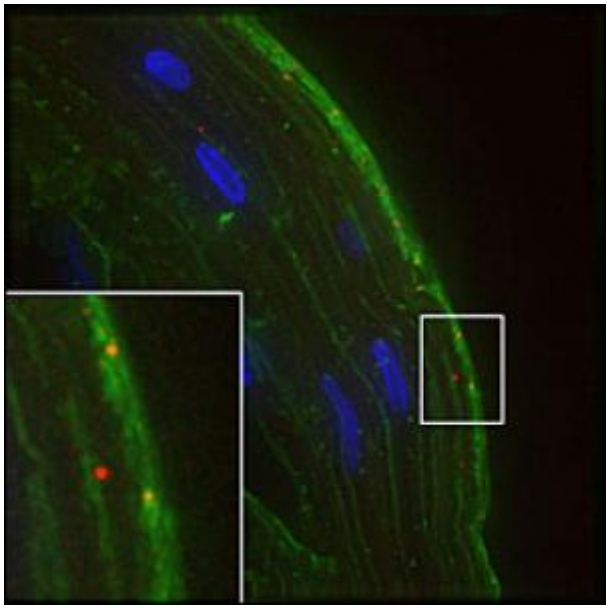
Infoteca's E-Journal

An Electronic Compilation of Scientific and Cultural Information by
Sistema de Infotecas Centrales, Universidad Autónoma de Coahuila

CONTENTS

New Way Men Can Transmit HIV To Women



This microscopic image shows HIV (red) entering human cervical/vaginal tissue. Structure of tissue is shown by staining the surface of the cells (green) and nuclei (blue). Inset of higher magnification of region in white box showing that virus is located between the cells. (Credit: Photo from the Hope laboratory)

ScienceDaily (Dec. 17, 2008) — Researchers at Northwestern University have discovered a critical new way a man can transmit the HIV virus to a woman.

Scientists had long believed that the normal lining of the female vaginal tract was an effective barrier to invasion of the HIV virus during sexual intercourse. They thought the large HIV virus couldn't penetrate the tissue.

But new research from Northwestern University's Feinberg School of Medicine has shown for the first time that the HIV virus does indeed penetrate a woman's normal, healthy genital tissue to a depth were it can gain access to its immune cell targets.

"This is an unexpected and important result," said Thomas Hope, principle investigator and professor of cell and molecular biology at the Feinberg School. "We have a new understanding of how HIV can invade the female vaginal tract."

"Until now, science has really had no idea about the details of how sexual transmission of HIV actually works," Hope added. "The mechanism was all very murky."

Hope, his Northwestern colleagues, and collaborators at Tulane University discovered that interior vaginal skin is vulnerable to HIV invasion at the level where it naturally sheds and replaces skin cells, a point where the cells are not as tightly bound together. He will present his findings December 16 at the American Society for Cell Biology 48th annual meeting in San Francisco.

Women and female adolescents now account for 26 percent of all new HIV cases in the U.S., according to the Centers for Disease Control. Based on its most recent analysis of 2005 data, the CDC estimated that there were 56,300 new HIV infections that year and traced 31 percent of the total to high-risk heterosexual contact. More than half of the new cases of HIV infection worldwide are in women.

Hope said he hopes his findings, if confirmed by future studies, will provide information to help develop microbicides and vaccines to protect against HIV.

"We urgently need new prevention strategies or therapeutics to block the entry of HIV through a woman's genital skin," Hope said. While condoms are 100% effective in blocking the virus, "people don't always use them for cultural and other reasons," he noted.

By labeling the HIV viruses with photo-activated fluorescent tags, Northwestern researchers were able to view the virus as it penetrated the outermost lining of the female genital tract, called the squamous epithelium, in female human tissue obtained from a hysterectomy and in animal models.

Researchers found that HIV penetrated the genital skin barrier primarily by moving quickly -- in just four hours -- between skin cells to reach 50 microns beneath the skin, a depth similar to the width of a human hair. This is the depth at which some of the immune cells targeted by HIV are located.

HIV penetration was more common in the outermost superficial layers of skin and likely occurred during the normal turnover and shedding of skin cells. In the shedding process, the skin cells are no longer as tightly bound together so water -- and HIV -- can easily enter.

"As pieces of the skin flake off, that's the loose point in the system where the virus can get in," Hope said.

Previously, scientists thought that the HIV virus invaded a woman's immune system through the single layer of skin cells that line her cervical canal. "That was always thought to be the weak point in the system," Hope said.

However, a previous trial in Africa in which women used a diaphragm to block the cervix did not reduce transmission. Nor are women who have had hysterectomies less vulnerable to contracting HIV through sex.

Hope said researchers had also believed the only way HIV could enter the vaginal tract was if a woman had an open lesion on her skin, for example caused by the herpes virus. When breaks are present in the skin it should be easier for HIV to enter the skin and bind to and infect immune cells. But in studies where women were given anti-herpes drugs to decrease their lesions, there was no decrease in transmission. In light of the new results, it is possible that HIV can enter the vaginal tissue and initiate infection without any physical breaks.

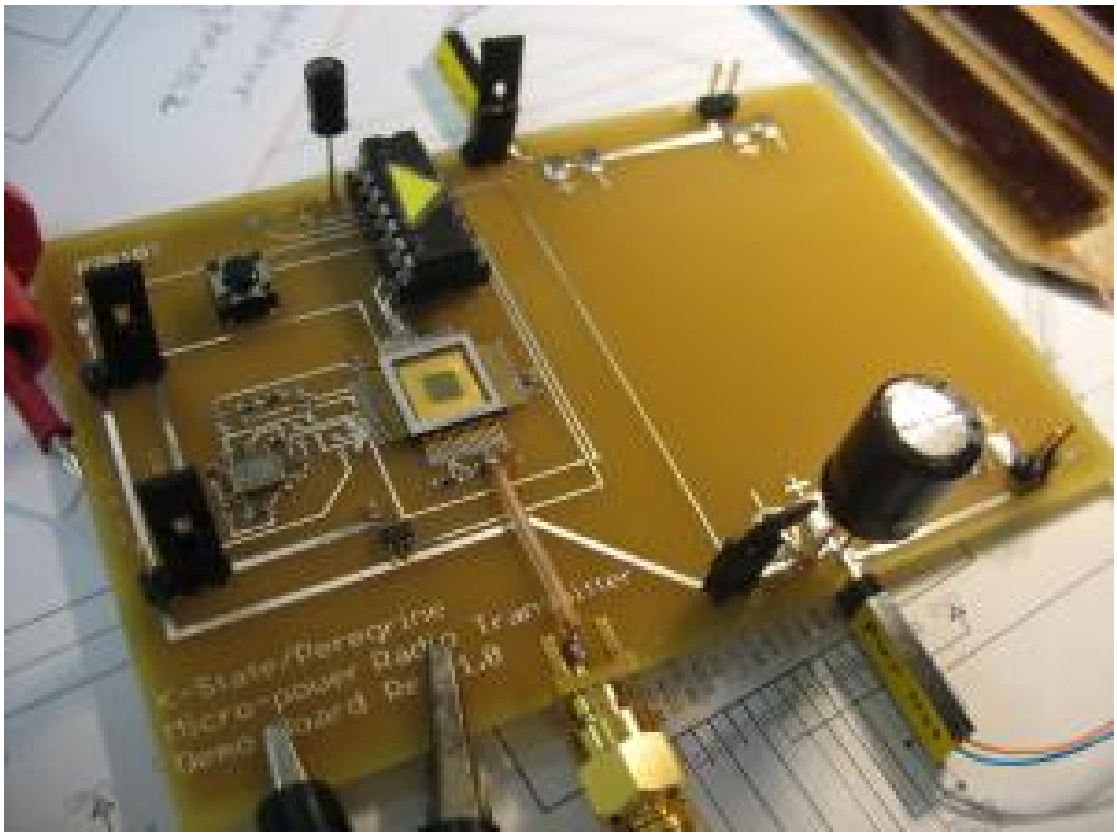
"A big mistake in this field is the idea that transmission only takes place one way," Hope said. "Our perspective is the viruses can infect people in more than one way. We say one of those ways that needs to be in the equation is that the virus can be transmitted directly through the skin."

