomers scanning the skies to find and track asteroids that pose a danger, and it has Wie initiating this concerted research effort now before any asteroids are discovered heading toward Earth.

Last November, NASA reported 900 known potentially hazardous objects (PHOs), most of which are asteroids. PHOs are defined as objects larger than 492 feet in diameter whose trajectories bring them to within about 4.6 million miles of the Earth's orbit. NASA scientists estimate the total population of PHOs to be around 20,000. "However," Wie said, "the asteroid we have to worry about is the asteroid that we don't know."

"Developing technologies that can be used to prevent or mitigate threats from asteroids while also advancing space exploration is a challenge we accept as we work to assure a high quality of life for future generations," said Mark J. Kushner, dean of Iowa State's College of Engineering. "This research center serves as an excellent opportunity to provide leadership on an issue that has worldwide implications."

According to Tom Shih, professor and chair of aerospace engineering, "the potential for a major catastrophe created by an asteroid impacting Earth is very real. It is a matter of when, and humankind

must be prepared for it. Our aerospace engineering department strongly supports Professor Bong Wie's effort in establishing this center to address the engineering and science issues of asteroid deflection."

Both high-energy nuclear explosions and low-energy non-nuclear alternatives will be studied as deflection techniques. The nuclear approach, which is often assessed to be 10–100 times more effective than non-nuclear approaches as stated in NASA's 2007 report to Congress, will be researched to verify its effectiveness and determine its practical viability, according to Wie.

"A 20-meter (66 feet) standoff distance is often mentioned in the literature for a maximum velocity change of a 1-kilometer (0.6 mile) asteroid. However, we have to determine how close the nuclear explosion must be to effectively change the orbital trajectories of asteroids of different types, sizes, and shapes," Wie explained. "We will develop high-fidelity physical models to reliably predict the velocity change and fragmentation caused by a nuclear standoff explosion."

The non-nuclear alternatives include kinetic impactors and slow-pull gravity tractors. Wie, who has previously worked on solar sail technology as applied to asteroid deflection, will present his recent study, "Multiple gravity tractors in halo orbits for towing a target asteroid," at the American Institute of Aeronautics and Astronautics Astrodynamics Specialists Conference in August. His paper has been accepted for publication in the AIAA Journal of Guidance, Control, and Dynamics.

The chances of having to use deflection technologies on an asteroid in the near future are admittedly remote. Scientists estimate the frequency of an extinction-class (6 miles in diameter or larger) object striking Earth as once every 50–100 million years, and for a 200-foot or larger object as once every 100–500 years.

The technologies that will be developed, including precision orbital guidance and navigation and control, however, have other applications as well. These may include future advanced space vehicles that will carry astronauts to an asteroid or Mars and homeland security applications.

Adapted from materials provided by Iowa State University.

http://www.sciencedaily.com:80 /releases/2008/05/080527155456.htm

Miracle Leaves That May Help Protect Against Liver Damage

Sea buckthorn (Hippophae rhamnoides) berries are well known for their cholesterol busting properties, but scientists in India say that its leaves are also rich in anti-oxidants and may help ward off liver disease. (Credit: iStockphoto/Sergey Chushkin)

ScienceDaily (May 28, 2008) — Sea buckthorn (Hippophae rhamnoides) berries are well known for their cholesterol busting properties, but scientists in India say that its leaves are also rich in anti-oxidants and may help ward off liver disease, according to new research due to be published in the Society of Chemical Industry's (SCI) Journal of the Science of Food and Agriculture.

Indigineous to the mountainous regions of China and Russia, sea buckthorn has been shown to be rich in vitamin C, vitamin E, flavonoids and essential fatty acids. The leaves are also used to make a tea.

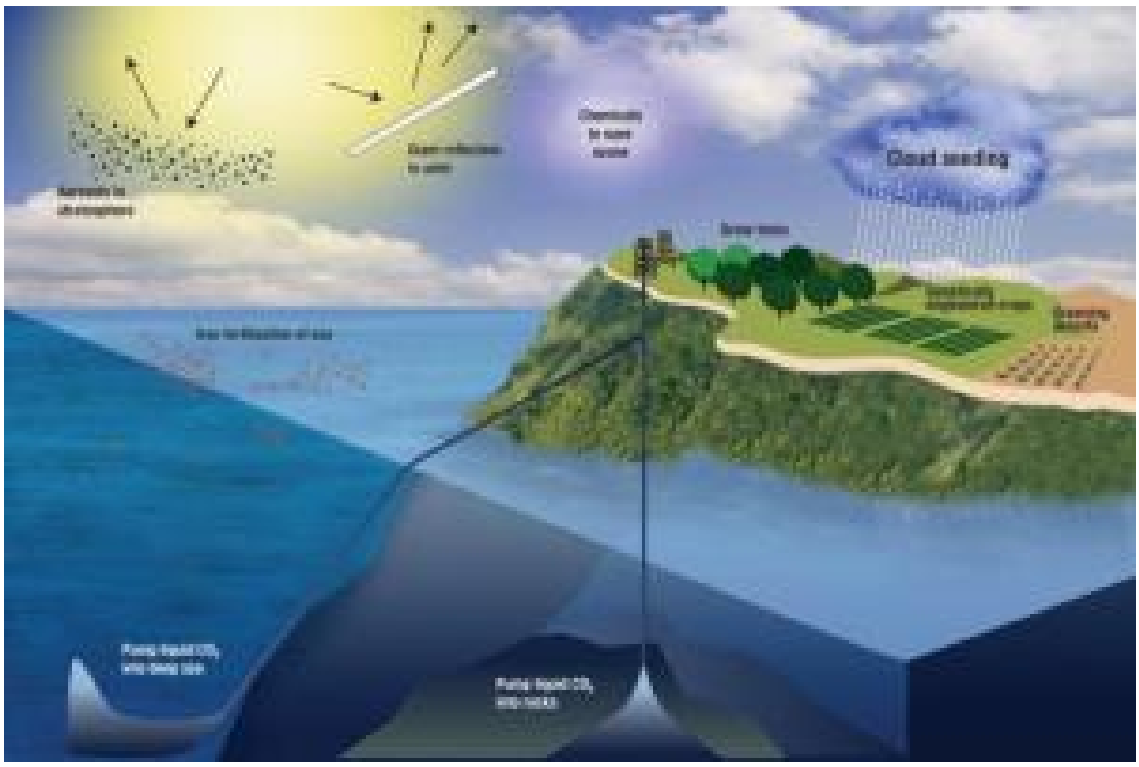
In a clinically controlled study, scientists looked at whether the leaves had any protective effects by testing a group of rats, some of whom were given the leaf extract before being administered with a liver damage agent, carbon tetrachloride (CCI4). Six groups were looked at in all -- group 1 was given a daily dose of saline for 5 days; group 2 received saline for 4 days and on the 5th day was given CCI4; group 3 was given a daily dose of silymarin for 5 days followed by a single dose of CCI4; groups 4, 5 and 6 were given 50, 100 and 200mg of sea buckthorn leaf extract respectively for five days followed by a single dose of CCI4 on the 5th day.

The results showed that the leaf extract appeared to confer a protective mechanism on the liver -- the rats given CCI4 minus the leaf extract had sustained significant liver damage compared to the control group that did not receive CCI4. In comparison, liver damage was severely restricted in the rats given leaf extract at 100mg and 200mg and CCI4.

Adapted from materials provided by Society of Chemical Industry, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com:80 /releases/2008/05/080523064620.htm

Geoengineering Could Slow Down Global Water Cycle



A schematic representation of various geoengineering and carbon storage proposals. (Credit: Diagram by Kathleen Smith/LLNL)

ScienceDaily (May 28, 2008) — As fossil fuel emissions continue to climb, reducing the amount of sunlight hitting the Earth would definitely have a cooling effect on surface temperatures.

However, a new study from Lawrence Livermore National Laboratory, led by atmospheric scientist Govindasamy Bala, shows that this intentional manipulation of solar radiation also could lead to a less intense global water cycle. Decreasing surface temperatures through "geoengineering" also could mean less rainfall.

The reduction in sunlight can be accomplished by geoengineering schemes. There are two classes: the so-called "sunshade" geoengineering scheme, which would mitigate climate change by intentionally manipulating the solar radiation on the earth's surface; the other category removes atmospheric CO_2 and sequesters it into the terrestrial vegetation, oceans or deep geologic formations.

In the new climate modeling study, which appears in the May 27-30 early online edition of the Proceedings of the National Academy of Sciences, Bala and his colleagues Karl Taylor and Philip Duffy demonstrate that the sunshade geoengineering scheme could slow down the global water cycle.

The sunshade schemes include placing reflectors in space, injecting sulfate or other reflective particles into the stratosphere, or enhancing the reflectivity of clouds by injecting cloud condensation nuclei in the troposphere. When CO_2 is doubled as predicted in the future, a 2 percent reduction in sunlight is sufficient to counter the surface warming.

This new research investigated the sensitivity of the global mean precipitation to greenhouse and solar forcings separately to help understand the global water cycle in a geoengineered world.

While the surface temperature response is the same for CO_2 and solar forcings, the rainfall response can be very different.

"We found that while climate sensitivity can be the same for different forcing mechanisms, the hydrological sensitivity is very different," Bala said.

The global mean rainfall increased approximately 4 percent for a doubling of CO_2 and decreases by 6 percent for a reduction in sunlight in his modeling study.

"Because the global water cycle is more sensitive to changes in solar radiation than to increases in CO_2, geoengineering could lead to a decline in the intensity of the global water cycle" Bala said.

A recent study showed that there was a substantial decrease in rainfall over land and a record decrease in runoff and discharge into the ocean following the eruption of Mount Pinatubo in 1991. The ash emitted from Pinatubo masked some of the sunlight reaching the earth and therefore decreased surface temperatures slightly, but it also slowed down the global hydrologic cycle.

"Any research in geoengineering should explore the response of different components of the climate system to forcing mechanisms," Bala said.

For instance, Bala said, sunshade geoengineering would not limit the amount of CO_2 emissions. CO_2 effects on ocean chemistry, specifically, could have harmful consequences for marine biota because of ocean acidification, which is not mitigated by geoengineering schemes.

"While geoengineering schemes would mitigate the surface warming, we still have to face the consequences of CO_2 emissions on marine life, agriculture and the water cycle," Bala said.

Adapted from materials provided by DOE/Lawrence Livermore National Laboratory.

http://www.sciencedaily.com:80 /releases/2008/05/080527155519.htm

Authentic Viking DNA Retrieved From 1,000-year-old Skeletons

Sampling of teeth for aDNA analysis. The last layer of soil was removed and two teeth extracted while wearing full body suit, hairnet, gloves, shoe covers, and face masks. The teeth were placed in sealed sterile tubes and transported to the aDNA-lab. (Credit: Melchior L et al. Evidence of Authentic DNA from Danish Viking Age Skeletons Untouched by Humans for 1,000 Years. doi:10.1371/journal.pone.0002214)

ScienceDaily (May 28, 2008) — Although "Viking" literally means "pirate," recent research has indicated that the Vikings were also traders to the fishmongers of Europe. Stereotypically, these Norsemen are usually pictured wearing a horned helmet but in a new study,Jørgen Dissing and colleagues from the University of Copenhagen, investigated what went under the helmet; the scientists were able to extract authentic DNA from ancient Viking skeletons, avoiding many of the problems of contamination faced by past researchers.

Analysis of DNA from the remains of ancient humans provides valuable insights into such important questions as the origin of genetic diseases, migration patterns of our forefathers and tribal and family patterns.

Unfortunately, severe problems connected with the retrieval and analysis of DNA from ancient organisms (like the scarcity of intact molecules) are further aggravated in the case of ancient humans. This is because of the great risk of contamination with abundant DNA from modern humans. Humans, then, are involved at all steps, from excavation to laboratory analyses. This means that many previous results have subsequently been disputed as attributed to the presence of contaminant DNA, and some researchers even claim that it is impossible to obtain reliable results with ancient human DNA.

Using freshly sampled material from ten Viking skeletons from around AD 1,000, from a non-Christian burial site on the Danish island of Funen, Dissing and colleagues showed that it is indeed possible to retrieve authentic DNA from ancient humans.

Wearing protective suits, the researchers removed the teeth from the jaw at the moment the skeletons were unearthed when they had been untouched for 1,000 years. The subsequent laboratory procedures were also carefully controlled in order to avoid contamination.

Analysis of the Viking DNA showed no evidence of contamination with extraneous DNA, and typing of the endogenous DNA gave reproducible results and showed that these individuals were just as diverse as contemporary humans. A reliable retrieval of authentic DNA opens the way for a valuable use of prehistoric human remains to illuminate the genetic history of past and extant populations.

Journal reference:

1. Melchior L, Kivisild T, Lynnerup N, Dissing J (2008) Evidence of Authentic DNA from Danish Viking Age Skeletons Untouched by Humans for 1,000 Years. PLoS ONE 3(5): e2214. doi:10.1371/journal.pone.0002214 [link]

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

http://www.sciencedaily.com:80 /releases/2008/05/080527201804.htm

Rice In Your Gas Tank: Boosting Biofuel Production From Rice Straw

Scientists report the production of biofuels from rice straw (above), which is a leftover from harvesting the grain. (Credit: Courtesy of Wikimedia Commons)

ScienceDaily (May 28, 2008) — Researchers in China are reporting a discovery that could turn rice straw into an inexpensive new renewable source of biofuel.

Their new study, scheduled for the July 16 issue of ACS' bimonthly journal Energy & Fuels, describes a way to boost production of biofuel from rice straw by almost 65 percent.

In the new study, Xiujin Li and colleagues point out that China is the world's largest rice producer, a crop that leaves behind about 230 million tons of rice straw each year. Rice straw is the stem and leaves left behind after harvesting the grains.

Scientists, however, have not tapped rice straw for production of biogas because bacteria cannot easily break down its cellulose due to the complex physical and chemical structures of lignocellulosic biomass.

The researchers treated rice straw with sodium hydroxide before allowing bacteria to ferment it into a biogas. That so-called pretreatment increased biogas production by making more cellulose and other compositions in straw available for digestion by the bacteria. Three prototype facilities have been built in China using this technology.

Journal reference:

1. He, Yanfeng, Pang, Yunzhi, Liu, Yanping, Li, Xiujin, and Wang, Kuisheng. Physicochemical Characterization of Rice Straw Pretreated with Sodium Hydroxide in the Solid State for Enhancing Biogas Production. Energy Fuels, 2008 doi: 10.1021/ef8000967

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

http://www.sciencedaily.com:80 /releases/2008/05/080526153329.htm

Giant Flying Reptiles Preferred To Walk

A group of Quetzalcoatlus, another type of giant azhdarchid, strolling around a fern prairie eating baby dinosaurs for lunch. (Credit: Mark Witton)

ScienceDaily (May 28, 2008) — New research into gigantic flying reptiles has found that they weren't all gull-like predators grabbing fish from the water but that some were strongly adapted for life on the ground.

Pterosaurs lived during the age of dinosaurs 230 to 65 million years ago. A new study by researchers at the University of Portsmouth on one particular type of pterosaur, the azhdarchids, claims they were more likely to stalk animals on foot than to fly.

Until now virtually all pterosaurs have been imagined by palaeontologists to have lived like modern seabirds: as gull- or pelican-like predators that flew over lakes and oceans, grabbing fish from the water. But a study of azhdarchid anatomy, footprints and the distribution of their fossils by Mark Witton and Dr Darren Naish shows that this stereotype does not apply to all flying reptiles and some were strongly adapted for terrestrial life.

Azhdarchids were probably better than any other ptersosaurs at walking because they had long limbs and skulls well suited for picking up small animals and other food from the ground.

Azhdarchids, named after the Uzbek word for 'dragon', were gigantic toothless pterosaurs. Azhdarchids include the largest of all pterosaurs: some had wingspans exceeding 10 metres and the biggest ones were as tall as a giraffe.

Dr Naish said: "Azhdarchids first became reasonably well known in the 1970s but how they lived has been the subject of much debate. Originally described as vulture-like scavengers, they were later suggested to be mud-probers (sticking their long bills into the ground in search of prey), and later still suggested to make a living by flying over the water's surface, grabbing fish.

"Other lifestyles have been suggested too. These lifestyles all seem radically divergent so Mark and I sat down and carefully examined the evidence and we argue that azhdarchids were specialised terrestrial stalkers. All the details of their anatomy, and the environment their fossils are found in, show that they made their living by walking around, reaching down to grab and pick up animals and other prey."

Animals like azhdarchids no longer exist but the closest analogues in the modern world are large ground-feeding birds like ground-hornbills and storks.

The researchers studied fossils in London, Portsmouth and Germany and compared the anatomy of azhdarchid with those of modern animals. This showed that azhdarchids were strikingly different from mud-probers and animals that grab prey from the water's surface while in flight.

Dr Naish said: "We also worked out the range of motion possible in the azhdarchid neck: this bizarrely stiff neck has previously been a problem for other ideas about azhdarchid lifestyle, but it fits with our model as all a terrestrial stalker needs to do its raise and lower its bill tip to the ground."

Other aspects of azhdarchid anatomy, such as their relatively small padded feet and long but weak jaws often pose problems in other proposed lifestyles but fit perfectly with the terrestrial stalker hypothesis. Mr Witton said: "The small feet of azhdarchids were no good for wading around lake margins or swimming should they land on water but are excellent for strutting around on land. As for what azhdarchids would eat, they'd have snapped up bite-size animals or even bits of fruit. But if your skull is over two metres in length then bite-size includes everything up to a dinosaur the size of a fox."

The researchers found that over 50 percent of azhdarchid fossils come from sediments that were laid down inland. Significantly, the only articulated azhdarchid fossils we have come from these inland sediments.

Journal reference:

1. Witton MP, Naish D. **A Reappraisal of Azhdarchid Pterosaur Functional Morphology and Paleoecology**. *PLoS One*, 2008; 3(5): e2271 [link]

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

http://www.sciencedaily.com:80 /releases/2008/05/080527201814.htm

Classical Realism: Antidote to 'Novelty Art'
By ROGER KIMBALL
May 29, 2008; Page D9

New York

In 1959, the critic Clement Greenberg wrote that "the very best painting, the major painting, of our age is almost exclusively abstract." It was a tune Greenberg sang early and often. He said similar things throughout the 1940s, and as late as 1967 insisted that "the very best art of this time continues to be abstract."

Let's leave the fraught question of whether Greenberg was correct to one side. What we *can* say with confidence is that the focus of much artistic energy at the time was centered around abstract art.

This has obviously not been the case for some decades. What happened? Several things. On the one hand, there was a powerful upsurge of what Greenberg elsewhere called "novelty art," the 57 varieties of pop, op, minimalism, and neo-Dada performance art that have infested the art world like a gigantic flea market. On the other hand, there was a quieter but no less powerful return to older artistic sources and traditions -- a return, that is to say, to the figure.

It is a curious irony that Andy Warhol -- one of the chief perpetrators of novelty art, the man who once said "art is what you can get away with" -- should also have had a hand in fomenting the counter-revolution that is now returning artists to a serious concern with traditional figurative techniques. Twenty-five years ago, Warhol helped start The New York Academy of Art, an institution "dedicated to the advancement of figurative painting, sculpture and drawing."

Who knows? Perhaps Warhol somehow sensed that an art world in which everyone would have his 15 minutes of fame would itself be subject to that 15-minute rule, eventually returning art to the more deliberate rhythms required by technical mastery.

In any event, if large precincts of the art world are still in thrall to "novelty art," there is also a vital and increasingly prominent current of artistic practice seeking the rehabilitation of aesthetic canons and plastic techniques that were pioneered in the Renaissance and promulgated in the studios of the Beaux Arts.

"Classical Realism" is one name many of the more ambitious new figurative artists embrace. The movement has its home in institutions like The Florence Academy of Art, founded in 1991 by Daniel Graves, which seeks "to provide the highest level of instruction in classical drawing, painting and sculpture." The Florence Academy has been a fertile source for many other initiatives, including The Harlem Studio of Art in New York, a small but vibrant atelier school presided over by the artist Judy Pond Kudlow. Founded in 2002, it offers rigorous training in modeling, one-point perspective, cast drawing, and all the other technical aspects of art that one used to assume would be part of an artist's training.

Is technical mastery sufficient by itself to guarantee high artistic accomplishment? The art world has been shouting "No" for decades. That judgment is correct -- ultimately -- but it leaves out the important codicil that an artist who lacks technical command also lacks competence.

One sign that Classical Realism has arrived is the conspicuous interest of major galleries in its products. As I write, Hirschl & Adler Modern in New York is featuring "Rediscovering the American Landscape: The Eastholm Project," an exhibition by Jacob Collins, one of the leading proponents of Classical Realism. Now in his mid-40s, Mr. Collins is a cynosure of the new figurative art, a sought-after teacher and an increasingly prominent artist. This is his fourth solo exhibition at the distinguished East Side gallery in as many years, and it is a captivating reminder that the bravura technical mastery of the Hudson River School is not only alive and well but still capable of producing works of keen aesthetic expressiveness. The exhibition (on view until June 13) revolves around "The Hen Islands From Eastholm," a meticulously observed 4-by-10-foot oil landscape of a view from the island of Vinalhaven, Maine.

"The Hen Islands" is a quiet masterpiece. But in many ways it is merely the pretext for the exhibition. Commissioned by one of Mr. Collins's regular patrons (and not, incidentally, for sale), it is surrounded by 50-odd studies for the huge painting. Some are quick plein-air sketches, visual memoranda of sky, woods,

water. Some are highly finished studio details that grapple with the particulars of foliage, clouds, the infinite intricacies of light reflected off calm shallows. Together, these works provide a glimpse into the engine-room of Mr. Collins's art. More than visual cues, they are systematic transcriptions of observable reality.

Mr. Collins spent innumerable hours poring over topographical and nautical charts, local geological studies, and taxonomies of clouds in order to educate the eye that would guide his hand. "Those who fall in love with practice without science," Leonardo observed, "are like a sailor who enters a ship without a helm or compass, and who never can be certain whither he is going." Mr. Collins's practice underscores the animating strength of that admonition.

Of course, every species of art must conjure with its characteristic occupational deformations. For much contemporary art, deformation by politics or some other extra-aesthetic passion is the defining temptation. For much contemporary figurative painting -- especially, perhaps, for movements like Classical Realism -- the governing temptation is kitsch -- art that may be technically proficient but is nevertheless soulless, histrionic, or cloyingly sentimental.

Although there are patches of melodrama in some of Mr. Collins's earlier painting, his art has grown steadily in seriousness, conviction and existential traction. This is art that requires no excuses, no alibis, no apologies. It is art that is confident, accomplished and traditional, understanding that last word in a positive, enabling sense, not as a term of diminishment.

In one of his gnomic apothegms, the Greek sage Heraclitus said that the way forward is the way back. Mr. Collins is an artistic pioneer. But as this splendid exhibition demonstrates, he has the wit to know that the most demanding mysteries are those that are inseparable from our fragile, human nature. The newest realities are also the oldest, the freshest art the most perennial.

Jacob Collins is the real thing. Criticism isn't prophecy, but I will end with a prediction: You'll be hearing more, a lot more, about him and about the kind of art he practices in the years to come.

Mr. Kimball, co-editor of the New Criterion, is the author of "The Rape of the Masters: How Political Correctness Sabotages Art."

URL for this article:
http://online.wsj.com/article/SB121201421777227483.html

Nature loss 'to hurt global poor'

By Richard Black
Environment correspondent, BBC News website

Damage to forests, rivers, marine life and other aspects of nature could halve living standards for the world's poor, a major report has concluded.

Current rates of natural decline might reduce global GDP by about 7% by 2050.

The Economics of Ecosystems and Biodiversity (TEEB) review is modelled on the Stern Review of climate change.

It will be released at the Convention on Biological Diversity (CBD) meeting in Bonn, where 60 leaders have pledged to halt deforestation by 2020.

"You come up with answers like 6% or 8% of global GDP when you think about the benefits of intact ecosystems, for example in controlling water, controlling floods and droughts, the flow of nutrients from forest to field," said the project's leader Pavan Sukhdev.

"But then you realise that the major beneficiaries [of nature] are the billion and a half of the world's poor; these natural systems account for as much as 40%-50% of what we define as the 'GDP of the poor'," he told BBC News.

Globalised decline

The TEEB review was set up by the German government and the European Commission during the German G8 presidency.

The two institutions selected Mr Sukhdev, a managing director in the global markets division at Deutsche Bank, to lead it.

At the time, in an article for the BBC News website, Germany's environment minister Sigmar Gabriel wrote: "Biological diversity constitutes the indispensable foundation for our lives and for global economic development.

"[But] two-thirds of these ecosystem services are already in decline, some dramatically. We need a greening of globalisation."

The document to be released at the CBD is an interim report into what the team acknowledges are complex, difficult and under-researched issues.

The 7% figure is largely based on loss of forests. The report will acknowledge that the costs of losing some ecosystems have barely been quantified.

The trends are understood well enough - a 50% shrinkage of wetlands over the past 100 years, a rate of species loss between 100 and 1,000 times the rate that would occur without 6.5 billion humans on the planet, a sharp decline in ocean fish stocks and one third of coral reefs damaged.

However, putting a monetary value on them is probably much more difficult, the team acknowledges, than putting a cost on climate change.

The report highlights some of the planet's ecologically damaged zones such as Haiti, where heavy deforestation - largely caused by the poor as they cut wood to sell for cash - means soil is washed away and the ground much less productive.

'Too little, too late'

There are some indications that biodiversity and ecosystem issues are now being heard at the top tables of politics.

G8 environment ministers meeting in Japan last weekend agreed a document noting that "biodiversity is the basis of human security and... the loss of biodiversity exacerbates inequality and instability in human society".

It also emphasised the importance of protected areas and of curbing deforestation.

At the CBD on Wednesday, 60 countries signed pledges to halt net deforestation by 2020.

But the main CBD target agreed by all signatories at the Rio de Janeiro Earth Summit in 1992 - to "halt and begin to reverse" biodiversity loss by 2010 - is very unlikely to be met.

An early draft of the TEEB review, seen by BBC News, concluded: "Lessons from the last 100 years demonstrate that mankind has usually acted too little and too late in the face of similar threats - asbestos, CFCs, acid rain, declining fisheries, BSE and - most recently - climate change".

The Stern Review talked to governments in a way that earlier climate reports could not, because it was written by and for economists; and the architects of TEEB hope it will eventually do the same thing for biodiversity.

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Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7424535.stm

Published: 2008/05/29 05:02:09 GMT

Buses 'could be road sensor hubs'

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Researchers install sensors on a Berlin bus. Credit: Moryne Project

Buses could be turned into "mobile sensing platforms" to help reduce traffic and improve road conditions, according to European researchers.

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Berlin buses were used to demonstrate the technology, which included on-board environmental sensors, cameras and GPS.

The buses transmitted data wirelessly, over mobile phone networks, wi-fi and Wimax, to traffic control centres. Project co-ordinator Patrice Simon said they were also looking at technology to detect if fights break out on buses. "The devices are quite small but very powerful, and we could develop software that could analyse images to detect if a fight breaks out on the bus, for example, and automatically alert the police, " he said. The pan-European research project, dubbed Moryne, is being led by the University of Applied Sciences, Osnabruck, in Germany, and the Institute for Transport Sciences, in Hungary. The sensor systems could be used to detect fog and ice on the roads, as well as analysing traffic conditions and giving alerts about smog conditions. The scientists believe the data could be used to give motorists automatic warnings of traffic jams, as well as helping control centres respond to dynamic conditions on roads. "Most large cities, where this type of system would be deployed, already have very extensive camera systems, inductive loops and environmental sensors networks in place to analyse traffic and weather," said Mr Simon.

He added: "But city traffic monitoring authorities involved in the project have told us they consider the information provided by buses as a useful supplement."

The report into the Moryne project was first published in ICT Results.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/technology/7423438.stm

Published: 2008/05/28 11:46:55 GMT

Cancer survivors 'left in limbo'

Many long-term survivors of cancer are not getting the help they need to cope with the after-effects of the disease, experts warn.

More than 60% of adults with cancer can expect to live five years or more, according to an article in the European Journal of Cancer.

Yet they are left "in limbo" to deal with ongoing symptoms from their disease or harsh cancer treatments.

The government said it was working to improve services for cancer survivors.

Professor Marie Fallon, an expert in palliative medicine at the University of Edinburgh, said the number of people living with the effects of cancer was rising as more and more people were surviving the condition.

> **There is an enormous population of long-term survivors of cancer, many of whom are living with a range of symptoms**
> Professor Marie Fallon

She added that cancer survivors would suffer ongoing symptoms but often be confused about whether they were treatment-related or whether they were a sign the cancer had come back.

"Traditionally, palliative care has been aimed at one end of the spectrum where it is used to help patients near the end of their lives," she said.

"However, there is an enormous population of long-term survivors of cancer, many of whom are living with a range of symptoms."

"These patients exist in a limbo.

"They fall between two stools - they have finished being treated by oncologists, but are not receiving the care and support from palliative care teams that patients at the end of life receive."

She added the ongoing problems, which included pain, swelling and depression could result in poor quality of life.

Better provision

Better integration was needed between oncology services and palliative care to prevent people falling through the gap, she said.

And there needs to be a clear agreement of where patients can access help and who should be responsible, she added.

Professor Alexander Eggermont, president of the European Cancer Organisation, said: "To be cured from cancer, but living with symptoms that are related to often complex multi-disciplinary treatments involving surgery, radiation therapy and chemotherapy is already difficult enough.

"To reintegrate into society, resuming work full or part-time adds to the complexities and socio-psychological pressure that an ever-increasing number of former-patients have to deal with.

"We better start tackling these issues now as they will only increase in number and magnitude."

A Department of Health spokesperson said deaths from cancer in people under 75 fell by 17% between 1995 and 2006.

"The Cancer Reform Strategy published in December 2007, recognised that the services and support available to those living with and beyond cancer needs to be improved and announced the establishment of a new National Cancer Survivorship Initiative to deliver this."

Have you been affected by any of the issues in this story? Send us your comments using the form below.

Name
Your E-mail address
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Phone number (optional):
Comments
Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7423517.stm

Published: 2008/05/29 00:13:45 GMT

Cocoa can be 'boost to diabetics'

A cup of enriched cocoa may help improve the working of blood vessels in diabetic patients, research suggests.