The next step will be to prove that the virus actually infects the immune cells in the vaginal tract. "A key experiment in the future is to identify the first cells to get infected in the epithelium, which is not necessarily where people would have looked for them before," Hope said.

Adapted from materials provided by Northwestern University.

http://www.sciencedaily.com/releases/2008/12/081216133436.htm

Engineers Developing Energy-harvesting Radios



Kansas State University engineers are helping a semiconductor manufacturer implement its idea of an energy-harvesting radio. It could transmit important data -- like stress measurements on a bridge, for instance -- without needing a change of batteries, ever. (Credit: Image courtesy of Kansas State University)

ScienceDaily (Dec. 17, 2008) — If changing the batteries in the remote control or smoke detector seems like a chore, imagine having to change hundreds of batteries in sensors scattered across a busy bridge.

That's why Kansas State University engineers are helping a semiconductor manufacturer implement its idea of an energy-harvesting radio. It could transmit important data -- like stress measurements on a bridge, for instance -- without needing a change of batteries, ever.

Bill Kuhn, K-State professor of electrical and computer engineering, and Xiaohu Zhang, master's student in electrical engineering, are developing an energy-harvesting radio for Peregrine Semiconductor, a San Diego-based integrated circuit manufacturer.

"This type of radio technology may exist in your house, for instance if you have a temperature sensor outside that radios data to a display inside," Kuhn said. "But those devices need to have their batteries changed. This radio doesn't."

Peregrine Semiconductor is looking at possible applications for the technology. This could include monitoring stress, temperature and pressure on bridges and other structures. Ron Reedy, Peregrine's chief technical officer, said that fulfilling this vision of autonomous sensors requires highly integrated, low power radio chips -- exactly the kind that K-State and Peregrine have demonstrated to NASA's Jet Propulsion Laboratory on Peregrine's trademarked UltraCMOS silicon-on-sapphire technology.

Meanwhile, the K-State engineers are looking at the design challenges of a radio system like this. Kuhn and Zhang have been working on the project for a little more than a year. They are creating a demonstration to test how far the signals can travel from the sensors.

Zhang constructed a demonstration board using solar cells from inexpensive calculators to power the radio. The board has capacitors that capture and store the light energy to power the radio without a battery. Although this prototype captures and stores light energy, Kuhn said that energy-harvesting radios could be powered by a number of different ways, including by electrochemical, mechanical or thermal energy.

The demonstration board that Zhang created includes a microprocessor to store data before it's transmitted via radio. The radio used is the "Mars chip" that Kuhn helped develop in a successful project he and a team from K-State, Cal Tech's Jet Propulsion Laboratory and Peregrine Semiconductor did for NASA. They developed a micro transceiver to use on Mars rovers and scouts. In 2007, the work was published in Proceedings of the Institute of Electrical and Electronics Engineers.

In this way, Kuhn said the energy-harvesting radio they are working on now is an example of a NASA spinoff -- that is, technology developed for space exploration that can be used here on Earth.

When the stored data is ready to be transmitted, the radio sends out a data-burst. In Zhang's model, this happens every five seconds. It may just sound like a "blip," but that burst contains data that a computer can translate into meaningful information, such as telling an engineer the stress or strain on the underside of a bridge. Kuhn said that it's kind of like sending a text message from one cell phone to another: After data are transmitted through the air, the recipient's cell phone turns that data back into text that can be understood.

Kuhn and Zhang are stepping in to perfect the radio system design. This includes determining which frequencies to use based on how the environment affects radio waves indoors versus outdoors. They also have to look at how noise and other factors may limit the sensitivity of the receiver that's getting the data from all of the sensors.

Because these sensors save data in their microprocessors, Kuhn and Zhang are working on timing and wake-up commands that tell the sensors when to send the stored information to the receiver. Through engineering analysis, they are determining tradeoffs between power requirements, data-rate and transmission range issues.

Kuhn and Zhang will present research on the radio communication aspects of the project at the Radio and Wireless Symposium in January 2009.

Adapted from materials provided by Kansas State University.

http://www.sciencedaily.com/releases/2008/12/081216114104.htm

Low Dose Of Caffeine When Pregnant May Damage Heart Of Offspring For A Lifetime

Pregnant women may want to avoid caffeine. A new study shows that the equivalent of one dose of caffeine (just two cups of coffee) ingested during pregnancy may be enough to affect fetal heart development and then reduce heart function over the entire lifespan of the child. (Credit: iStockphoto/Felix Thiang)

ScienceDaily (Dec. 17, 2008) — A new study shows that the equivalent of one dose of caffeine (just two cups of coffee) ingested during pregnancy may be enough to affect fetal heart development and then reduce heart function over the entire lifespan of the child. In addition, the researchers also found that this relatively minimal amount of exposure may lead to higher body fat among males, when compared to those who were not exposed to caffeine.

Although the study was in mice, the biological cause and effect described in the research paper is plausible in humans.

According to Scott Rivkees, Yale's Associate Chair of Pediatric Research and a senior researcher on the study, "Our studies raise potential concerns about caffeine exposure during very early pregnancy, but further studies are necessary to evaluate caffeine's safety during pregnancy."

To reach their conclusion researchers studied four groups of pregnant mice under two sets of conditions for 48 hours. The first two groups were studied in "room air," with one group having been injected with caffeine and another injected with saline solution. The second two groups were studied under conditions where ambient oxygen levels were halved, with one group receiving caffeine and the other receiving saline solution. They found that under both circumstances, mice given caffeine produced embryos with a thinner layer of tissue separating some of the heart's chambers than the group that was not given caffeine.

The researchers then examined the mice born from these groups to determine what long-term effects, if any, caffeine had on the offspring. They found that all of the adult males exposed to caffeine as fetuses

had an increase in body fat of about 20 percent, and decreased cardiac function of 35󈞒 percent when compared to mice not exposed to caffeine.

"Caffeine is everywhere: in what we drink, in what we eat, in pills that we use to relieve pain, and even in candy," said Gerald Weissmann, M.D., Editor-in-Chief of The FASEB Journal. "This report shows that despite popular notions of safety, there's one place it probably shouldn't be: in the diet of an expectant mother."

Journal reference:

1. Christopher C. Wendler, Melissa Busovsky-McNeal, Satish Ghatpande, April Kalinowski, Kerry S. Russell, and Scott A. Rivkees. **Embryonic caffeine exposure induces adverse effects in adulthood**. *FASEB J*, December 16, 2008 DOI: 10.1096/fj.08-124941

Adapted from materials provided by Federation of American Societies for Experimental Biology, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/12/081216133440.htm

'Follow The Elements' To Understand Evolution In Ancient Oceans

In the search for life beyond Earth, scientists 'follow the water' to find places that might be hospitable. However, every home gardener knows that plants need more than water, or even sunshine. They also need fertilizer – a mixture of chemical elements that are the building blocks of the molecules of life. (Credit: Copyright Michele Hogan)

ScienceDaily (Dec. 17, 2008) — In the search for life beyond Earth, scientists 'follow the water' to find places that might be hospitable. However, every home gardener knows that plants need more than water, or even sunshine. They also need fertilizer – a mixture of chemical elements that are the building blocks of the molecules of life.