Doctors prescribed three mugs of specially formulated cocoa a day for a month, and found "severely impaired" arteries regained normal function.

The German study, featured in the Journal of the American College of Cardiology, suggests chemicals called "flavanols" may be responsible.

But charity Diabetes UK said eating more normal chocolate would not work.

People with diabetes are at greater risk of cardiovascular problems such as heart disease and strokes, partly due to the effects of high blood sugar on the linings of blood vessels, which stops them being able to expand as much when needed by the body.

This can result in higher blood pressure, which can then cause further problems.

While a healthier lifestyle can reduce the risks, it often does not solve the problem completely.

Our results demonstrate that dietary flavanols might have an important impact
Dr Malte Kelm
University Hospital Aachen

Cocoa naturally contains "flavanols", antioxidant chemicals which are also found in some fruit and vegetables, green tea and red wine, and has been linked with health benefits by other studies.

The type of cocoa used in the study cannot be found in the shops and is a version enriched with far higher concentrations of the chemicals.

Other studies are looking at whether flavanol-enriched chocolate could benefit patients.

Ten patients were told to drink the cocoa three times daily for 30 days, and a special test was used to measure the function of their blood vessels.

The ability of the vessels to expand in response to a demand for extra blood from the body appeared to increase almost immediately.

On average, a healthy person's arteries could expand by just over 5%, while the average of the 10 diabetic patients was just 3.3% prior to drinking their first mug of cocoa.

Two hours after drinking the cocoa, their response averaged 4.8%, and over the 30 days, this improved, to 4.1% even before cocoa, and 5.7% two hours after a mugful.

Chocolate warning

Dr Malte Kelm, from the University Hospital in Aachen, who led the study, said that the flavanols could be working by increasing the production of nitric oxide, a body chemical which tells arteries to relax and widen.

He said: "Patients with type II diabetes can certainly find ways to fit chocolate into a healthy lifestyle, but this study is not about chocolate, or about urging those with diabetes to eat more chocolate.

"Our results demonstrate that dietary flavanols might have an important impact as part of a healthy diet in the prevention of cardiovascular complications in diabetic patients."

A spokesman for Diabetes UK said the findings were "interesting".

"Flavanols do seem to offer potential health benefits for people with diabetes but, at this stage, we don't advise people to start drinking lots of hot chocolate as it can be high in sugar and fat.

"More research is needed in to the long-term effects of consuming such high amounts of flavanols."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7416646.stm

Published: 2008/05/26 23:45:13 GMT

Web users 'getting more ruthless'

Web users are getting more ruthless and selfish when they go online, reveals research.

The annual report into web habits by usability guru Jakob Nielsen shows people are becoming much less patient when they go online.

Instead of dawdling on websites many users want simply to reach a site quickly, complete a task and leave.

Most ignore efforts to make them linger and are suspicious of promotions designed to hold their attention.

Search rules

Instead, many are "hot potato" driven and just want to get a specific task completed.

Success rates measuring whether people achieve what they set out to do online are now about 75%, said Dr Nielsen. In 1999 this figure stood at 60%.

There were two reasons for this, he said.

"The designs have become better but also users have become accustomed to that interactive environment," Dr Nielsen told BBC News.

Now, when people go online they know what they want and how to do it, he said.

This makes them very resistant to highlighted promotions or other editorial choices that try to distract them.

"Web users have always been ruthless and now are even more so," said Dr Nielsen.

"People want sites to get to the point, they have very little patience," he said.

"I do not think sites appreciate that yet," he added. "They still feel that their site is interesting and special and people will be happy about what they are throwing at them."

Web users were also getting very frustrated with all the extras, such as widgets and applications, being added to sites to make them more friendly.

Such extras are only serving to make pages take longer to load, said Dr Nielsen.

There has also been a big change in the way that people get to the places where they can complete pressing tasks, he said.

In 2004, about 40% of people visited a homepage and then drilled down to where they wanted to go and 60% use a deep link that took them directly to a page or destination inside a site. In 2008, said Dr Nielsen, only 25% of people travel via a homepage. The rest search and get straight there.

"Basically search engines rule the web," he said.

But, he added, this did not mean that the search engines were doing a perfect job.

"When you watch people search we often find that people fail and do not get the results they were looking for," he said.

"In the long run anyone who wants to beat Google just has to make a better search," said Dr Nielsen.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/technology/7417496.stm

Published: 2008/05/24 12:04:03 GMT

Web worlds 'useful' for children

Virtual worlds can be valuable places where children rehearse what they will do in real life, reveals research.

They are also a "powerful and engaging" alternative to more passive pursuits such as watching TV, said the BBC-sponsored study.

The research was done with children using the BBC's Adventure Rock virtual world, aimed at those aged 6-12.

The researcher said the BBC should have involved children early on to guide development and provide feedback.

Trial time

Carried out by Professor David Gauntlett and Lizzie Jackson of the University of Westminster, the research surveyed and interviewed children who were the first to test Adventure Rock.

The online world is a themed island built for the BBC's CBBC channel by Belgian game maker Larian.

Children explore the world alone but it uses message boards so children can share what they find and what they make in the various creative studios dotted around the virtual space.

The research looked at the ways the children used the world and sought feedback from them on its good and bad aspects.

ROLES ADOPTED DURING PLAY
Explorer-investigators
Self-stampers
Social climbers
Fighters
Collector consumers
Power users

Nurturers
Life system builders

Prof Gauntlett said the research revealed that children assumed one of eight roles when exploring a virtual world and using the tools they put at their disposal.

At times children were explorers and at others they were social climbers keen to connect with other players. Some were power users looking for more information about how the workings of the virtual space.

Prof Gauntlett said online worlds were very useful rehearsal spaces where children could try all kinds of things largely free of the consequences that would follow if they tried them in the real world.

For instance, he said, children trying out Adventure Rock learned many useful social skills and played around with their identity in ways that would be much more difficult in real life.

Prof Gauntlett said what children liked about virtual worlds was the chance to create content such as music, cartoons and video and the tools that measured their standing in the world compared to others.

"Virtual worlds can be a powerful, engaging and interactive alternative to more passive media," he said.

He urged the BBC and other creators of virtual spaces for children to get young people involved very early on.

"They really do have good ideas to contribute and they are very good critical friends," said Prof Gauntlett.

"The kids know what they are doing and are very good at telling you in a brutally honest and forthright manner about what they want to see," said Wil Davies, a teacher at Peterston Super Ely primary in Glamorgan, from where some of the research subjects were drawn.

Irene Sutherland, a teacher at Merrylee primary, which also took part, said: "Children were adamant about the bits they did not play but were full of ideas about how to improve them."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/technology/7415442.stm

Published: 2008/05/23 11:35:27 GMT

Long school holidays 'should end'

Long school holidays in England should be cut to prevent children falling behind in class, a report has said.

The Institute for Public Policy Research said studies suggested pupils' reading and maths abilities regressed because the summer break was too long.

Instead, the think-tank said the school year could have five eight-week terms, with a month off in the summer and two weeks between the rest of the terms.

The report said the change could benefit pupils, parents and teachers.

The IPPR's suggestion comes after schools watchdog Ofsted warned that a long-term rise in education standards appeared to have "stalled".

Report author Sonia Sodha said: "There have been many positive gains in education over the last decade, but in recent years results have plateaued.

"If we are serious about continuing to improve outcomes for all children, we need long-term reform that better gears our school system around the needs of children and young people."

'Poorer backgrounds'

Ms Sodha told BBC Radio 5 Live that the current structure of the school year was a relic from the time when children were needed to help out on family farms during the summer fruit-picking season.

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The report co-author tells how the system should be reformed

She said there were two strong arguments for making a change.

"The first is that children regress with respect to their academic skills. Their reading and maths skills tend to decline when they're away from school and this is particularly true for children from poorer backgrounds.

"And that actually brings us on to the second reason. Not all children have the same access to out of school activities during the summer holidays and kids from more advantaged backgrounds are the ones who are most likely to get to go to these activities.

"That's reflected in statistics on anti-social behaviour and youth offending, and we know that those levels are higher during the summer holiday, particularly towards the end." The IPPR suggested the summer holiday should run from mid-July to mid-August, followed by two eight-week terms before Christmas.

Ms Sodha said that towards the end of the current 16-week autumn term both children and teachers "get worn out". After Christmas, the school year would be split into three eight-week terms, each separated by two weeks off.

"We're saying that there should be the same amount of holiday, it should just be more evenly spaced throughout the year," Ms Sodha said.

The IPPR said the change could help parents who find it difficult to keep children occupied during the six-week summer break.

Schools need more support in developing healthy and happy young people
Sonia Sodha

It would also provide opportunities to take holidays at different times of year, potentially saving money by avoiding peak periods.

Children's Minister Kevin Brennan said it was up to local authorities to organise the term structure in their area, although the government encouraged them to use the "standard school year".

'Healthy and happy'

The report also urged a new primary school curriculum to give children more chance to learn though play.

Ms Sodha added: "Children's well-being is fundamental to their learning. "Improving results can't just be about focussing on maths, English and science.

"Schools need more support in developing healthy and happy young people."

She said in countries such as Finland there was "more of an emphasis on well-being as the key to improving outcomes, with school counsellors and welfare teams for all schools".

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/uk_news/education/7418899.stm

Published: 2008/05/25 06:13:25 GMT

At Glittery Cannes, a Gritty Palme d'Or

By MANOHLA DARGIS and A. O. SCOTT

CANNES, France — At the closing ceremony of the 61st Cannes Film Festival on Sunday, the red carpet was overrun by teenagers when the French film "The Class" ("Entre les Murs") won the Palme d'Or. Directed by Laurent Cantet, this documentary-inflected drama follows a year in the life of a French schoolteacher working in a tough multicultural section of Paris. Based on a best-selling autobiographical novel by François Bégaudeau, who plays the main character, "The Class" is given great life by the performances of the nonprofessional actors playing the students. Mr. Cantet brought them onstage with him to accept the prize, and they brought the entire Palais des Festivals to its feet.

The president of the jury, Sean Penn, said the award for "The Class" was one of two unanimous verdicts. The other was the prize for best actor, given to Benicio Del Toro, who played the title role in Steven Soderbergh's "Che." Other winners included Jean-Pierre and Luc Dardenne, two-time Palme d'Or recipients, who took the screenplay award for "Le Silence de Lorna," about the struggles of a young Albanian immigrant in Belgium. Sandra Corveloni, who played a working-class mother in São Paulo in Walter Salles and Daniela Thomas's "Linha de Passe," won the best-actress award, which the directors accepted on her behalf. The directing award went to Nuri Bilge Ceylan for "Three Monkeys," about a disintegrating Turkish family.

Both the grand prix and the jury prize — first and second runner-up, as it were — went to Italian films: the grand prix to Matteo Garrone's "Gomorrah," a brutally realistic examination of organized crime in Naples; and the jury prize to "Il Divo," Paolo Sorrentino's highly stylized portrait of the former Italian prime minister Giulio Andreotti. The Caméra d'Or for best first feature, awarded by a separate jury (led by the French director Bruno Dumont), went to Steve McQueen's "Hunger," which unsparingly depicts the protests of imprisoned I.R.A. militants in the 1980s.

Continuing a Cannes tradition of improvisation, the jury conferred two special prizes, which Mr. Penn described as a combination of a lifetime achievement award and an acknowledgment of bold new work. The winners were Catherine Deneuve (born in 1943) and Clint Eastwood (born in 1930). Ms. Deneuve, who appears in "A Christmas Tale," a family drama directed by Arnaud Desplechin, accepted her award. Mr. Eastwood, whose competition entry, "Changeling," was expected by many to win a top prize, was absent.

The exuberance of Mr. Cantet's young cast brought to a rousing finish a festival that had started on a somewhat downbeat note, particularly for Americans concerned about the uncertain box office for foreign-language films and an ever-weakening dollar. Still, despite the gloomy chatter on the streets and in the trades, American distributors had, by the end of the festival, bought some of the most interesting films in and out of competition.

The venturesome IFC Films picked up three titles: "A Christmas Tale," "Hunger" and "The Chaser," a violent Korean thriller about a serial killer. Sony Pictures Classics confirmed that it also had bought three movies: "Le Silence de Lorna"; "Waltz With Bashir," an animated documentary about veterans of the 1982 war in Lebanon by the Israeli director Ari Folman; and the Norwegian film "O' Horten," from Bent Hamer ("Kitchen Stories," "Factotum"). Sony Classics is also rumored to be going after James Toback's documentary "Tyson," a sympathetic portrait of the former heavyweight champion Mike Tyson.

"We kept telling ourselves and were being told by everyone else what a weak Cannes this has been," Michael Barker, co-president of Sony Classics, wrote in an e-mail message, "until we woke up one morning and realized that this could shape up to be the best Cannes we ever had. The sleepless nights this year did not come from the parties; they came from debate over merits of films (with colleagues, journalists, exhibitors, people on the street) and images from the films themselves that we could not shake."

The most passionately debated movie of the festival, however, Mr. Soderbergh's "Che," had yet to find an American distributor by Sunday evening. This four-and-a-half-hour portrait of Ernesto Guevara, the Argentine doctor who became a leader of the Cuban revolution, sharply divided the critics, whose support will be crucial to its chances. Similarly, no American buyers had yet materialized for two other highly anticipated American films, Charlie Kaufman's "Synecdoche, New York," and James Gray's "Two Lovers," both of which also received mixed verdicts from critics and were passed over by the jury.

It is nearly certain that those films, with their Oscar-pedigree casts — Mr. Del Toro in "Che," Philip Seymour Hoffman in "Synecdoche," Gwyneth Paltrow in "Two Lovers" — will make their way into American theaters some time in the future. The question is whether the increasingly cautious major studios and their specialty divisions will take on the challenge of marketing them to an audience glutted with entertainment choices or whether the task will fall to smaller, leaner independent distributors. In recent years some of the studios' art-house subsidiaries have been moving away from acquisition and toward financing and production. For them, leaving Cannes empty-handed was not necessarily a sign that business was slow. James Schamus, chief executive of Universal's Focus Features, summed up the festival in a succinct e-mail message: "Sold everything; bought nothing."

For the critics and the industry, this was perhaps not a festival of revelations but rather 12 days of solid, diverse work with inevitable disappointments balanced by some fine selections. As usual, many movies in and out of competition dealt with social and political problems: crime, poverty, disease, incarceration and war, with a little pornography and family dysfunction to lighten the mood. Also notable was the number of aesthetically and technically innovative works shot in digital. Although the results can sometimes look like smeared mud (see the competition entry from Singapore, "My Magic"), the new technologies mean that a movie can look like something completely new (the startlingly sharp lines of Jia Zhang-ke's "24 City") or very much like old-fashioned celluloid ("Che"). Mr. Soderbergh shot that movie on a new high-definition, 10-pound camera (the RED) that afforded him extraordinary fluidity in difficult terrain.

The prize for the Un Certain Regard section of the festival was given over to the critical and popular favorite, "Tulpan," the first fiction feature from the well-regarded Kazakh documentary director Sergey Dvortsevoy. The jury, led by Fatih Akin (whose "Edge of Heaven" was here last year), handed out several additional honors, some fancifully named. Mr. Toback picked up a KnockOut Prize for "Tyson," and Andreas Dresen from Germany earned the One-From-the-Heart Award for "Cloud 9" (about a love affair between two people over 60).

Of course, it wouldn't be a Cannes Film Festival without a prize for Romania, a country that produced last year's Palme d'Or winner, "4 Months, 3 Weeks and 2 Days." This year made it two palms in a row, when the top prize for best short film went to Marian Crisan's "Megatron." As they say in Bucharest, "Foarte bine" — or here in France, "C'est super-cool."

http://www.nytimes.com/2008/05/26/movies/26cann.html?th&emc=th#

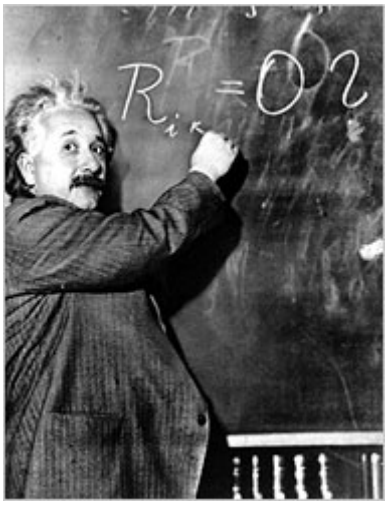
In Murderous Pursuit of Einstein's Secrets

By JANET MASLIN

FINAL THEORY

By Mark Alpert

359 pp. Touchstone. $24.



Q. What do Leonardo da Vinci and Albert Einstein have in common?

A. Many things. Genius is one. Usefulness as thriller bait is another.

Q. But how could anyone write a physics-based version of "The Da Vinci Code," the book that started with a secret about art and then ballooned into a chase for the Holy Grail?

A. With the secret of the "Einheitliche Feldtheorie."

Q. Huh?

A. That's Einstein's longed-for Unified Field Theory, or "Theory of Everything" to you. It's "the Holy Grail of physics," according to Mark Alpert in "Final Theory."

Q. Holy Grail? Physics? Out of the classroom? What's any of this doing in an action thriller?

A. Where have you been? Off in a six-dimensional Calabi-Yau manifold from post-Einsteinian string theory? These are books in which the Holy Grail is the reason a gatekeeper character is brutally killed in the first chapter. Just before he dies, the gatekeeper leaves a clue. It jump-starts our hero, changing him from a tweed- or denim-sporting academic into a man of action.

Q. Who kills the gatekeeper? Is the heavy an albino monk named Silas?

A. Of course not! This is different! The heavy is a Chechen hit man named Simon, and he's no monk. At one point he's described as "the bald maniac in the camouflage pants, who was alternately cleaning his Uzi and swigging from a bottle of Stolichnaya."

Q. So who's the gatekeeper? Another art expert at the Louvre?

A. No, he's a physicist. An old man who was one of Einstein's students at the Institute for Advanced Study in Princeton, N.J.

Q. What's he hiding? Old yearbooks?

A. No, no, no. He's hiding the fact that Einstein unlocked the secret of the universe and then entrusted parts of it to each of his students. Now they've begun dropping like flies, because the forces of evil are trying to piece together the theory.

Q. Who can stop those forces?

A. Glad you asked. It's David Swift. He's a lapsed physicist who now teaches the history of science at Columbia University on the west side of Manhattan. Sorry, Paris and the Louvre were already taken.

Q. What do we know about him?

A. Perhaps you've heard of his paper, co-written in graduate school: "General Relativity in a Two-Dimensional Spacetime"?

Q. Is that anything like "General Relativity in a (2+1)-dimensional Spacetime," co-written by the actual Mark Alpert?

A. Back up. We'd better begin this at the beginning.

"Final Theory" is actually the work of an expert with a pertinent skill. Mr. Alpert is an editor at Scientific American, and he specializes in providing clear, simple explications of difficult concepts. He brings that talent to bear on "Final Theory," an otherwise lumbering first novel notable for its winking familiarity with advanced science.

When Dr. Hans Walther Kleinman, the obligatory first-chapter murder victim, is fading out of consciousness, he isn't just plain seeing stars. He's seeing a penumbra of particles and antiparticles from the quantum vacuum that prove, upon close inspection, to be strings, tubes, cones and manifolds: an opening display of Einsteinian wisdom.

"Final Theory" is the work of two Mark Alperts: the one who is readily conversant with science and the one who had to cook up a cinematic action story. The latter Mr. Alpert is no rocket scientist. He introduces David as a nice, harmless, single dad who is suddenly roped into the F.B.I.'s investigation of Dr. Kleinman's murder.

Quicker than you can say "Fermi National Accelerator Laboratory with the Tevatron," which is one of the book's eventual settings, David is violently thwarting his captors in high action mode. ("He ran through a room full of smashed video monitors, then hurtled over two more corpses without a second thought.") Then he is escaping from New York by pretending to be part of a drunken bachelor party at Penn Station. Then he is at Einstein's house at 112 Mercer Street in Princeton.

Who lives there now? Here comes the seriously contrived part of the story. The house is occupied by the beautiful string theorist Dr. Monique Reynolds, described as looking like the goddess Athena with

cornrows and light Kahlúa-colored skin. Monique drives a red Corvette with a vanity plate that reads "STRINGS."

She is being harassed by skinheads. She had a sister who was a crack whore. She and David once had a brief romance. And she is soon running through the novel with a gun tucked into her shorts, helping David escape murderous thugs while they both try to save kindly old disciples of Einstein.

In one of the book's typically visual stunts, Monique and David borrow "Sweeney Todd" costumes from theater students, then flee Princeton with David hidden in a Dumpster. As this may indicate, Mr. Alpert's idea of glamorous dodging is not on a par with Dan Brown's. Geek-treat settings include the Robotics Institute at Carnegie Mellon University, a hillbilly holler in West Virginia, a virtual reality simulator, a rest area on the Pennsylvania Turnpike and (but of course) the strip club where one physicist's methamphetamine-addicted daughter now works. She has abandoned custody of her autistic son, a teenager who travels through the book glued to a Game Boy. This kid is one of Mr. Alpert's more ingenious peripheral figures.

Though its dialogue sometimes name-drops quarks and geons, nobody in "Final Theory" sounds so smart once the running begins. The characters do an awful lot of screaming, not just when they're panicked but when they're at a loss for words. And the book's scientific expertise is eventually neutralized by that blunt, overall style.

By the time the story reaches red alert, with the fate of the universe on the brink, etc., the language of "Star Trek" would work just as well as the real thing. (In this case the real thing is: "And what about the targeting of the neutrinos? When will you input the coordinates for the burst?")

Still, Mr. Alpert makes "Final Theory" a more nifty than turgid example of applied science. And his book has a toy on its cover.

Q. Is it a lenticular optical device that displays a holographic image? Or just a gizmo that flashes E=mc2 when the book's cover moves?

A. That's up to you.

http://www.nytimes.com/2008/05/26/books/26masl.html?th&emc=th

Vast cracks appear in Arctic ice

By David Shukman
Environment correspondent, BBC News

A Canadian expedition found the new cracks

Dramatic evidence of the break-up of the Arctic ice-cap has emerged from research during an expedition by the Canadian military.

Scientists travelling with the troops found major new fractures during an assessment of the state of giant ice shelves in Canada's far north.

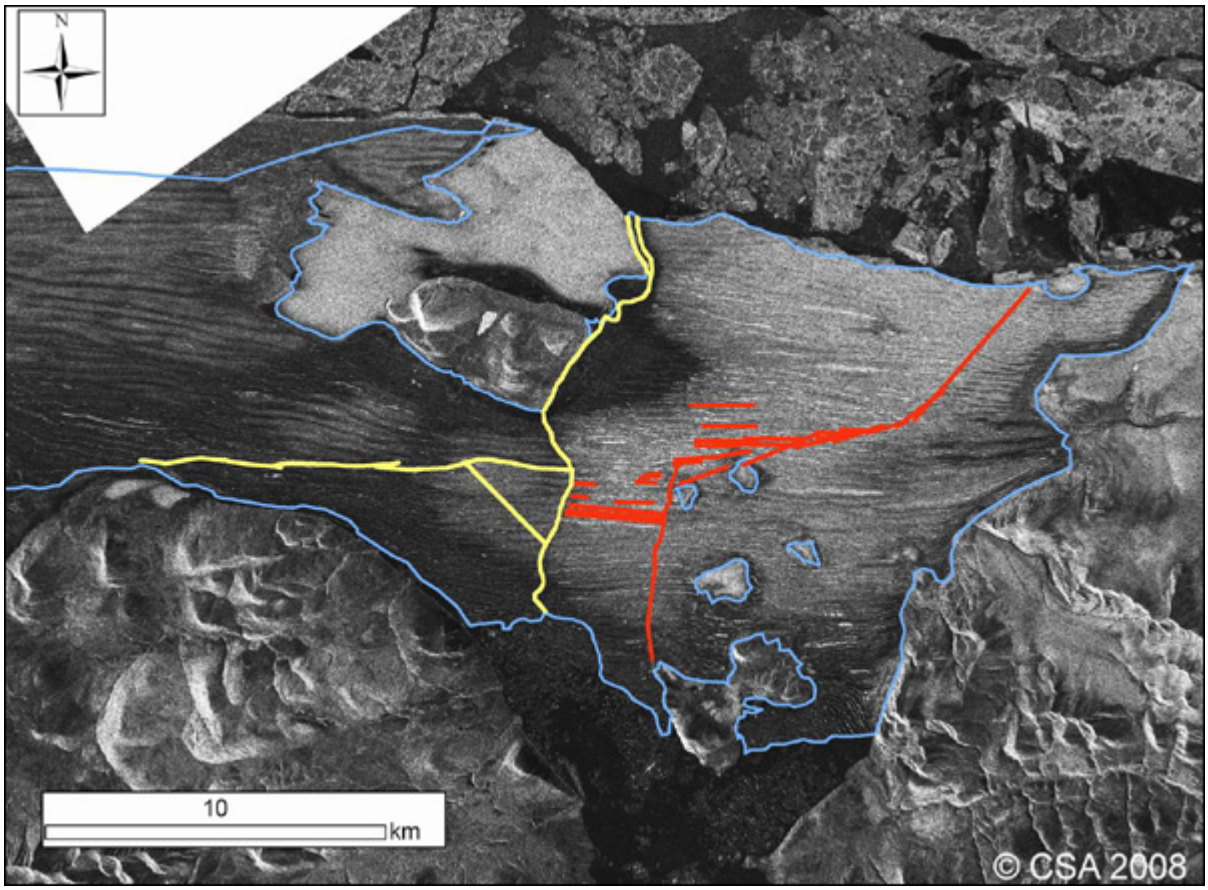
The team found a network of cracks that stretched for more than 10 miles (16km) on Ward Hunt, the area's largest shelf.

The fate of the vast ice blocks is seen as a key indicator of climate change.

One of the expedition's scientists, Derek Mueller of Trent University, Ontario, told me: "I was astonished to see these new cracks.

"It means the ice shelf is disintegrating, the pieces are pinned together like a jigsaw but could float away," Dr Mueller explained.

According to another scientist on the expedition, Dr Luke Copland of the University of Ottawa, the new cracks fit into a pattern of change in the Arctic.



"We're seeing very dramatic changes; from the retreat of the glaciers, to the melting of the sea ice.

"We had 23% less (sea ice) last year than we've ever had, and what's happening to the ice shelves is part of that picture."

When ice shelves break apart, they drift offshore into the ocean as "ice islands", transforming the very geography of the coastline.

Last year, I was part of a BBC team that joined Dr Mueller and Dr Copland as they carried out the first research on Ayles Ice Island, an iceberg the size of Manhattan.

It has since split into two, each vast chunk of ice now 400 miles (640km) south of its original position.

The rapid changes in the Arctic have reignited disputes over territory.

The Canadian military's expedition was billed as a "sovereignty patrol", the lines of snowmobiles flying Canadian flags in a display of control.

After the record Arctic melting last year, all eyes are now on what happens to the sea ice this summer.

Although its maximum extent last winter was slightly greater than the year before, it was still below the long-term average.

Story from BBC NEWS: http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7417123.stm

Published: 2008/05/23 18:29:16 GMT

Clues to alcohol cancer mystery

A genetic discovery could help explain why some people who drink too much develop cancers, while others do not.

A European study, published in Nature Genetics, has found two gene variants which offer

"significant" protection against mouth and throat cancers.

It suggested that people who have them are much better at breaking down alcohol into less harmful chemicals.

Cancer Research UK said cutting down on the amount you drink is the best way to prevent cancer.

People with these genetic variants who drink alcohol are still at higher risk of these cancers than non-drinkers
Hazel Nunn
Cancer Research UK

More than seven out of ten people diagnosed with mouth cancers drink more than the recommended alcohol limit - and, alongside smoking, it is also a known risk factor for oesophageal cancer.

Previous research had identified a group of genes called ADH as clear candidates for a role in the development of these cancers.

These genes make body chemicals which help break down alcohol, and, in theory, the more effective these are, the less opportunity alcohol has to damage the cells in the mouth and throat.

Led by the International Agency for Research on Cancer in Lyon, France, the research team looked at 9,000 cases of people of similar ages and lifestyles who either developed mouth and throat cancers, or didn't.

They found two variants in the group of ADH genes were linked to a lower chance of getting cancer.

Looking only at study participants who admitted drinking heavily, the potentially beneficial effect of having one of the variants was even more pronounced, in line with the amount of alcohol consumed.

It is already known that people with one of the gene variants can break down alcohol more than 100 times faster than those who did not have it, and the study authors said this suggested that this process was key in protecting people from alcohol-linked throat and mouth cancer.

Alcohol threat

However, other experts pointed out that having the variant did not offer a licence to drink heavily.

Hazel Nunn, from Cancer Research UK, said: "This interesting piece of science, but people with these genetic variants who drink alcohol are still at higher risk of these cancers than non-drinkers.

"More work will be needed to examine the precise role of these genetic variations in the development of cancer.

"The best practical advice for reducing the risk of cancers of the mouth, pharynx, larynx and oesophagus remains to stop smoking and drink less alcohol.

"Alcohol is also linked to cancers of the breast, bowel and liver. The more you cut down on alcohol, the more you reduce your risk."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7417725.stm

Published: 2008/05/25 23:28:50 GMT

Does Academe Hinder Parenthood?

Numerous reports and accounts suggest that balancing parenthood and academic careers can be difficult, particularly for women. Two new studies suggest that, possibly as a result, many female academics may be opting not to have kids.

One study compares female academics to those in other professions that have substantial training time and finds professors far less likely to procreate. The other study, in anthropology, finds male anthropologists more likely to have children than are their female counterparts — and finds significant evidence that women in academe (even in a discipline not seen as promoting outdated gender roles) find their careers limited by responsibilities at home.

The study comparing professions tracks recent household "birth events" (having a child aged zero or one) in households of physicians, lawyers, and academics — with the thinking being that all three professions require many years of training and long work hours to succeed. The study, based on 2000 Census data, finds that academics are the least likely to have experienced recent birth events, and that the gap is greatest for women. (Physicians are most likely to have had children recently, and lawyers are in the middle.)

Controlling for such factors as age, weekly hours worked, and race or ethnicity, male faculty members are 21 percent less likely than male physicians to have recently had a birth in their households. Controlling the same factors for women, those who are academics are 41 percent less likely than physicians to have recently had children. When controlling for marital status, the gap between female faculty members and physicians narrows, but the study finds that female faculty members are the most likely of the three job categories to be separated, divorced or widowed.