Scientists at Arizona State University are studying how the distribution of these elements on Earth – or beyond – shapes the distribution of life, the state of the environment and the course of evolution.

Ariel Anbar, a professor in ASU's Department of Chemistry and Biochemistry and the School of Earth and Space Exploration in the College of Liberal Arts and Sciences weaves together threads from geoscience, chemistry, biochemistry and biology in his article published in the Dec. 5 issue of Science. The "Perspectives" article reviews what we know about changes in the availability of some key nutrients in the oceans over the sweep of geologic time and suggests future directions for research.

"The history of our planet is like a natural laboratory of 'alternative worlds,'" says Anbar. "The chemical composition of the oceans has changed dramatically over billions of years. Elements that are abundant today were once scarce, and elements that are scarce today were once abundant. So Earth's ancient oceans are a good place to go if we want to understand how organisms and ecosystems evolve to cope with changing abundances of elements. Studying the ancient oceans also stretches our minds to imagine what we might find someday in alien oceans on other worlds."

Visiting billion-year-old oceans is not so easy, however. Anbar explains that biogeochemists cannot directly sample oceans of the past but make inferences about their compositions by examining sedimentary rocks that were deposited on ancient sea floors. For example, the ocean floor rocks from the first half of Earth history include massive deposits of iron oxide – essentially, rust. Those rusty rocks tell us that the oceans in those days were rich in dissolved iron. Today, iron is so scarce in seawater that organisms living in vast areas of the oceans are literally starved for this biologically essential element. These organisms have evolved clever strategies to find and capture this key nutrient.

But Anbar stresses that iron is only one of many critical nutrient elements to consider. Sulfur, nitrogen, phosphorus, copper, zinc, nickel and even obscure elements like molybdenum are all essential nutrients whose abundances have gone up and down in the oceans over geological time. These changes are a consequence of increases in the amount of oxygen in the atmosphere and oceans.

Different elements are important in different ways for biological processes that affect the environment. As a result, Anbar says that changes in ocean chemistry probably had many unusual consequences in Earth history. For instance, he points to a suggestion made by a colleague, Professor Roger Buick of the University of Washington, that changes in the availability of copper could have affected the amount of the gas nitrous oxide – so-called 'laughing gas' – in the atmosphere. The idea follows from the fact that copper is present in the reaction center of the enzyme that bacteria use to convert nitrous oxide to ordinary nitrogen gas. Buick proposes that copper-poor oceans could have led to a 'laughing gas' atmosphere between 1.8 and 0.7 billion years ago. "Ironically, it's no laughing matter," says Anbar. "Nitrous oxide is a powerful greenhouse gas. It may be that copper scarcity helped keep the Earth warm at that time."

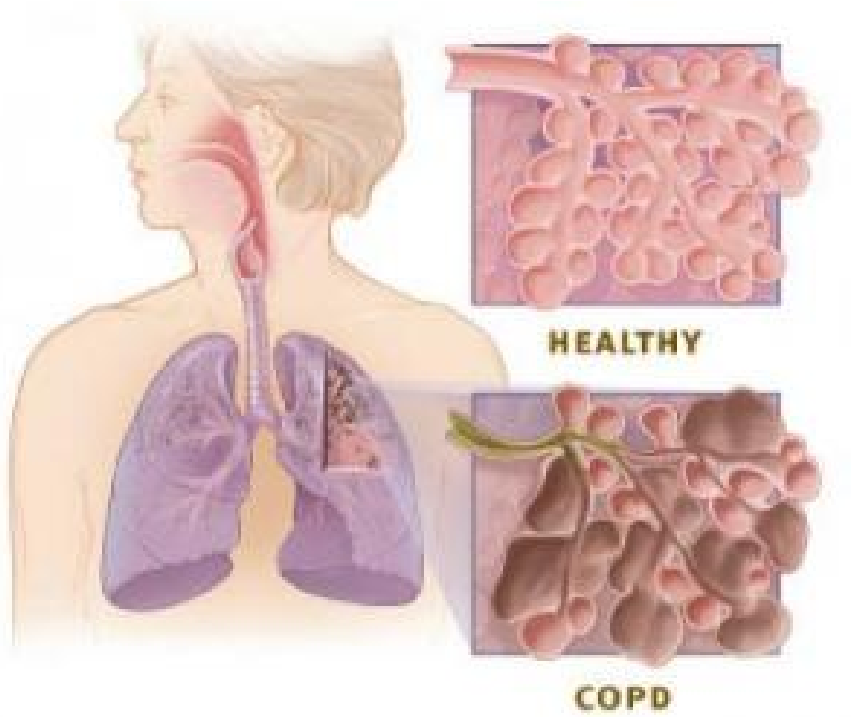
Anbar is most excited by the possibility that changes in ocean chemistry affected the makeup of life itself. "Take iron, for example," he contemplates. "It's needed by virtually every organism on the planet. Is that because the basic biochemistry of life on Earth developed in the iron-rich oceans of Earth's distant past? Or is it because the chemical properties of iron are so special that evolution would have selected for it even if it was always rare?"

The answers to such questions will come from continued study of the past combined with research into how the use of elements by organisms is affected by changes in element abundances in their environment. Much of this biological work will take place at ASU in a project Anbar is undertaking with Profs. James Elser and Susanne Neuer in the School of Life Sciences, Everett Shock in the School of Earth and Space Exploration and the Department of Chemistry and Biochemistry, and other ASU scientists. That effort is supported by a new, $7 M grant from the NASA Astrobiology Institute. "NASA is really interested in the idea that they should 'follow the elements' in addition to water when searching for life out there," says Anbar. "They recognize that ASU is an exceptional place for such research."

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

http://www.sciencedaily.com/releases/2008/12/081208102422.htm

Advance Toward Early Diagnosis Of Chronic Obstructive Pulmonary Disease



Researchers have identified a "biomarker" that could lead to early detection of chronic obstructive pulmonary disease. (Credit: National Heart Lung and Blood Institute)

ScienceDaily (Dec. 17, 2008) — Researchers in Finland are reporting identification of the first potential "biomarker" that could be used in development of a sputum test for early detection of chronic obstructive pulmonary disease (COPD). That condition, which causes severe difficulty in breathing — most often in cigarette smokers — affects 12 million people in the United States.

Vuokko L. Kinnula and colleagues point out that no disease marker for COPD currently exists, despite extensive efforts by scientists to find one. Past research pointed to a prime candidate — surfactant protein A (SP-A), which has a major role in fighting infections and inflammation in the lung.

The scientists compared levels of a variety of proteins obtained from the lung tissues of healthy individuals, patients with COPD, and those with pulmonary fibrosis. They found that the lungs of COPD patients contained elevated levels of SP-A. The scientists also found elevated levels of SP-A in the sputum samples of COPD patients. "This suggests that SP-A might represent a helpful biomarker in the early detection of COPD and other related disorders," the article notes.

Journal reference:

1. Ohlmeier et al. **Proteomics of Human Lung Tissue Identifies Surfactant Protein A as a Marker of Chronic Obstructive Pulmonary Disease**. *Journal of Proteome Research*, 2008; 7 (12): 5125 DOI: 10.1021/pr800423x

Adapted from materials provided by American Chemical Society.

http://www.sciencedaily.com/releases/2008/12/081208085002.htm

New 'Molecular Memory' Only 10 Atoms Thick: Massive Storage Possible

ScienceDaily (Dec. 17, 2008) — A team at Rice University has determined that a strip of graphite only 10 atoms thick can serve as the basic element in a new type of memory, making massive amounts of storage available for computers, handheld media players, cell phones and cameras.

In new research available online in Nature Materials, Rice professor James Tour and postdoctoral researchers Yubao Li and Alexander Sinitskii describe a solid-state device that takes advantage of the conducting properties of graphene. Tour said such a device would have many advantages over today's state-of-the-art flash memory and other new technologies.

Graphene memory would increase the amount of storage in a two-dimensional array by a factor of five, he said, as individual bits could be made smaller than 10 nanometers, compared to the 45-nanometer circuitry in today's flash memory chips. The new switches can be controlled by two terminals instead of three, as in current chips.Two-terminal capability makes three-dimensional memory practical as graphene arrays can be stacked, multiplying a chip's capacity with every layer, said Tour, Rice's Chao Professor of Chemistry as well as a professor of mechanical engineering and materials science and of computer science.Being essentially a mechanical device, such chips will consume virtually no power while keeping data intact – much the same way today's e-book readers keep the image of a page visible even when the power is off.What distinguishes graphene from other next-generation memories is the on-off power ratio – the amount of juice a circuit holds when it's on, as opposed to off. "It's huge — a million-to-one," said Tour. "Phase change memory, the other thing the industry is considering, runs at 10-to-1. That means the 'off' state holds, say, one-tenth the amount of electrical current than the 'on' state."

Current tends to leak from an "off" that's holding a charge. "That means in a 10-by-10 grid, 10 'offs' would leak enough to look like they were 'on.' With our method, it would take a million 'offs' in a line to look like 'on,''' he said. "So this is big. It allows us to make a much larger array."While generating little heat itself, graphene memory seems impervious to a wide temperature range, having been tested from minus 75 to more than 200 degrees Celsius with no discernable effect, Tour said. That allows graphene memory to work in close proximity to hot processors. Better still, tests show it to be impervious to radiation, making it suitable for extreme environments.Tour said the new switches are faster than his lab's current testing systems can measure. And they're robust. "We've tested it in the lab 20,000 times with no degradation," said Tour. "Its lifetime is going to be huge, much better than flash memory."Best of all, the raw material is far from exotic. Graphene is a form of carbon. In a clump it's called graphite, which you spread on paper every time you use a pencil.

The technology has drawn serious interest from industry, said Tour, who's working on manufacturing techniques. He said it's possible to deposit a layer of graphene on silicon or another substrate by chemical vapor deposition. "Typically, graphene is very hard to think about fabricating commercially," he said, "but this can be done very easily by deposition. The same types of processes used right now can be used to grow this type of graphene in place."

Journal reference:

1. Yubao Li, Alexander Sinitskii, James M. Tour. **Electronic two-terminal bistable graphitic memories**. *Nature Materials*, 2008; DOI: 10.1038/nmat2331

Adapted from materials provided by Rice University.

http://www.sciencedaily.com/releases/2008/11/081121151719.htm

New Species Of Prehistoric Giants Discovered In The Sahara

Dr David Martill and Nizar Ibrahim prepare to move the bone. (Credit: Image courtesy of University of Portsmouth)

ScienceDaily (Dec. 17, 2008) — Dinosaur hunters on a month-long expedition to the Sahara desert have returned home in time for Christmas with more than they ever dreamed of finding. They have unearthed not one but two possible new species of extinct animals. Their success marks one of the most exciting discoveries to come out of Africa for 50 years.

The team have discovered what appears to be a new type of pterosaur and a previously unknown sauropod, a species of giant plant-eating dinosaur. Both would have lived almost one hundred million years ago.

The palaeontologists discovered a large fragment of beak from a giant flying reptile and a more than one metre long bone from a sauropod, which indicates an animal of almost 20 metres (65 feet) in length. The discovery of both is extremely rare.

The expedition was composed of scientists from the University of Portsmouth, University College Dublin (UCD) and the Université Hassan II in Casablanca and was led by UCD palaeontologist, Nizar Ibrahim.

Ibrahim, who is an expert on North African dinosaurs, said: ""Finding two specimens in one expedition is remarkable, especially as both might well represent completely new species."

Dr David Martill, a reader in Palaeobiology at the University of Portsmouth, said: "Plant eaters are uncommon in this deposit, extremely rare in this region and to find one this large is very exciting. It's a major discovery."

For Martill it was also significant because it marked a successful conclusion to a quest begun almost 25 years ago. In 1984, driven back by sandstorms, his original mission to find a sauropod came to a halt just 20 miles away from the area of desert he had pinpointed as ripe for excavation. He returned empty handed but was left itching to retrace his steps.

A quarter of a century later he unearthed the dinosaur that eluded him so long ago, together with fellow enthusiast, Ibrahim to whom he is passing the baton.

Ibrahim will undertake the detailed analysis of the sauropod bone, which both scientists expect is a new species and genus of the sauropod family.

"From our initial examination on site, we're almost certain that we have a new species on our hands," said Ibrahim, who will spend the next six months examining all of the fossils and writing about them for his PhD thesis.

He will also examine the pterosaur remains which are particularly uncommon because their bones, optimised for flight, were light and flimsy and seldom well preserved.

He said: “Most pterosaur discoveries are just fragments of teeth and bone so it was thrilling to find a large part of a beak and this was enough to tell us we probably have a new species.”

The team spent a month in the desert and travelled over five thousand miles by Landrover in an epic overland trip which has taken them through the Atlas mountains and has seen them battling sandstorms and floods in an Indiana Jones-style quest.

Having discovered the giant sauropod bone they had to return to the nearest town to get more water and plaster with which to protect it, a trip which involved crossing flooded rivers in their Landrover at night with water coming in through the doors.

During their fieldwork they were cut off from civilisation for 4 days when heavy rain in the Atlas mountains flooded the river Ziz. To retrieve the bone they had to manhandle the fossil in its plaster jacket down the side of a mountain, clearing thousands of stones to make a safe path to carry it on a wooden stretcher.

“There was a point when we wondered if we would make it out of the desert with the bone, but we had worked so hard to find it so there was no way I was leaving it behind. It took us 5 days to get the bone out of the ground and down the mountain – and that was not the end of our problems,” said Ibrahim.

Dr Martill added: “When we had managed to get the bone in the Landrover the extra weight meant we kept sinking in the sand dunes and on several occasions everybody except the driver had to walk while we negotiated difficult terrain. Our journey home was equally eventful. While crossing the Atlas mountains we got caught in a snowstorm and total whiteout. But it’s all been worth it.”

The team were also excited to discover some rare dinosaur footprints, including some that record several animals walking along the same trail.

As well as discovering hundreds of dinosaur teeth, they also unearthed bits of giant crocodiles and some new species of fish.

Ibrahim said: “It’s amazing to think that millions of years ago the Sahara was in fact a lush green tropical paradise, home to giant dinosaurs and crocodiles and nothing like the dusty desert we see today. Even to a palaeontologist dealing in millions of years it gives one an overwhelming sense of deep time.”

The team also included Moroccan scientists Prof Samir Zouhri and Dr Lahssen Baidder as well as Portsmouth researchers Dr Darren Naish, Dr Robert Loveridge and Richard Hing.