One factor that makes it easier for the male doctors to have recent offspring is that, in addition to earning more than professors, the M.D.'s are less likely to have child-care needs. That's because male doctors are almost twice as likely to have spouses out of the labor force as are male academics (40 percent vs. 22 percent). In another sign of the impact of academic careers on parenthood, male professionals whose wives are physicians or lawyers are disproportionately likely to have had recent birth events, while male professionals whose wives are academics do not have any greater than average chance of new parenthood.

"Given the high rate at which academics marry other academics, it appears likely that the low fertility of female professors ... can account for the relative paucity of birth events among male faculty," the report finds.

The study, "Alone in the Ivory Tower: How Birth Events Vary Among Fast-Track Professionals," was presented at the meeting this spring of the Population Association of America. The authors are Nicholas Wolfinger, associate professor of family and consumer studies at the University of Utah; Mary Ann Mason, former graduate dean at the University of California at Berkeley and author of Mothers on the Fast Track; and Marc Goulden, director of data initiatives in academic affairs at Berkeley. Mason and Goulden are also members of the team that leads research work at the UC Faculty Family Friendly Edge, which promotes policies to help academics with family obligations.

While the population study compared academics to other professions, a committee of the American Anthropological Association has just released a report on the status of women in the field — featuring survey comparisons of male and female anthropologists. The report notes a number of differences between men and women in anthropology, and a greater satisfaction by men than women with the work environment. Men were more likely than women in a national survey of faculty members to feel that policies were supportive, while many women felt that they were burdened with a disproportionate share of administrative work in departments.

Key differences were found with regard to work/home balance: men in the field are more likely to be parents, but women are more likely to be more responsible for child care or other family obligations. For instance, of men who experienced a career interruption, 7.4 percent cited child care as the reason and 3.7 percent cited the experience of being a "trailing spouse," one who moves when a partner is hired

elsewhere. Of women who experienced career interruptions, 22.9 percent cited child care and 9.1 percent cited being a trailing spouse. And women were much more likely (52.9 percent to 5.6 percent) to anticipate a future career interruption due to child care responsibilities.

In looking at marital and parental status, men were more likely than women to be married and to have children. But given those gaps and the large gender gaps in career interruption due to childcare, one surprising figure in the survey is the percentage of men with children reporting that they are the primary caregiver — not as high a percentage as women with children, but high. (Of course, it is self-reported.)

Marital and Child Status of Male and Female Anthropologists

	White Men	White Women	Non-White Men	Non-White Women
Married or in domestic partnership	88%	73%	81%	59%
Has children	75%	58%	70%	40%
% with children under 18 reporting self as primary care-giver	59%	82%	72%	94%

— Scott Jaschik

The original story and user comments can be viewed online at http://insidehighered.com/news/2008/05/23/nokids.

Methane rise points to wetlands

By Richard Black
Environment correspondent, BBC News website

Higher atmospheric levels of the greenhouse gas methane noted last year are probably related to emissions from wetlands, especially around the Arctic.

Scientists have found indications that extra amounts of the gas in the Arctic region are of biological origin.

Global levels of methane had been roughly stable for almost a decade.

Rising levels in the Arctic could mean that some of the methane stored away in permafrost is being released, which would have major climatic implications.

The gas is about 25 times more potent than carbon dioxide as a greenhouse gas, though it survives for a shorter time in the atmosphere before being broken down by natural chemical processes.

Northern lights

Indications that methane levels might be rising after almost a decade of stability came last month, when the US National Oceanic and Atmospheric Administration (Noaa) released a preliminary analysis of readings taken at monitoring stations worldwide.

Noaa suggested that 2007 had seen a global rise of about 0.5%.

Some stations around the Arctic showed rises of more than double that amount.

One is the station at Mount Zeppelin in Svalbard, north of Scandinavia.

In addition to the long-term monitoring carried out there by Norway and Sweden, a British team has recently started gathering samples and analysing them in a way that could reveal where the methane is coming from.

Methane produced by bacteria contains a high proportion of molecules with the lighter form (isotope) of carbon, carbon-12, rather than the heavier form, carbon-13.

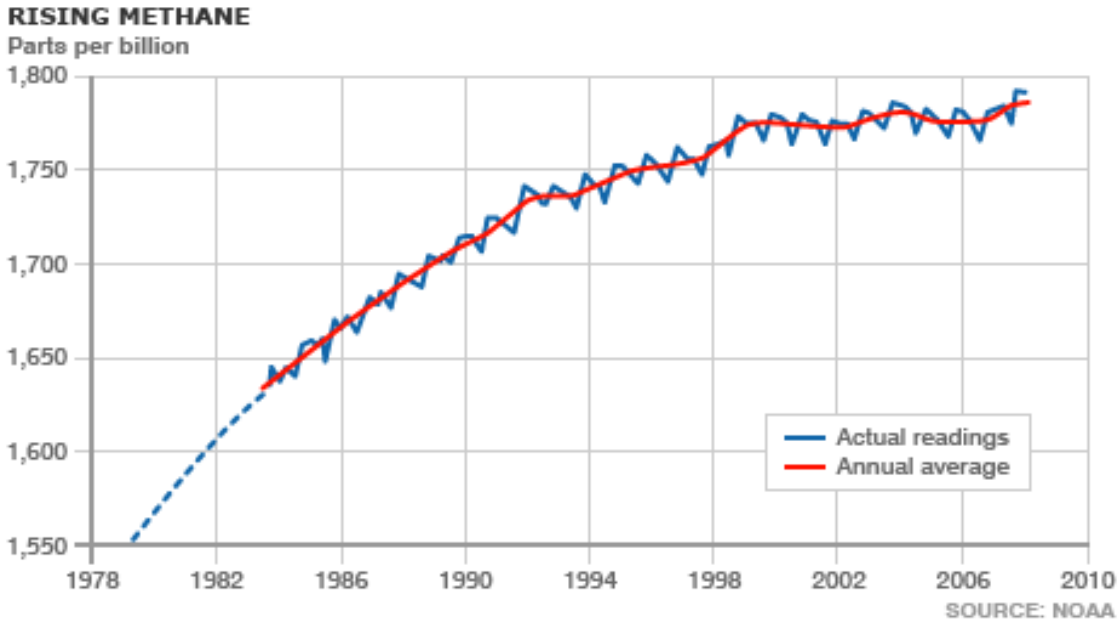
I think 2007 is probably down to wetland emissions
Ed Dlugokencky, Noaa

"Anything where bacteria form methane, you get depletion in C-13 because methanogens (the bacteria) preferentially use C-12," said Rebecca Fisher from Royal Holloway, University of London, who has been running the Svalbard experiments.

"The results we have so far imply a predominantly biogenic source," she told BBC News.

The researchers also match methane levels with wind direction, so they can see where the gas is being produced. This analysis also implies a source in the Arctic regions, rather than one further afield such as the additional output from Asia's rapid industrialisation.

Warm and wet



Ed Dlugokencky, the scientist at Noaa's Earth System Research Laboratory (ESRL) who collates and analyses data from atmospheric monitoring stations, agrees that the 2007 rise has a biological cause.

"We're pretty sure it's not biomass burning; and I think 2007 is probably down to wetland emissions," he said.

"In boreal regions it was warmer and wetter than usual, and microbes there produce methane faster at higher temperatures."

Dr Dlugokencky also suggested that the drastic reduction in summer sea ice around the Arctic between 2006 and 2007 could have increased release of methane from seawater into the atmosphere.

A further possibility is that the gas is being released in increasing amounts from permafrost as temperatures rise.

Researchers will be keeping a close eye on this year's data which will indicate whether 2007 was just a blip or the beginning of a sustained rise.

Methane concentrations had been more or less stable since about 1999 following years of rapid increases, with industrial reform in the former Soviet bloc, changes to rice farming methods and the capture of methane from landfill sites all contributing to the levelling off.

In the recent past, concentrations have risen during El Nino events, whereas the world is currently amid the opposite climatic pattern, La Nina.

Solid evidence

An upturn in methane concentrations emissions could have significant implications for the Earth's climatic future.

A sustained release from Arctic regions or tropical wetlands could drive a feedback mechanism, whereby higher temperatures liberate more of the greenhouse gas which in turn forces temperatures still higher.

A particularly pertinent question is whether methane is being released from hydrates on the ocean floor.

These solids are formed from water and methane under high pressure, and may begin to give off methane as water temperatures rise.

The amount of the gas held in oceanic hydrates is thought to be larger than the Earth's remaining reserves of natural gas.

In collaboration with other British institutions, Dr Fisher's team will begin work this summer sampling water near hydrate deposits to look for indications of gas emerging.

Richard.Black-INTERNET@bbc.co.uk

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7408808.stm

Published: 2008/05/23 12:04:26 GMT

Paint chemicals 'may harm sperm'

Men regularly exposed to chemicals found in paint may be more prone to fertility problems, research suggests.

Men such as painters and decorators, who work with glycol solvents, are two-and-a-half times more likely to produce fewer "normal" sperm.

The UK study looked at more than 2,000 men attending 14 fertility clinics.

However, the Occupational and Environment Medicine study found a wide range of other chemicals had no impact on fertility.

> **Infertile men are often concerned about whether chemicals they are exposed to in the workplace are harming their fertility**
> Dr Allan Pacey
> Sheffield University

Sperm motility - the amount of movement of individual sperm - is an important factor in overall fertility.

There had been fears that exposure to a wide variety of workplace chemicals might affect a man's ability to father a child.

The joint research project between the Universities of Manchester and Sheffield looked at two groups of men attending fertility clinics - those with sperm motility problems, and those without them.

The men were questioned about their jobs, lifestyles, and potential exposure to chemicals, revealing a 250% increase in risk of sperm motility problems among those exposed to glycol ethers.

These chemicals are widely used as solvents in water-based paints.

This risk was present even after other lifestyle factors, such as smoking, wearing tight underpants, testicular surgery and manual work, were taken into consideration.

'Reassuring'

Dr Andy Povey, from the University of Manchester, said: "We know that certain glycol ethers can affect male fertility and the use of these has reduced over the past two decades.

"However, our work suggests they are still a workplace hazard and further work is needed to reduce such exposure."

However, this was the only chemical linked to fertility problems in men, and Dr Allan Pacey, a fertility specialist from Sheffield University, said that this would ease men's worries.

"Infertile men are often concerned about whether chemicals they are exposed to in the workplace are harming their fertility.

"Therefore it is reassuring to know that on the whole, the risk seems to be quite low."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7416405.stm

Published: 2008/05/23 11:23:05 GMT

Volumes to Go Before You Die

By WILLIAM GRIMES

An odd book fell into my hands recently, a doorstopper with the irresistible title "1001 Books You Must Read Before You Die." That sounds like a challenge, with a subtle insult embedded in the premise. It suggests that you, the supposedly educated reader, might have read half the list at best. Like one of those carnival strength-testers, it dares you to find out whether your reading powers rate as He-Man or Limp Wrist.

The book is British. Of course. The British love literary lists and the fights they provoke, so much so that they divide candidates for the Man Booker Prize into shortlist books and longlist books. In this instance Peter Boxall, who teaches English at Sussex University, asked 105 critics, editors and academics — mostly obscure — to submit lists of great novels, from which he assembled his supposedly mandatory reading list of one thousand and one. Quintessence, the British publishers, later decided that "books" worked better than "novels" in the title.

Even without Milton or Shakespeare, Professor Boxall has come up with a lot of books. Assume, for the sake of argument, that a reasonably well-educated person will have read a third of them. (My own score, tallied after I made this estimate, was 303.) That leaves 668 titles. An ambitious reader might finish off one a month without disrupting a personal reading program already in place. That means he or she would cross the finish line in the year 2063. At that point, upon reaching the last page of title No. 1,001, "Never Let Me Go" by Kazuo Ishiguro, death might come as a relief.

Two potent factors make "1001 Books" (published in the United States in 2006 by Universe; $34.95) compelling: guilt and time. It plays on every serious reader's lingering sense of inadequacy. Page after page reveals a writer or a novel unread, and therefore a demerit on the great report card of one's cultural life. Then there's that bullying title, with its ominous allusion to the final day when, for all of us, the last page is turned.

I appreciate the sense of urgency because I feel it myself. But when Professor Boxall brings death into the picture, he sets the bar very high. Let's have a look at some of these mandatory titles. Not only is it not necessary to read "Interview With the Vampire" by Anne Rice before you die, it is also probably not necessary to read it even if, like Lestat, you are never going to die. If I were mortally ill, and a well-meaning friend pressed Anaïs Nin's "Delta of Venus" into my trembling hands, I would probably leave this world with a curse on my lips.

If the "1001 Books" program seems quirky, even perverse, it's no accident. "I wanted this book to make people furious about the books that were included and the books that weren't, figuring this would be the best way to generate a fresh debate about canonicity, etc.," Professor Boxall informed me in an e-mail message. And how.

The tastes of others are always inexplicable, but "1001 Books" embodies some structural irregularities. Arranged chronologically, it begins with the novel's primordial period — everything up to 1800 — and then marches century by century into the present.

More than half the books were written after World War II. Already I feel my hackles rising. Does not the age of Balzac, Dickens, Dostoyevsky and Tolstoy dwarf its earnest, fitfully brilliant but ultimately punier successor? And if the 20th century can put up a fight, the real firepower is concentrated in the period of 1900 to 1930. Like many others, I admire Ian McEwan, but does he really merit eight novels on the list, to Balzac's three?

Something is wrong here. Paul Auster gets six novels. Don DeLillo seven. Thackeray gets one: "Vanity Fair."

Because nearly all the contributors hail from Britain and its former colonial possessions, there is a marked English-language bias and a tendency to favor obscure British novelists over obscure Spanish or Italian ones. Fair enough. A French or Russian version of "1001 Books" would impose its own prejudices. In fact, prejudice is what you want in a book like this, which works best as an annotated tip sheet for hungry readers on the prowl for overlooked writers and neglected works.

The United States gets a fair shake, and there may even be some overcompensation. Philip Roth shows up with no fewer than seven novels, including "The Breast," and Edith Wharton is honored for four novels in addition to the two big ones, "The House of Mirth" and "The Age of Innocence."

A little more Anglophilia might have been in order. Anthony Powell shows up with "A Dance to the Music of Time" — which is actually 12 novels, so Professor Boxall cheats — but I would have made a play for a few of the pre-"Dance" novels, like "Venusberg" or "Afternoon Men."

On the other hand, the 20th-century bias eliminates Americans like Stephen Crane and William Dean Howells entirely, and a certain weakness for postmodernism squeezes out novels like "An American Tragedy" by Theodore Dreiser and "The Octopus" by Frank Norris. Drop a couple of Austers, and there would have been room.

As an experiment, I picked three novels, more or less at random, to see how they might change my quality of life: "Castle Rackrent" by Maria Edgeworth; "Tarka the Otter" by Henry Williamson; and "The Invention of Curried Sausage" by Uwe Timm.

Two of the three definitely provided a lift. "Castle Rackrent" (1800), a rollicking satire about trashy English aristocrats who bring ruin to an Irish estate, is worth reading just for the name Carrick O'Fungus, although literary historians prize it for being the first regional novel. That's fine. Bonus points for getting there first, but the real reason to pick it up is Edgeworth's slyly vicious picture of slovenly aristos on the loose.

Uwe Timm, a contemporary German writer unknown to me, now flies very high on my mental Amazon rankings. “The Invention of Curried Sausage” (1993) is an offbeat quest novel. The narrator, seeking the origins of currywurst, a German fast-food specialty, quizzes an elderly vendor and winds up with a big, fat history lesson. The issues are big, the prose brilliant, the execution deft. Eternal gratitude to Andrew Blades, theater reviewer for Stage magazine, who convinced Professor Boxall that this novel belonged on the list.

Tarka turned out to be too much otter for me, even though the back story is compelling. Williamson, returning from the trenches after World War I, took up a hermit’s life in north Devon, where he lived among the plants and the animals, observing closely and shunning humankind. “Tarka,” published in 1927, tells the story of a young male otter and its day-to-day struggles for food, a mate and security in a world populated by baying dogs and evil men. T. E. Lawrence loved it. I didn’t.

Since Professor Boxall is keen to start an argument, let me oblige. Drop the bloated, self-indulgent “Ada” from an otherwise correct Nabokov list (“Lolita,” “Pale Fire,” “Pnin”) and insert “Laughter in the Dark” or “The Gift.” J. M. Coetzee, with 10 novels, can afford to lose 1 or 2. That would open up space for “The Cossacks” by Tolstoy and “A Hero of Our Time” by Mikhail Lermontov. There should be another five Balzacs. I could go on and on.

One problem with drawing up recommended-reading lists is the urge to show off. No one gets points for proposing “The Brothers Karamazov.” Credibility comes with books like “The Ravishing of Lol V. Stein” by Marguerite Duras, or the reverse-chic audacity of insisting that “The Godfather” belongs on the same list as “The Trial.”

A little humility is in order. Easy for me to bring up “Envy” by Yuri Olyesha because I happen to have read it, or Jakob Arjouni, a German writer of Turkish descent who counts as one of my latest discoveries, largely because I was seduced by the title of a recent story collection, “Idiots.”

As a reality check, I opened “1001 Books” at random and beheld “A Kestrel for a Knave,” by Barry Hines, which I have not read, followed by “In Watermelon Sugar” by Richard Brautigan (ditto) and “The German Lesson” by Siegfried Lenz (started it, put it down, meant to get back to it, never did). No matter how well read you are, you’re not that well read. If you don’t believe it, pick up “1001” and start counting.

In his novel “Changing Places,” David Lodge — not on the list — introduces a game called Humiliation. Players earn points by admitting to a famous work that they have not read. The greater the work, the higher the point score. An obnoxious American academic, competing with a group of colleagues, finally gets the hang of the game and plays his trump card: “Hamlet.” He wins the game but is then denied tenure.

That’s the thing with reading lists like “1001 Books.” There’s always that host of the unread.

Come to think of it, I have a personal white whale: “Moby-Dick.” I really must read it before I die.

http://www.nytimes.com/2008/05/23/books/23read.html?th&emc=th

Plant Flavonoid In Celery And Green Peppers Found To Reduce Inflammatory Response In The Brain

A plant compound found in abundance in celery and green peppers can disrupt a key component of the inflammatory response in the brain. (Credit: iStockphoto/William Mahar)

ScienceDaily (May 23, 2008) — Researchers at the University of Illinois report that a plant compound found in abundance in celery and green peppers can disrupt a key component of the inflammatory response in the brain. The findings have implications for research on aging and diseases such as Alzheimer's and multiple sclerosis.

Inflammation can be a blessing or a blight. It is a critical part of the body's immune response that in normal circumstances reduces injury and promotes healing. When it goes awry, however, the inflammatory response can lead to serious physical and mental problems.

Inflammation plays a key role in many neurodegenerative diseases and also is implicated in the cognitive and behavioral impairments seen in aging.

The new study looked at luteolin (LOO-tee-OH-lin), a plant flavonoid known to impede the inflammatory response in several types of cells outside the central nervous system. The purpose of the study was to determine if luteolin could also reduce inflammation the brain, said animal sciences professor and principal investigator Rodney Johnson.

"One of the questions we were interested in is whether something like luteolin, or other bioactive food components, can be used to mitigate age-associated inflammation and therefore improve cognitive function and avoid some of the cognitive deficits that occur in aging," Johnson said.

The researchers first studied the effect of luteolin on microglia. These brain cells are a key component of the immune defense. When infection occurs anywhere in the body, microglia respond by producing inflammatory cytokines, chemical messengers that act in the brain to orchestrate a whole-body response that helps fight the invading microorganism.

This response is associated with many of the most obvious symptoms of illness: sleepiness, loss of appetite, fever and lethargy, and sometimes a temporary diminishment of learning and memory. Neuroinflammation can also lead some neurons to self-destruct, with potentially disastrous consequences if it goes too far.

Graduate research assistant Saebyeol Jang studied the inflammatory response in microglial cells. She spurred inflammation by exposing the cells to lipopolysaccharide (LPS), a component of the cell wall of many common bacteria.

Those cells that were also exposed to luteolin showed a significantly diminished inflammatory response. Jang showed that luteolin was shutting down production of a key cytokine in the inflammatory pathway, interleukin-6 (IL-6). The effects of luteolin exposure were dramatic, resulting in as much as a 90 percent drop in IL-6 production in the LPS-treated cells.

"This was just about as potent an inhibition as anything we had seen previously," Johnson said.

But how was luteolin inhibiting production of IL-6?

Jang began by looking at a class of proteins involved in intracellular signaling, called transcription factors, which bind to specific "promoter" regions on DNA and increase their transcription into RNA and translation into proteins.

Using electromobility shift assays, which measure the binding of transcription factors to DNA promoters, Jang eventually determined that luteolin inhibited IL-6 production by preventing activator protein-1 (AP-1) from binding the IL-6 promoter.

AP-1 is in turn activated by JNK, an upstream protein kinase. Jang found that luteolin inhibited JNK phosphorylation in microglial cell culture. The failure of the JNK to activate the AP-1 transcription factor prevented it from binding to the promoter region on the IL-6 gene and transcription came to a halt.

To see if luteolin might have a similar effect in vivo, the researchers gave mice luteolin-laced drinking water for 21 days before injecting the mice with LPS.

Those mice that were fed luteolin had significantly lower levels of IL-6 in their blood plasma four hours after injection with the LPS. Luteolin also decreased LPS-induced transcription of IL-6 in the hippocampus, a brain region that is critical to spatial learning and memory.

The findings indicate a possible role for luteolin or other bioactive compounds in treating neuroinflammation, Johnson said.

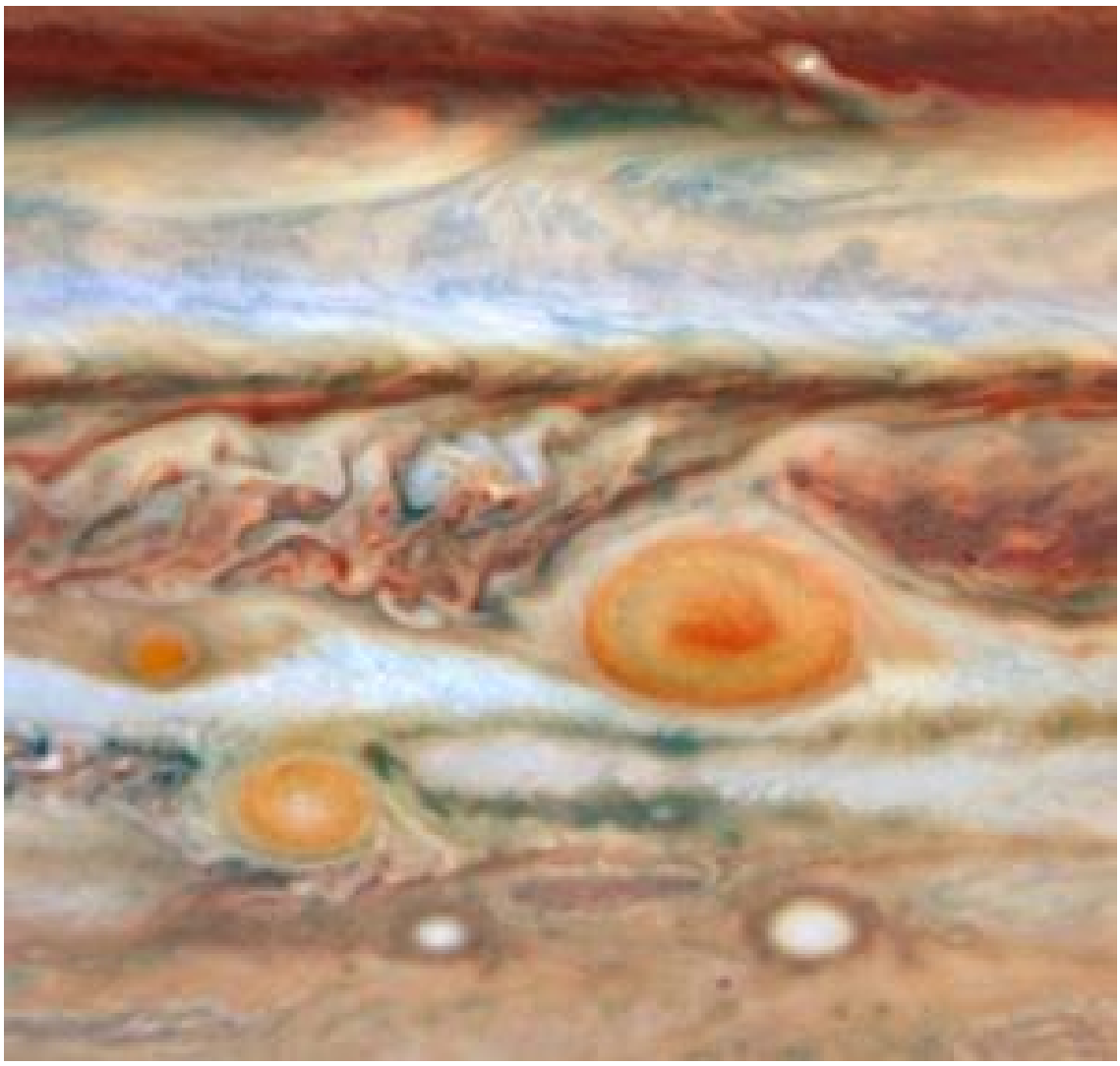
"It might be possible to use flavonoids to inhibit JNK and mitigate inflammatory reactions in the brain," he said. "Inflammatory cytokines such as interleukin-6 are very well known to inhibit certain types of learning and memory that are under the control of the hippocampus, and the hippocampus is also very vulnerable to the insults of aging," he said. "If you had the potential to decrease the production of inflammatory cytokines in the brain you could potentially limit the cognitive deficits that result."

The study appeared recently in Proceedings of the National Academy of Sciences.

Adapted from materials provided by University of Illinois at Urbana-Champaign.

http://www.sciencedaily.com /releases/2008/05/080520094115.htm

Jupiter: Turbulent Storms May Be Sign Of Global Climate Change



In what's beginning to look like a case of planetary measles, a third red spot has appeared alongside its cousins — the Great Red Spot and Red Spot Jr. — in the turbulent Jovian atmosphere. This third red spot, which is a fraction of the size of the two other features, lies to the west of the Great Red Spot in the same latitude band of clouds. The new red spot was previously a white oval-shaped storm. The change to a red color indicates its swirling storm clouds are rising to heights like the clouds of the Great Red Spot. One possible explanation is that the red storm is so powerful it dredges material from deep beneath Jupiter's cloud tops and lifts it to higher altitudes where solar ultraviolet radiation — via some unknown chemical reaction — produces the familiar brick color. (Credit: M. Wong and I. de Pater (University of California, Berkeley))

ScienceDaily (May 23, 2008) — The first images of Jupiter since it came out from behind the sun show that the turbulence and storms that have plagued the planet for the past two years continue. Whether or not this is a sign of global warming, the turbulence does seem to be spawning new spots. As Red Spot Jr. and the Great Red Spot approach a June conjunction, a new third spot may merge with the GRS in August.

Increased turbulence and storms first observed on Jupiter more than two years ago are still raging, according to astronomers from the University of California, Berkeley, and the W. M. Keck Observatory in Hawaii, who snapped high-resolution pictures of the planet earlier this month.

Captured with NASA's Hubble Space Telescope (HST) and the 10-meter Keck II telescope, this so-called "major upheaval" on Jupiter involves stunning changes in the planet's atmosphere, said lead astronomer Imke de Pater, professor of astronomy at UC Berkeley.

The upheaval was heralded in December 2005 by a color change from white to red of a large oval near the Great Red Spot, earning it the moniker Red Spot Jr. This oval, formally known as Oval BA, formed six years earlier through a merger of three large white ovals just south of the Great Red Spot - storms that formed in the early 1930s and were prominent in the Voyager era.

The new images, the first since Jupiter emerged from its passage behind the Sun, may show that Jupiter indeed is undergoing a major climate change, as predicted four years ago.

"One of the most notable changes we observe in both the Hubble and Keck images is the change from a rather bland, quiescent band surrounding the Great Red Spot just over a year ago to one that is incredibly turbulent at both sides of the spot," de Pater said. "During all previous HST observations and spacecraft encounters, starting with Voyager in 1979, such turbulence was seen only on the west or left side of the spot."

The Great Red Spot is a persistent, high-pressure storm on Jupiter whose cloud head sticks some 8 kilometers (5 miles) above the surrounding cloud deck. Why the spots are red is a subject of great debate.

Moreover, the color of several bands on the planet has been changing since the upheaval began, said Christopher Go, an amateur astronomer in Cebu, the Philippines, who joined de Pater's team two years ago. Go alerted the astronomical community in early 2006 about the color change of Red Spot Jr.

"Lately, the red color of the Oval BA has faded a little bit, while the Great Red Spot may have turned dark red," Go said.

The UC Berkeley team will work with the amateur astronomy community to investigate the possible origin of this turbulence, which is not understood.

The Great Red Spot and Red Spot Jr. are squeezed between bands called shear flows, where the flow above each storm is moving westward and the flow below is moving eastward. Since the shear flow in each band is slightly different, and the storms are different sizes, Red Spot Jr. drifts slowly eastward toward the Great Red Spot while the Great Red Spot drifts slightly westward toward Red Spot Jr. In late June, this storm will pass the Great Red Spot, as it does every two years.

Interestingly, a third red spot has appeared to the west of the Great Red Spot in the same latitude band.

"Although much smaller in extent, the color is striking," said UC Berkeley team member Michael Wong. ""Like the other two large red storm systems, this newest red spot is bright in near-infrared wavelengths and dark in the ultraviolet. If this spot and the Great Red Spot continue on their courses, they will encounter each other in August, and the small oval will either be absorbed or repelled from the Great Red Spot."

According to Philip S. Marcus, a professor of fluid dynamics at UC Berkeley, analysis of the Hubble and Keck images may support his 2004 conjecture that Jupiter is in the midst of global climate change that will alter temperatures by as much as 10 degrees Celsius, getting warmer near the equator and cooler near the south pole. He predicted that large changes would start in the southern hemisphere around 2006, causing the jet streams to become unstable and spawn new vortices.