Prof Samir Zouhri, head of the Department of Geology at the Université Hassan II in Casablanca said: “Nizar Ibrahim is a very determined researcher and I knew that he would have success on this trip, but these fossils exceeded our expectations. It is wonderful that we have made these siginficant discoveries and that they will return to Morocco for display after study in Dublin.”

The sauropod and the pterosaur were found in south-east Morocco, near the Algerian border.

Adapted from materials provided by University of Portsmouth.

http://www.sciencedaily.com/releases/2008/12/081216114750.htm

A Poverty Antidote Goes Global

Bill Strickland hopes to persuade 200 cities around the world to replicate his arts, education and job-training program.

- By: Devra Hall Levy | December 22, 2008

t's late spring, and Bill Strickland is spending some quiet time in the ceramics studio at the Manchester Craftsmen's Guild, the art and job-training center he founded in Pittsburgh's struggling Manchester area. Later in the evening he and his wife, Rose, will host a dinner for friends of the center, followed by the final jazz concert of its season. But right now, he wants to relax and throw a pot.

After wedging and kneading the clay to rid the gray mound of air bubbles, he centers it on the wheel. Centering means more than just proper placement; it is a hands-on process, one in which the right combination of speed, pressure and gentle guidance gives the mound its basic shape. Then, with his forearms pressed gently against his thighs, he makes an initial depression in the clay, and slowly his large hands pull the walls of the vessel out and upward.

Any ceramicist will tell you that centering the clay is critical — if the mound is not centered, a pot pulled from it will quickly be distorted by centrifugal force and then collapse — and Strickland wants it known that he has applied this sense of centeredness to his life, focusing on future possibilities while operating in the here and now. "The trick is to be where you are when you're there," he says, "not have your head someplace else."

It wouldn't be particularly extraordinary advice — in fact, it would seem dated, a relic of the 1960s — if it were coming from an ordinary 61-year-old at the pottering wheel. But behind his 6-foot-4, gangly frame and shy demeanor, Strickland is far from ordinary: He's the chief executive officer for the Manchester Craftsmen's Guild, Bidwell Training Center and the umbrella Manchester Bidwell Corporation, nonprofits with a $12 million operating budget that has grown to support a library, a digital imaging lab, a ceramics studio, a concert hall, a greenhouse, a dining room and a state-of-the-art kitchen where gourmet cooks are trained. In the 40 years since he founded the Manchester Craftsmen's Guild, Strickland's been a three-time subject of Harvard Business School case studies, the winner of a MacArthur Foundation

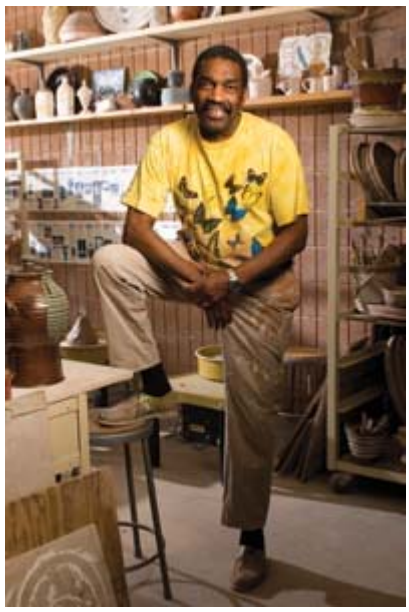
"genius" fellowship and a board member for the National Endowment for the Arts. He has lectured at Harvard and met with President Clinton and the Dalai Lama.

Strickland's recently published memoir, *Make the Impossible Possible*, describes his life and his basic recipe to enable success: a mix of high standards, the opportunity to develop unexplored talents and the message that no matter how difficult the circumstances, everyone has the potential to live a rich, satisfying life. Strickland's world-class arts centers and high-level job-training programs have changed the lives of thousands of disadvantaged urban teens, displaced steelworkers and struggling welfare mothers. Now he hopes to foster similar programs around the world.

And what Bill Strickland hopes for, other people often fund. "Bill Strickland could sell anything," Harvard business professor James Heskett says. "In this case, it's an antidote to poverty."

William E. Strickland Jr. has lived in Manchester, a distressed neighborhood of Pittsburgh, his whole life. In the decades before his birth, it was a working-class community, like the British industrial city after which it was named. From steel to railroads to manufacturing, industry prospered along the Ohio River, and Manchester thrived. In those booming early days, merchants and businessmen built stately Victorian homes on inland streets. But by the 1950s, the rush to the suburbs was well under way, and the houses fell into disrepair. The construction of Pennsylvania Route 65 and, in 1961, the Civic Arena (now known as the Mellon Arena) displaced thousands of African-American residents of the lower Hill District of Pittsburgh, many of whom moved into Manchester. Between 1950 and 1990, the Manchester population dropped from 11,000 to only 3,000 or so, and the minority mix shifted, jumping from 17 percent to almost 87 percent African American. By the early 1960s, Strickland was just one of the many failing inner-city kids in Manchester, but he turned out to be a lucky one.

At the beginning of his senior year of high school, Strickland paused by an open classroom door. Inside, a man wearing a hip leather vest sat with his back to the door, but over his shoulder the kid could see a shape that seemed to grow up out of the man's hands, a lump of clay transformed into a ceramic urn. Bill Strickland was watching a master potter, and the man shaped Strickland's future as purposefully as he shaped the clay on his wheel. Over the next 20 years, Frank Ross taught Strickland ceramics and exposed him to jazz and architecture and a world full of possibilities.



Ross' classroom became Strickland's refuge. As high school neared its end, Strickland planned to be a history teacher. At Ross' urging, the University of Pittsburgh admitted Strickland, albeit on probation, and he struggled at first; he'd never actually learned to study or take notes. But he graduated in 1969 — *cum laude* — and by that time had already opened his arts center on Buena Vista Street in Manchester, creating a refuge as much for himself as for others. He could not have imagined, then, that his future would include building a concert hall for jazz where his idols would perform.

When Strickland began speaking in public about his work, his audiences were small and mostly local. On his first trip to Harvard, he carried a beat-up old projector and a slide carousel in a battered cardboard box, its corners held together with duct tape. Today he travels thousands of miles a year to speaking engagements; his audiences are worldwide, his presentations are digital, and he shares the stage with luminaries, including the Dalai Lama, architect Frank Gehry and Alan M. Webber, editor of the *Harvard Business Review* and founder of *Fast Company* magazine.

Strickland was invited to speak at California Polytechnic State University, San Luis Obispo in April as part of a s eries of presentations titled "Provocative Perspectives." The day of the presentation dawned clear, and a bright sun lit up a breathtaking hillside view from the appropriately named Vista Grande Café. A few minutes after 7, Strickland arrives and has just enough time for the breakfast buffet of huevos rancheros and fruit. Today he's wearing gray slacks, a blue jacket, a tie with diagonal stripes of light blue and yellow and loafers with tassels, all in keeping with one of his mantras: "You must never look like the problem; always look like the solution."

Strickland's presentations are usually autobiographical, and this talk is no exception. He sets the stage by starting at what he considers the beginning, the day a high school art teacher became his mentor and saved his life. He recounts his probationary admission to the University of Pittsburgh and notes, with obvious relish, that he now sits on the university's Board of Trustees. He is unassuming and makes his accomplishments seem easy to attain. Describing the birth of the Manchester Craftsmen's Guild, he doesn't mention obstacles: the falling-down row house that he and his father had to repair themselves or the destruction in the neighborhood that followed the assassination of Martin Luther King. He simply says: "So I built the center in 1968, during the riots. The bishop of the Episcopal Diocese liked me; he gave me an old row house and a couple of bucks, and I started working with kids in the streets. I'm still doing it, only on a much bigger scale."