"The appearance of the planet's cloud system from just north of the equator down to 34 degrees south latitude keeps surprising us with changes and, in particular, with new cloud features that haven't been previously observed," Marcus said. "Whether or not Jupiter's climate has changed due to a predicted

warming, the cloud activity over the last two and a half years shows dramatically that something unusual has happened."

"A major goal in taking the Hubble images is to look for changes in the zonal wind profile since the Cassini encounter in 2000," added team member Xylar Asay-Davis. "If we do find major changes, these could provide important supporting evidence for climate change on Jupiter."

The red coloration in the ovals may be generated as their swirling hazes rise to heights like the clouds of the Great Red Spot. Detailed analysis of the Hubble's visible light data and the Keck images at near-infrared wavelengths will reveal the relative altitudes of the cloud tops of the three red ovals, de Pater said. Since all three oval storms are bright at near-infrared wavelengths where methane gas is absorbing, the data already show that all three systems rise up well above the surrounding cloud deck.

The Hubble telescope imaged the entire planet on May 9 and 10 using the Wide-Field Planetary Camera 2, while Keck II focused on the area around the Great Red Spot on May 11 using adaptive optics to sharpen the image.

Dr. Al Conrad, a support astronomer at the Keck Observatory, noted that the team used adaptive optics (AO) to obtain a spatial resolution comparable to that obtained at visible wavelengths with the Hubble telescope. Adaptive optics can take the twinkle out of an object caused by turbulence in the atmosphere, but to do this well, the target must be near another bright object that can serve as a reference. For some of the images, Jupiter's moon Europa was used as the reference "star." But until Europa was visible off the limb of Jupiter, a laser guide star was created near Jupiter to serve this purpose.

"This was our second attempt using the laser to obtain AO-corrected images of Jupiter's surface," Conrad said. "Based on our past experience, we placed the laser beacon slightly farther from Jupiter's bright glow. With this adjustment in place, AO revealed much finer detail on the surface than we saw during our previous observation. By using the laser whenever there is no moon available as an AO reference, we will now have many more opportunities to observe Jupiter with Keck."

In addition to images at 1.2-1.65 microns, where Jupiter's reflected infrared light is measured, the team also obtained a close-up of the three spots at the somewhat longer infrared wavelength of 5 microns that samples thermal radiation from deeper in the atmosphere. All three spots appear dark on the 5-micron image because the clouds obscure heat emanating from lower elevations.

"This image is spectacular," says de Pater. "There is an amazing amount of fine structure and numerous small ovals south of the spots. This image reveals details in the cloud opacity not seen at the other wavelengths."

The Hubble team consisted of de Pater, Marcus, Wong and Asay-Davis of UC Berkeley and Go of the Philippines. The Keck team members were de Pater, Wong and Conor Laver of UC Berkeley and Conrad of the Keck Observatory.

Adapted from materials provided by University of California - Berkeley.

http://www.sciencedaily.com:80 /releases/2008/05/080522121036.htm

Noninvasive Device For GERD, Obesity Developed

Gastroplasty device. (Credit: Image courtesy of Creighton University)

ScienceDaily (May 23, 2008) — A new, noninvasive gastroplasty device to treat two separate disorders – gastroesophageal-reflux disease (GERD) and morbid obesity – was reported today by its inventor, Charles J. Filipi, M.D., professor of surgery at Creighton University School of Medicine.

"Gastroesophageal-reflux disease and morbid obesity are particularly serious health issues in the western hemisphere and major contributors to the escalating cost of health care in the United States," Filipi said. "We believe that this device will result in much more effective treatments for both conditions, fewer complications and less patient expense, while permitting each procedure to be performed on an outpatient basis."

Typically, operations for GERD or obesity are performed using incisions, which requires hospitalization and have the potential for significant complications, he said. The device, a flexible tube with a metal capsule that is 3-feet-long and less than 4/5 of an inch in diameter – avoids the need for incisions, Filipi noted.

To treat obesity, Filipi's device is introduced through the mouth and esophagus, suctioning two sides of the stomach lining into position for suturing, impaling the mucosa (stomach lining), and placing a row of stitches through the stomach's two sides. To assist in healing, part of the inner lining of the stomach is removed, and the remaining areas are brought together by adjacent stitches to form a small stomach "pouch" that accommodates only a few bites of food. Bringing the remaining areas together for healing and scarring increases the strength of the stomach-pouch wall so it will last longer, distinguishing this procedure from other noninvasive methods that have been attempted for obesity and reflux disease.

To treat GERD – a condition in which a patient's gastroesophageal junction does not close completely and acid or bile from the stomach enters and can damage the esophagus – the device is inserted through

the mouth and esophagus until it reaches the esophageal junction, the opening at the bottom of the esophagus that connects the esophagus to the stomach. A surgeon can then use the instrument to suture the esophageal junction to make it smaller. Usually two stitches are necessary on one side of the gastroesophageal junction.

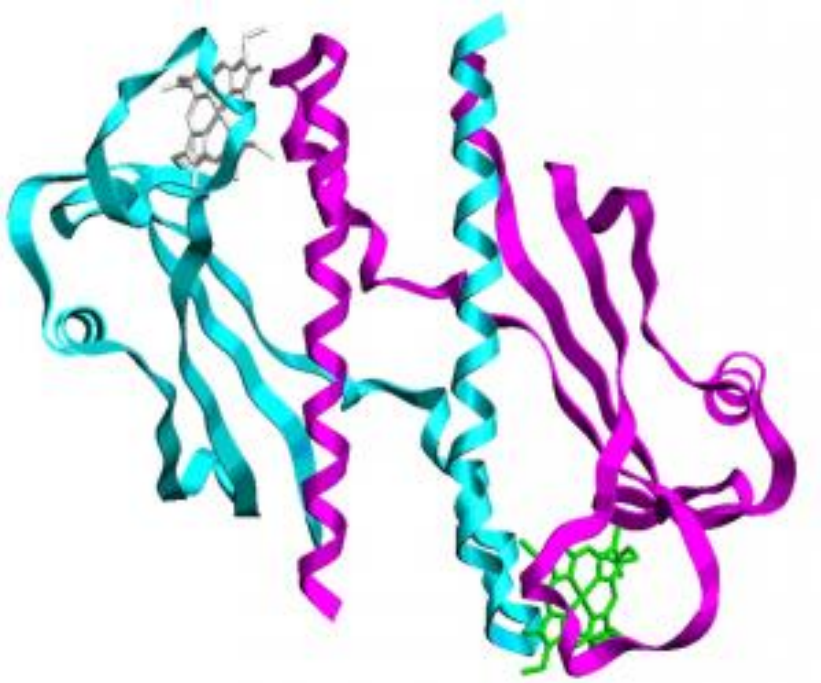
SafeStitch Medical Inc., a publicly traded medical-device company based in Miami, is developing Filipi's device with licensed intellectual property from Creighton University. Filipi is medical director for SafeStitch.

Filipi spoke about the device, which could be available for human trials later this year, on May 19, at the 49th annual Digestive Disease Week in San Diego, Calif.

Adapted from materials provided by Creighton University.

http://www.sciencedaily.com:80 /releases/2008/05/080520161914.htm

Scientists Characterize Protein Structure Of Environmentally Friendly Bacteria



Three dimensional structure of the sensory domain of the bacterium Geobacter sulfurreducens showing two identical protein domains interacting with each other as observed in the crystal structure. The two protein domains are represented as ribbons (light blue and purple) and the heme in each protein domain is shown as "stick" model (green and gray). (Credit: Image courtesy of Argonne National Laboratory)

ScienceDaily (May 22, 2008) — Scientists at the U.S. Department of Energy's (DOE) Argonne National Laboratory have determined the structure of a key protein domain in a bacterium that could help with bioremediation of uranium-contaminated land sites.

The researchers, led by Argonne senior biophysicist Marianne Schiffer, characterized the structure of one of the principal domains in a protein responsible for certain types of movement exhibited by the bacterium Geobacter sulfurreducens.

Geobacter lives in predominantly low oxygen environments and generates energy by transferring electrons to various metallic electron-accepting atoms such as iron or uranium. This ability suggests that Geobacter might be used for remediation of certain types of hazardous waste. For example, when uranium is reduced by this process to its insoluble form, it no longer leaks into groundwater and engineers can inexpensively remove the precipitated uranium.

To get to regions of high nutrient concentration (or to escape from harmful substances), certain types of bacteria use a mechanism called chemotaxis. For chemotaxis to work reliably, the cell must be able to convert external chemical information into internal chemical processes – this process is known as signal transduction. "One of the big questions in biology is how signals get from outside the cell to inside the cell," Schiffer said.

The researchers determined the three-dimensional structure of a sensory domain of a membrane-spanning protein which they believe is involved in signal transduction. Schiffer and her colleagues were particularly interested in this domain because it contains heme, a molecular component that is common in oxygen transport proteins, such as hemoglobin, or in other proteins involved in respiration or

photosynthesis. While other sensor proteins that contain heme have also been described, this is the first example of a sensor protein that contains a heme covalently bound to the protein, Schiffer said.

Although Schiffer and her colleagues have not yet identified the stimulus to which this protein responds, "compiling a library of similar bacterial protein structures may at some point give researchers a better view into the molecular mechanisms that control bacterial behavior," Schiffer said. "We don't know how to determine what the domain does in the bacteria, but it is part of understanding the general picture. This protein belongs to a relatively new family of structures that allow us to gain information about what these sorts of proteins could do."

Other key researchers on the team include Argonne biologists Raj Pokkuluri and Yuri Londer and biologist Carlos Salgueiro from the Universidade Nova de Lisboa in Portugal. Part of this research was performed at Argonne's Advanced Photon Source. This work is part of a larger project on Geobacter at the University of Massachusetts-Amherst, where Derek Lovley is the principal investigator.

This research was funded by the DOE Office of Science's Biological and Environmental Research.

Journal reference:

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Adapted from materials provided by Argonne National Laboratory.
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http://www.sciencedaily.com:80 /releases/2008/05/080521133913.htm

How Can We Measure The Emotional States Of Animals?

Two lister-hooded rats. (Credit: Photo by Emma Harding)

ScienceDaily (May 22, 2008) — Rats housed in standard conditions show a stronger response to the loss of an expected food reward than those housed in enriched conditions, perhaps indicating a more negative emotional state, according to new research by scientists at Bristol University Veterinary School, published recently in Royal Society Biology Letters.

The researchers have developed a new approach to the measurement of animal emotional states based on findings from human psychology that emotions affect information processing. In general, people are more sensitive to reward losses than gains, but depressed people are particularly sensitive to losses. The researchers wanted to know whether animals' sensitivity to reward loss might also be related to their emotional state.

Many studies have demonstrated beneficial welfare effects of enriched compared to barren housing, and the researchers found that rats housed in standard conditions, previously shown to experience poorer welfare than those housed in enriched conditions, were indeed more sensitive to the unanticipated loss of a food reward. Oliver Burman, Richard Parker, Liz Paul and Mike Mendl from the Centre for Behavioural Biology at Bristol University consider the research indicates that sensitivity to reward reduction may be a valuable new indicator of animal emotion and welfare.

"The study of animal emotion is an important emerging field in subjects ranging from neuroscience to animal welfare research. Whilst we cannot know for sure what other animals feel, our approach may provide improved methods for indirectly measuring animal emotion and welfare," said Professor Mendl.

Dr Burman further explained, "Parallel studies using this approach in humans and animals may also reveal cross-species commonalities in the influence of affect on reward evaluation. Our next step is to see whether other reward evaluation processes involving contrasts between expected and actual rewards also reflect background emotional state."

Adapted from materials provided by University of Bristol.

http://www.sciencedaily.com:80 /releases/2008/05/080520203003.htm

Iron Transport Protein Mapped

The structure of human Steap3, an iron transport protein in red blood cells. (Credit: Image courtesy of Montana State University)

ScienceDaily (May 22, 2008) — Montana State University scientists in the Department of Chemistry and Biochemistry have just published new research that could one day affect the lives of millions around the world who suffer from blood iron disorders.

The paper, which will appear in the Proceedings of the National Academy of Sciences, details the work of Associate Professor Martin Lawrence and doctoral candidate Anoop Sendamarai. The pair have spent the past two years studying Steap3, a protein involved in regulating the body's absorption of iron.

The results of their studies - the first three-dimensional maps of the atoms that make up Steap3 - could allow pharmaceutical companies to someday design drugs to regulate iron levels in the blood.

"Iron is essential," Lawrence said. "You can't live without it, but it's a double-edged sword. Too much of a good thing can kill you."

Iron serves several important functions in the bloodstream. It carries oxygen, transports electrons within cells and plays an important role in enzyme systems.

Iron irregularities are some of the most common blood disorders in the world. According to the World Health Organization, iron deficiency, which can lead to anemia, affects more than a billion people around the world and can cause developmental and immune system problems.

Conversely, having too much iron, a condition called hemochromatosis, can also hurt the body by releasing destructive free radicals, Lawrence said. Hemochromatosis affects about one in every 300 people and is most common in people of northern European ancestry. Left untreated, it can lead to early death, often by age 50.

"We're struck by how many people have too much or too little iron," Lawrence said.

To understand Steap3's role in transporting and maintaining balanced levels of iron, Lawrence and Sendamarai first had find and purify samples of the protein and then turn those samples into crystals.

Lawrence said the result of the crystallization process, if done correctly, is analogous to the rigid structure of a brick wall. If done incorrectly, it more closely resembles a pile of bricks.

"It's kind of a black art really more than a science," Lawrence said. "You can't always predict the kind of witch's brew that needs to be around to get it to crystallize."

He said only a handful of labs in the country are crystallizing iron transport proteins like Steap3, a fact that places MSU on the same shelf as places like Harvard Medical School.

Once crystallized, the samples are shot with a powerful X-ray beam. Electrons in the sample diffract the X-rays, creating patterns on a digital sensor. The technique, called X-ray crystallography, has been used since the 1950s to de-termine the structure of different substances.

In their basement lab in the campus's New Chemistry Building, Lawrence and Sendamarai then examined the diffraction patterns created by Steap3.

"It's kind of like a contour map," Sendamarai said. "Whenever we see the peaks, we know there are atoms."

Working backward, they can mathematically determine the position of atoms in the protein and display them in three dimensions.

The computer-drawn result, a three-dimensional image that resembles tangled ribbons and strings, is an picture of what the atoms of Steap3 look like.

Sendamarai said having that picture, which depicts all the nooks and crannies on the protein's surface, could allow drug companies to design drugs to fit those spots like puzzle pieces.

If a future drug fits those nooks just right, it could help treat hemochromatosis. From there, Sendamarai said it would be conceivable to work backward and possibly treat iron deficiencies or anemia.

Lawrence said that Steap3 is only one in a family of proteins that affect iron transport. This summer, in addition to continuing to study Steap3, Lawrence and Sendamarai hope to learn whether the lab will receive a grant from the National Institutes of Health to work on other iron transport proteins.

"It's a critical step towards toward learning to modulate iron levels in patients with too much or too little iron," Sendamarai said. "But, there are a lot of question marks left in iron transport. It's a big field."

Adapted from materials provided by Montana State University.

http://www.sciencedaily.com:80 /releases/2008/05/080521080347.htm

Most North Pacific Humpback Whale Populations Rebounding

NOAA ship Vessel Oscar Dyson stands watch as researchers gather information from humpback whales. Humpback whale flukes, like the one shown here, are unique to each animal just like a fingerprint. This whale could be identified thousands of miles away by its distinctive markings. (Credit: NOAA)

ScienceDaily (May 22, 2008) — The number of humpback whales in the North Pacific Ocean has increased since international and federal protections were enacted in the 1960s and 70s, according to a new study funded primarily by NOAA and conducted by more than 400 whale researchers throughout the Pacific region.

However, some isolated populations of humpbacks, especially those in the Western Pacific Ocean, have not recovered at the same rate and still suffer low numbers.

The new research reveals that the overall population of humpbacks has rebounded to approximately 18,000 to 20,000 animals. The population of humpback whales in the North Pacific, at least half of whom migrate between Alaska and Hawaii, numbered less than 1,500 in 1966 when international whaling for this species was banned. In the 1970s, federal laws including the Marine Mammal Protection Act and the Endangered Species Act provided additional protection.

"NOAA is proud to have played a key role in initiating and funding this study," said retired Navy Vice Adm. Conrad C. Lautenbacher, Ph.D., under secretary of commerce for oceans and atmosphere and NOAA administrator. "It is only through this type of international cooperation that we can gauge our success and measure what additional work needs to be accomplished to protect highly migratory marine mammals."

The results of this new report come from SPLASH (Structure of Populations, Levels of Abundance and Status of Humpbacks), an international effort involving more than 50 organizations. Launched in 2004, the project determined whale migratory patterns and estimated population sizes by using a library of 18,000 photographs of whale flukes to identify 8,000 individual whales.

Cascadia Research in Olympia, Wash., the central coordinator for the SPLASH project, matched photographs from six different feeding and breeding areas. By matching whale flukes photographed in their feeding areas with those photographed in the wintering areas, researchers were able to determine the patterns of individual whale movements, as well as estimate the sizes of different populations.

In addition to whale fluke photographs, SPLASH researchers collected more than 6,000 biopsy samples for studies of genetics and pollutants, along with thousands of additional photographs to determine how levels of scarring from line entanglement and ship strikes vary among regions. The samples, which are yet to be analyzed, will provide valuable insights into the complex population structure and current threats to further recovery.

Funding for the SPLASH project comes from NOAA's Office of National Marine Sanctuaries and National Marine Fisheries Service, the National Fish and Wildlife Foundation, the Pacific Life Foundation, Department of Fisheries and Oceans Canada, and the Commission for Environmental Cooperation, along with support from a number of other organizations and governmental agencies.

Adapted from materials provided by NOAA National Marine Fisheries Service, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com:80 /releases/2008/05/080521162541.htm

Insulin boost for early diabetes

A short course of intensive insulin treatment may delay disease progression in people newly diagnosed with type 2 diabetes, a Chinese study suggests.

Patients who had an initial course of insulin injections did better a year later than those given a short course of oral diabetes drugs.

All 380 patients in the Lancet trial were later managed with the standard diet and exercise regime.

Diabetes UK said the approach may be useful for some patients.

A second study also published in The Lancet found taking part in diet and exercise programmes for six years can prevent or delay diabetes for up to 14 years.

There are 2.35m people with diabetes in the UK, the vast majority of whom have type 2 diabetes - where the body does not produce enough insulin or the insulin that is produced does not work properly.

The research shows that considering using insulin early when people are first diagnosed with type 2 diabetes might be an additional way to achieve good diabetes management
Pav Pank, Diabetes UK

Normal management of the condition includes making lifestyle changes, with the addition of medication as necessary.

However, previous research has suggested that initial intensive therapy to get blood sugar levels under control could change or delay the natural course of the disease.

Treatment boost

Patients aged 25 to 70 taking part in the trial were given an infusion of insulin, daily insulin injections or oral anti-diabetic tablets.

The treatment was only given for two weeks after normal blood glucose levels were achieved.

Most of those given insulin were able to meet blood glucose targets in four to five days compared with nine days in those given oral drugs.

After a year, 51% of patients given an insulin infusion and 45% of those given insulin injections had maintained their good blood glucose levels by sticking to a diet and exercise programme.

But only 27% of those who had initially been treated with oral drugs still had good blood glucose control.

The researchers reported that the early insulin treatment seemed to have restored the function of insulin-producing beta cells in the body.

Tests showed the cells had a better response to insulin after treatment and the effect was sustained after a year.

Study leader, Professor Jianping Weng, said good diabetes control, especially early intensive blood sugar control, can eliminate the damage caused by high blood sugar levels and rescue injured beta-cells.

Pav Pank, care advisor at Diabetes UK, said achieving good diabetes control is key to diabetes management and also helps prevent people with the condition from developing life-threatening complications such as heart disease, stroke, kidney disease, amputation and blindness.

"The research shows that considering using insulin early when people are first diagnosed with type 2 diabetes might be an additional way to achieve good diabetes management.

"Nevertheless decisions about treatment need to be made on an individual basis for each patient."

Professor Rury Holman, head of the Diabetes Trial Unit at Oxford University, said the research was "important" but more information was needed on different measures of diabetes control before a change in practice could be advocated.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7415089.stm

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Breton's revolutionary returns

The Surrealist manifesto is being sold. But as long as its influence continues, Breton's revolutionary spirit will never be sold out
May 21, 2008 8:00 AM

Going, going ... a photograph of André Breton on sale at Sotheby's Paris. Photograph: Joel Robine/AFP

If you happen to hear a strange whirring noise later today in Batignolles cemetery, it will be the sound of André Breton's mortal remains spinning in their grave. His corpse will be responding in outrage to the news that the only known manuscript draft of the first Surrealist manifesto is being put up for auction; and that the estimated price of the document has been set at somewhere between €300,000 and €500,00. What an insult! It is not simply that Breton spent most of his adult life utterly skint - though that's always worth remembering. The true offense lies in the way in which sneaky old capitalism, once again, has so ingeniously taken a movement aimed at its violent destruction and turned it into luxury goods.

Breton's name has long since been eclipsed by those of other Surrealists in the popular imagination, and yet he was at various points its inventor, its General, its Pope (a Pope much given to the pleasure of excommunication), its conscience and, for want of a less spiritually loaded word, its soul. Towards the end of his life, he defiantly stated that he WAS Surrealism; and it would be rash to disagree. Surrealism began, shortly after the first world war, as a revolution not of the image but of the Word - all of the founding members of the group were poets: Aragon, Soupault, Desnos, Eluard, Crevel, Char and others (Most of these writers are now considered among the important names in modern French poetry. Whether this amounts to a triumph or a disaster depends on your point of view.) Before long, it became - and this is the title of Mark Polizzotti's huge biography of Breton - a Revolution of the Mind, an attempt to overthrow not merely existing social and economic structures but consciousness itself.

Admittedly, some of the means by which this Revolution was launched can look a bit silly - more like parlour games than serious threats to Cartesian logic. To start with, there were the experiments with Automatic Writing - the first major Surrealist publication, Magnetic Fields (Les Champs magnetiques) was a collection of automatic texts produced by Breton and Phillipe Soupault in 1920. There was the

period of so-called "sleeping fits", in which Robert Desnos and others would go into trance states, and the others would crowd anxiously around, taking dictation straight from the Unconscious. (The gang had all read their Freud; especially Breton, who had trained as a doctor and worked in mental hospitals.) And there was Exquisite Corpse, a kind of visual form of Consequences in which a piece of folded paper was passed around and each Surrealist would draw a couple of lines: unfolded, weird chimeras and mutants would emerge.

All this was done in a spirit of great earnestness, which from our point of view merely adds to the quaint flavour of the thing, but they were not (or not simply) mucking around. The point of each of these exercises was to cheat all the usual mechanisms of psychic defence which keep the imagination set in dull and plodding ways, and to search for freedom. Another, perhaps more fruitful Surrealist practice was the art of walking - of wandering aimlessly around Paris, visiting places that no fashionable person would ever go, looking for hints of the miraculous and remaining open to chance encounters. This method produced at least two Surrealist masterpieces: Aragon's Paris Peasant, and Breton's Nadja (1928), the eerie story about the narrator's encounter with a strange, borderline mad woman who may have mild supernatural powers, and who ends up in an asylum. Breton always said that he hated novels, but Nadja has often been discussed as if it were fiction, largely because the possibility that it is unvarnished reportage is too uncomfortable to contemplate.

Has any of this activity left a legacy? Yes, and yes. Yes, because there are all sorts of writers today who, whether or not the critics call them Surrealist, carry the flame in their own ways: JG Ballard, for outstanding instance, a connoisseur of Surrealist art who has written some fine criticism about that school; or the peripatetic likes of Iain Sinclair and Will Self, who are sometimes compared to Guy Debord (himself an ardent reader of Breton), but who are perfectly well aware that the Debordian "wander" or derive was itself inspired by the Surrealist stroll.

And Yes, because - as Breton made clear again and again - Surrealism as a militant movement simply provided a definition, or a self-consciousness, for a sensibility that has been blowing in the wind for at least a couple of hundred years: it blew, Breton said, through Swift and Blake and Lewis Carroll and Lautreamont and Rimbaud. In our own time, it has most famously sounded in the lyrics of Bob Dylan, especially the songs he wrote in the mid-60s, with their jewels and binoculars, their warehouse eyes and Arabian drums. Rest in peace, Monsieur Breton: capitalism may have won some skirmishes, but you won the big battle.

http://blogs.guardian.co.uk:80/books/2008/05/if_you_happen_to_hear.html

New World Record For Efficiency For Solar Cells; Inexpensive To Manufacture

Physicist have improved the efficiency of an important type of solar cell from 21.9 to 23.2 percent (a relative improvement of 6 per cent). This is a new world record. (Credit: iStockphoto/Mark Evans)

ScienceDaily (May 17, 2008) — Physicist Bram Hoex and colleagues at Eindhoven University of Technology, together with the Fraunhofer Institute in Germany, have improved the efficiency of an important type of solar cell from 21.9 to 23.2 percent (a relative improvement of 6 per cent). This new world record is being presented on Wednesday May 14 at a major solar energy conference in San Diego.

The efficiency improvement is achieved by the use of an ultra-thin aluminum oxide layer at the front of the cell, and it brings a breakthrough in the use of solar energy a step closer.

An improvement of more than 1 per cent (in absolute terms) may at first glance appear modest, but it can enable solar cell manufacturers to greatly increase the performance of their products. This is because higher efficiency is a very effective way of reducing the cost price of solar energy. The costs of applying the thin layer of aluminum oxide are expected to be relatively low. This will mean a significant reduction in the cost of producing solar electricity.

Ultra-thin

Hoex was able to achieve the increase in efficiency by depositing an ultra-thin layer (approximately 30 nanometer) of aluminum oxide on the front of a crystalline silicon solar cell. This layer has an unprecedented high level of built-in negative charges, through which the -- normally significant -- energy losses at the surface are almost entirely eliminated. Of all sunlight falling on these cells, 23.2 per cent is now converted into electrical energy. This was formerly 21.9 per cent, which means a 6 per cent improvement in relative terms.

Dutch company OTB Solar

Hoex gained his PhD last week at the Applied Physics department of the TU/e with this research project. He was supported in the Plasma & Materials Processing (PMP) research group by professor Richard van de Sanden and associate professor Erwin Kessels. This group specializes in plasma deposition of extremely thin layers. The Dutch company OTB Solar has been a licensee of one of these processes since 2001, which it is using in its solar cell production lines. Numerous solar cell manufacturers around the world use equipment supplied by OTB Solar.

The ultra-thin aluminum oxide layer developed in the PMP group may lead to a technology innovation in the solar cell world. A number of major solar cell manufacturers have already shown interest.

Promising

Solar cells have for years looked like a highly promising way to partly solve the energy problem. The sun rises day after day, and solar cells can conveniently be installed on surfaces with no other useful purpose. Solar energy also offers opportunities for use in developing countries, many of which have high levels of sunshine. Within ten to fifteen years the price of electricity generated by solar cells is expected to be comparable to that of 'conventional' electricity from fossil fuels.

This technology breakthrough now brings the industrial application of this type of high-efficiency solar cell closer.

Part of Hoex's PhD research project was paid for by three Dutch ministries: Economic Affairs; Education, Culture and Science; and Housing, Spatial Planning and the Environment.

Adapted from materials provided by Eindhoven University of Technology.

http://www.sciencedaily.com /releases/2008/05/080514154702.htm

Climbing As Easy As Walking For Smaller Primates

Researchers compared the energy consumed by five different primate species while negotiating vertical and horizontal treadmills.

ScienceDaily (May 17, 2008) — Smaller primates expend no more energy climbing than they do walking, Duke University researchers have found. This surprising discovery may explain the evolutionary edge that encouraged the tiny ancestors of modern humans, apes and monkeys to climb into the trees about 65 million years ago and stay there.

The researchers compared the energy consumed by five different primate species while negotiating vertical and horizontal treadmills. Their work appears in the May 16 issue of the journal Science.

"We assumed it would be more energetically expensive for all of them to climb than to walk, so this finding was unexpected," said Jandy Hanna, a faculty member at the West Virginia School of Osteopathic Medicine in Lewisburg who was a Duke graduate student at the time of the study. "There's this longstanding assumption that it should cost more to go up," she added.

Hanna had to design and build a novel climbing treadmill -- essentially a loop of rope around two pulleys -- to measure the animals' efforts. As the animals moved at their highest sustainable speed, sensors measured oxygen level changes within a chamber to derive the primates' energy consumption.

While climbing was not significantly more demanding for heftier primates than lighter ones, "the energetic cost of walking decreased with size," said Timothy Griffin, a medical instructor at the Duke Medical Center's Orthopaedic Bioengineeing Laboratory. Consequently, species weighing more than half a kilogram (about 1 pound) may have more incentive to walk than to climb. But for those weighing less, "there was no difference," he added.

The common assumption is that a transition to life in the trees helped lead to modern primates and our own up-right, two-legged walking.

Scientists think our earliest primate ancestors, which were only the size of large rats, underwent a number of fundamental evolutionary changes as they adapted to moving and feeding on thin branches of trees 65 million years, said Daniel Schmitt, a Duke associate professor of biological anthropology and anatomy who was Hanna's doctoral dissertation advisor. "Those changes included developing grasping hands with nails instead of claws," Schmitt said. "They were climbing up into the canopy and staying there. What we have shown is that they could have made this shift into a rich environment with insects and fruits without increased energetic cost."

The eight primates evaluated for energy consumption during climbing and walking were the slender loris (Loris tardigradus), fat-tailed dwarf lemur (Cheirogaleus medius), pygmy slow loris (Nycticebus pygmaeus), Bolivian squirrel monkey (Saimiri boliviensus) and mongoose lemur (Eulemur mongoz). The squirrel monkey studies were done at the University of South Alabama in Mobile, and the others at the Duke University Lemur Center.

The work was supported by the National Science Foundation, the National Institutes of Health, the Sigma Xi honorary science society, the Society for Experimental Biology and Duke University.

Note: A video of the primates climbing can be found at: http://news.duke.edu/2008/05/climbing.html

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Journal reference:

1. Jandy B. Hanna, Daniel Schmitt, and Timothy M. Griffin (16 May 2008). The Energetic Cost of Climbing in Primates. Science 320 (5878), 898. DOI: 10.1126/science.1155504

Adapted from materials provided by Duke University. Original article written by Monte Basgall.

http://www.sciencedaily.com:80 /releases/2008/05/080515145406.htm