In 1972, he also took over the failing Bidwell Training Center; he describes the event with self-deprecating humor and just a dash of pride. "They were looking for some fool to take it over. They said, ‘What about that Bill Strickland up the street? He thinks he's Moses; he'll probably take the job,'" Strickland says. "I did think I was Moses, could save all the poor and all that. So I showed up at Bidwell in 1972 — it was in a warehouse with holes in the floor and holes in the roof and the kids running gambling games at the front door. I didn't recognize the game they were playing, so at the end of the first day I asked the secretary.

"She said, ‘Oh, they were taking bets on how long you'd last.'"

The whole room is laughing, and within moments Strickland has endeared himself to his audience. He's just a guy, just like them. They are all in the world together, and now he can show them what can be accomplished, invite them to share in *the conversation*. He knows he's a pretty good salesman and the sales pitch can't be just his story; it has to be our story.

As he begins showing pictures of the center, he shares his belief that people find themselves in the process of helping others. He talks of ex-steelworkers and welfare mothers and at-risk kids who never have a nice day in a nice place; in terms of education or job training, they always end up in inferior facilities with marginal teachers. He believed better conditions would bring better results, so he set out to create a facility that was ... first class.

The training center's main building is a 62,000-square-foot, two-story structure of adobe-colored brick, designed by Pittsburgh's leading modern architect, Tasso Katselas. It has interior curved arches, skylights and works of art — sculptures, quilts, paintings, photos, pottery — seemingly everywhere you look. Even the benches are works of art, oak sculptures handcrafted by Tadao Arimoto. The building stands as an oasis in depressed Manchester, a refuge with a door that opens on a better future. Since its opening in 1986, two buildings have been added: the 70,000-square-foot Harbor Gardens building in 2000 and, in 2003, a 40,000-square-foot, state-of-the-art greenhouse officially called the Drew Mathieson Center for Horticultural and Agricultural Technology.

Strickland's organization enjoys an unusually high degree of general approval that seems to relate to its relationship with the Manchester community and the organization's remarkable performance over the past 40 years, as attested by financial and program auditors. In its most recent fiscal year, Manchester Bidwell Corporation vice president of development Ellen L. Woods says, Bidwell and Manchester Craftsmen's Guild programs served a total of 47,565 people ranging in age from 8 to the mid-50s. Among them were 200 adults from Bidwell's academic programs for literacy and adult basic education, more than 60 of

whom completed their studies and entered a Bidwell vocational training program. Another 100 students enrolled for GED instruction; 25 percent were deemed "GED ready." Ken Huselton, senior director of operations for Bidwell, says the nonprofit's 2007 annual report to the Accrediting Commission of Career Schools and Colleges of Technology shows a 75 percent graduation rate and an 84 percent job-placement rate from the vocational programs. On the Manchester Craftsmen's Guild side, about 500 students between the ages of 13 and 17 attend after-school arts programs each year. Another 4,000 elementary and high school students come into contact with Manchester Craftsmen's Guild staff through in-school programs and other outreach. The thousands who attend concerts and gallery exhibits during the year are also counted as beneficiaries.

Within an hour, Strickland has covered the scope of Manchester/Bidwell programs and shown the audience dozens of pictures of the buildings, classrooms, library, digital imaging lab, photography lab, ceramics studio, concert hall, greenhouse, dining room and state-of-the-art kitchen. Not to mention the dining hall, where cook-trainees feed students gourmet lunches every day.

The pictures elicit audible murmurs of awe. When he tells the people who are now listening raptly that "environment drives behavior," they believe him; they've seen it with their own eyes. And, as he does in all his presentations, Strickland invites them to visit: "If you're ever in Pittsburgh, our doors are always open." Doubting politicians and potential funders have visited, after all, and left with lighter wallets. When he concludes the presentation by suggesting that the time is long past for seminars and sensitivity groups about how to treat one another — that we must get back to common sense and common decency and get on with the job of helping the disadvantaged help themselves — the audience is on board.

Chief operating officer Jesse W. Fife Jr., known as the treasure hunter, has been Strickland's best friend for almost 40 years, standing by him through his divorce and some heavy drinking days in the 1980s. He's also godfather to Strickland's children. Both men were raised on Pittsburgh's north side and attended the same high school, but they didn't meet until 1971, when they found themselves as the only two African Americans in a history class at the University of Pittsburgh. After college, Fife worked in sales for Procter & Gamble. He joined up with Strickland to give him a hand with the Manchester Craftsmen's Guild and the Bidwell Training Center, and they've worked in tandem ever since — the salesman and the treasure hunter, the visionary and the implementer. When Strickland has a vision he wants done yesterday, Fife is the one who puts it in perspective, often suggesting a more reasonable timeline but seldom saying, "No."

At one time, Bidwell training programs received government funds based on enrollment, program-completion and subsequent-employment statistics, but expenses for teachers and overhead remain fairly steady, even when student numbers go down. Just before Christmas of 1995, the center couldn't make payroll and had to lay off half the staff. The state came to the rescue, and now the center receives a flat amount from the state budget each year, representing approximately 70 percent of the center's operating budget. Fife and Strickland renegotiate the amount annually, lobbying in Harrisburg alongside state colleges and universities, making it clear that they are servicing a population other schools do not.

Politicians come and go, so to ensure the center's future, the strictly bipartisan Fife and Strickland keep their eyes open, noting up-and-comers who might be tomorrow's legislators and other controllers of the purse strings. "The parents like us, the community accepts us; we're just good PR for politicians," Fife says. And state funding has opened other coffers. Corporations get educational tax credits; foundations give more easily when they know that a nonprofit's basic operating costs are covered and they are not being asked to shoulder the whole burden of support.

But that doesn't mean maintaining support is easy. Heartwarming stories are not enough for funders. Woods, the Manchester/Bidwell development official, knows that the days of funding a concept are gone; she needs statistics and proof, and proving causation is not easy. "The bottom line is that people are benefiting, and the politicians and sponsors get something," she says. "But that's not data I can use concretely for a grant." So the nonprofit is at work on a comprehensive student tracking system, but its most powerful funding tool is still building good relationships.

Marty Ashby, who heads the Manchester Craftsmen's Guild jazz program, has been on staff for more than 20 years and admits that Strickland's "no is not an option" determination can put him at odds with funders, politicians and even staff, but his persistence usually wins out. In the early days of Bidwell, those who were resistant to change and did not see things Strickland's way soon left. Today, the staff of 136 operates much like a family; if there are skeletons in closets, they are well guarded. Strickland's wife, Rose, describes him as "complex" and says she accepts that his work has a set of burdens that he cannot put aside.

In their small side-by-side offices, Fife works the politics of funding and details of implementation; Strickland focuses on relationships, maintaining those that exist and always seeking out new friends, new alliances, new ideas. He says the keys to uncovering opportunity lie not just in talking about his work but in inviting others to join the conversation and listening — really listening — to what they have to say. Insight, he says, is often observed before it's understood. He also says he's just a guy doing his job.

Strickland is driven to succeed, but the goal is not, as he sees it, fame or wealth, even if he has become friends with eBay's founding president, Jeffrey Skoll, Starbucks' CEO Howard Schultz and music producer Quincy Jones. He says he never dreamed of becoming a social entrepreneur; he just wants to live his life in a way that makes sense to him. He has decided that building job-training centers, helping people, making pottery, listening to music and raising his family are things that constitute a meaningful life for him. He will also tell you that he's intense, romantic, creative, entrepreneurial and, above all, patient.

From the day the architect rendered a model of Strickland's vision, it took four years for the center to be built and open; an additional year passed before the concert hall was added. It took seven years and $3.5 million to build the greenhouse. Sometimes the visions didn't pan out. In 1993, his nonprofit went into the restaurant business at the then-new Pittsburgh airport. It was one of his early attempts at combining nonprofit training with a for-profit endeavor, and he and Fife were hoping that for-profit components might one day make enough money to endow the school. They quickly learned that small business was not a reliable source of funding, and the airport venture caused a huge financial loss.

Leaving the studio, Strickland expands on his approach while driving his silver Volkswagen Beetle to the greenhouse, with Sarah Vaughan singing softly in the background. The core of any new project or program, he explains, is always education, because an education program provides both the skills and the opportunities that enable poor people — who are unfamiliar with the industry they are being trained to work in — to participate in a life with a brighter future. The students at the greenhouse are learning skills that will land them real jobs in horticulture/agricultural industries, and there is a byproduct: The prize-winning orchids they grow are sold to local florists and Giant Eagle and Whole Foods stores. MCG Jazz has released three DVDs and 32 jazz CDs, four of which won Grammy Awards. These products don't just generate income and public relations benefits; they engender pride in the students, young and old.

Pittsburgh is not the only city in need of help, and it took eBay's Skoll to convince Strickland that his model was scalable. They met in 1998, after a Strickland presentation, when a young man introduced himself and shook Strickland's hand; Strickland, unfamiliar with either Skoll or eBay, pocketed the proffered business card. When his students in Pittsburgh educated him about eBay, Strickland phoned Skoll, and they've been friends ever since.

Skoll sits on the board of directors of the National Center for Arts and Technology, the entity he helped Strickland form to oversee efforts to replicate his job-training, education and arts programs around the world. So while his center in Pittsburgh continues to evolve in the hands of his staff, Strickland now devotes more and more of his time to showing others how to achieve similar results.

Nonprofits similar to the Manchester Craftsmen's Guild and Bidwell Training Center have taken root in Cincinnati, Grand Rapids, Mich., and San Francisco. Although the basic methodology — job training for adults and arts and technology programs for youth — is the same, Strickland preaches that specifics should be suited to the locale: Automotive training in Cincinnati provides workers for the Toyota plant;

classes in digital technology are a mainstay in San Francisco; and Pittsburgh is graduating pharmacy technicians, chemical lab technicians and medical transcribers to join the work force at Rite Aid, Bayer, Nova Chemicals and the University of Pittsburgh Medical Center.

During the year or more of planning required to start a Manchester/Bidwell-like facility, the National Center for Arts and Technology helps community leaders with startup tasks, from identifying an executive director, creating a board of directors and designing the facility to constructing a curriculum and developing a fundraising strategy. During the ensuing two to three years, the new center continues to receive NCAT guidance on a wide variety of issues, including the relationship building that has been at the center of Strickland's success.

The cost of replicating a Manchester/Bidwell facility exceeds $1 million, and once a center opens, the average annual operating budget is roughly $1 million. Plans are in progress to open centers in Columbus, Ohio; Cleveland; Minneapolis; Charlotte, N.C.; and Austin, Texas. But the national scope is not broad enough for Strickland. He is planning a center for Halifax, Nova Scotia, and exploring potential sites in Limerick, Ireland; Kyoto, Japan; São Paulo, Brazil; and San José, Costa Rica. He's also talking with officials in Mexico, Great Britain and Israel.

Strickland acknowledges that the fatigue from constant travel — and the sheer magnitude of the task at hand — gets him down sometimes. There have been times when he's wished someone would give him permission to stop trying to sell the notion that poverty has an antidote. For whatever reasons, he always winds up getting excited about change and the next important connection he might make. Georgina Gutierrez, NCAT's director of replication, who will help Strickland try to create 200 centers worldwide in the next 15 years, sees the goal as reasonable, given the person chasing it. "He's a special man, with vision, humility and heart," she says. "There's a hurry in his spirit."

http://www.miller-mccune.com/article/a-poverty-antidote-goes-global

Project Keeps Sky Watchers in Eternal Dark

Surveillance around the clock is offered to schoolchildren and astrophysicists via Internet-linked telescopes girding the globe.

- By: Lisa Conti | December 19, 2008 |

Wayne Rosing testing the Rainwater/Sangre telescope.

Wayne Rosing's plan for a series of telescopes to connect schoolchildren and astrophysicists on every continent with the universe is barreling forward with the intensity of a flaming meteor.

By remotely linking groups of small and medium-sized telescopes around the world, an uninterrupted 24-hour view of the night sky will facilitate the mission of the nonprofit he founded for research and outreach education.

The telescopes will have sophisticated electronic detector arrays for deep-space imaging and will be distributed in groups at five or six sites around the world. Most important, they will be robotic, with control available from any Internet-accessible terminal.

"There is nothing in existence that compares with what we're doing," Rosing said. While scientists use the infrastructure already in place, his engineers build and install more telescopes and the enclosures to house them.

The programmable telescopes collect immense amounts of data. Should something occur — a near-planet asteroid, for example — they can be steered to the event within 20 seconds. And with robotic telescopes around the world, an observation that starts in one location can continue elsewhere, increasing the viewing time from eight hours to around the clock. As the nonprofit's slogan puts it, "We will always keep you in the dark."

Scaling the Heights

A pivotal figure in the development of the Internet and in particular the technology base for Java, Wayne Rosing has been fostering his "notion" of universal connectivity for 20 years. He's been interested in

astronomy his whole life — he'd planned to study math, physics and astronomy in college before diverting to computer science — and in 2005, after retiring as vice president of engineering at Google, he decided to devote himself full-time to his "hobby/effort."

Rosing founded a nonprofit — Las Cumbres Observatory Global Telescope Network, or LCOGT — to make this dream happen. (The name comes from a California neighborhood, *Las Cumbres*, which means "the heights.")

The central project is to build 12 to 15 one-meter telescopes. One meter — about the diameter of an exercise trampoline — refers to the size of the mirror in each telescope, and the size of the mirror determines how much light the telescope will gather. (By comparison, the primary mirror in the Hubble Space Telescope is 2.4 meters, while the Keck Observatory at Hawaii's Mauna Kea has 10-meter scopes.)

Projected to be finished in four years, "the one-meter telescopes will become the workhorse backbone of our scientific network," Rosing said. But they're not the only scopes in the stable — two-meter telescopes (think old-style satellite dish) have been acquired and sit atop mountains in Hawaii and Australia, while smaller 0.4- to 0.8-meter telescopes will be "peppered around the world."

The telescopes will automatically collect information about stars, galaxies, nebulae and planets and run 30 to 40 scientific programs nightly. Working closely with astrophysics researchers in the physics department at the University of California, Santa Barbara, and with scientists around the world, the telescopes are already acquiring and analyzing data for research purposes.

One researcher, Rachel Street, a postdoctoral fellow at LCOGT, is using cameras mounted at sites at La Palma on the Canary Islands (in the Northern Hemisphere) and in Sutherland, South Africa (in the Southern Hemisphere), to hunt for extrasolar planets. Because orbiting planets block some of the light intensity in the stars they circle, astronomers can determine the presence of a planet by monitoring changes in a star's brightness.

"We use this technique so we can find these planets to follow up on using the telescopes at LCOGT. There must be millions of planets just around the stars we can see," Street said.

This method has enabled her and her colleagues to discover 10 new planets in one six-month period, an astounding achievement in the field.

Deploying the Network

Before heading to the Canary Islands — "to crawl around on top of two volcanoes" in search of telescope sites — Rosing brought the staff together to discuss the goals and constraints of the project.

"We're going to push our way through to complete these deployments. We're going to make this project happen," he said.

While the telescopes are scattered across the planet, most activity occurs in offices and in an expansive workshop in Goleta, Calif., a suburban city next to UCSB. It was here that engineer Annie Hjelstrom spent a year refurbishing Rainwater before the telescope (named for the Mississippi observatory where it resides) made its way home.

Rainwater was the first installation in LCOGT's network and, symbolically, Rosing's first astronomy project. Its history reflects the progression of Rosing's vision to connect the planet with the universe and to couple research with education.

In the '90s, Rosing — "as sort of a hobby thing at that time" — built a telescope for a retired doctor in Colorado. The doctor eventually resumed work in Tennessee and donated the telescope to a century-old Presbyterian boarding school in Mississippi that wanted to expand their observatory. "I thought that was a

worthy cause, so I volunteered LCO to refurbish that telescope — we'd come back and upgrade it and modernize it," he explained.

So it came to pass that under the orange glow of parking lot street lamps in California, Hjelstrom maneuvered a forklift's metal levers to support Rainwater. Finally assembled and ready to view the night sky, Rainwater was lowered for testing. Mechanical and computer issues had to be resolved before installation.

The project is not without challenges. Outside of her welder's hood, sparks flew as Hjelstrom added the finishing touches to Rainwater. Torch in hand, she molded metal beads with the uniformity of stitches to seam the edges. Once assembled and functioning optimally, the telescope was packaged in a container larger than some apartments and shipped across the nation to the observatory.

In Mississippi, Hjelstrom, 50 amateur astronomers and the director of Rainwater Observatory, Jim Hill, trudged up a grassy hill to see the final product. In the large domed observatory, Rosing operated Rainwater and then passed the control paddle to Hill.

"It feels fabulous. If all the other installations can go this smoothly, we'll be in good shape with deploying our network," Hjelstrom said.

While the Rainwater telescope will immediately affect students at the boarding school with which it is affiliated, it also can be used remotely by scientists. But LCOGT also reaches students in remote locations who might never have access to a telescope. Pupils in schools all over the world will be able to view deep-space phenomena in real time using the Internet.

Schoolchildren in London are already pushing computer keys to maneuver the large telescope atop Mount Haleakala in Hawaii. Rosing's goal in promoting interest in science is an essential element to the project. "If we can help another generation — the upcoming generation of young people —appreciate the notion of a scientific way of looking at the world, we will have made an important contribution."

http://www.miller-mccune.com/article/project-keeps-sky-watchers-in-eternal-dark

Overload!

Journalism's battle for relevance in an age of too much information

By Bree Nordenson

In 2007, as part of the third round of strategic planning for its digital transformation, The Associated Press decided to do something a little different. It hired a research company called Context to conduct an in-depth study of young-adult news consumption around the world. Jim Kennedy, the AP's director of strategic planning, initially agreed to the project because he thought it would make for a "fun and entertaining" presentation at the annual meeting. It turned out to be more than that; the AP believed that the results held fundamental implications for the role of the news media in the digital age. Chief among the findings was that many young consumers craved more in-depth news but were unable or unwilling to get it. "The abundance of news and ubiquity of choice do not necessarily translate into a better news environment for consumers," concluded the researchers in their final report. "Participants in this study showed signs of news fatigue; that is, they appeared debilitated by information overload and unsatisfying news experiences . . . . Ultimately news fatigue brought many of the participants to a learned helplessness response. The more overwhelmed or unsatisfied they were, the less effort they were willing to put in."

The idea that news consumers, even young ones, are overloaded should hardly come as a surprise. The information age is defined by output: we produce far more information than we can possibly manage, let alone absorb. Before the digital era, information was limited by our means to contain it. Publishing was restricted by paper and delivery costs; broadcasting was circumscribed by available frequencies and airtime. The Internet, on the other hand, has unlimited capacity at near-zero cost. There are more than 70 million blogs and 150 million Web sites today—a number that is expanding at a rate of approximately ten thousand an *hour*. Two hundred and ten billion e-mails are sent each day. Say goodbye to the gigabyte and hello to the exabyte, five of which are worth 37,000 Libraries of Congress. In 2006 alone, the world produced 161 exabytes of digital data, the equivalent of three million times the information contained in all the books ever written. By 2010, it is estimated that this number will increase to 988. Pick your metaphor: we're drowning, buried, snowed under.

The information age's effect on news production and consumption has been profound. For all its benefits—increased transparency, accessibility, and democratization—the Internet has upended the business model of advertising-supported journalism. This, in turn, has led news outlets to a ferocious focus on profitability. Over the past decade, they have cut staff, closed bureaus, and shrunk the newshole. Yet despite these reductions, the average citizen is unlikely to complain of a lack of news. Anyone with access to the Internet has thousands of free news sources at his fingertips. In a matter of seconds, we can browse *The New York Times* and *The Guardian*, *Newsweek* and *The Economist*, CNN and the BBC.

News is part of the atmosphere now, as pervasive—and in some ways as invasive—as advertising. It finds us in airport lounges and taxicabs, on our smart phones and PDAs, through e-mail providers and Internet search engines. Much of the time, it arrives unpackaged: headlines, updates, and articles are snatched from their original sources—often as soon as they're published—and excerpted or aggregated on blogs, portals, social-networking sites, rss readers, and customizable homepages like My MSN, My Yahoo, myAOL, and iGoogle. These days, news comes at us in a flood of unrelated snippets. As Clay Shirky, author of *Here Comes Everybody: The Power of Organizing without Organizations*, explains, "The economic logic of the age is unbundling." But information without context is meaningless. It is incapable of informing and can make consumers feel lost. As the AP noted in its research report, "The irony in news fatigue is that these consumers felt helpless to change their news consumption at a time when they have more control and choice than ever before. When the news wore them down, participants in the study showed a tendency to passively receive versus actively seek news."

There has always been a large swath of the population that is not interested in news, of course, just as there has always been a portion that actively seeks it out. What's interesting about the current environment is that despite an enormous increase in available news and information, the American public is no better informed now than it has been during less information-rich times. "The basic pattern from the forties to today is that the amount of information that people have and their knowledge about politics is no worse or no better than it's been over that sixty-year period," explains Michael X. Delli Carpini, dean of the Annenberg School for Communication at the University of Pennsylvania. For example, a 2007 survey conducted by the Pew Research Center for the People & the Press found that 69 percent of Americans could correctly name the vice president, only a slight decrease from the 74 percent who could in 1989.

This phenomenon can be partially explained by our tendency to become passive in the face of too much information. It can also be attributed to the fact that the sheer number of specialized publications, the preponderance of television channels, the wide array of entertainment options, and the personalization and customization encouraged by digital technologies have made it far easier to avoid public-affairs content. "As choice goes up, people who are motivated to be politically informed take advantage of these choices, but people who are not move away from politics," explains Delli Carpini. "In the 1960s, if you wanted to watch television you were going to watch news. And today you can avoid news. So choice can be a mixed blessing."

Markus Prior writes in his book, *Post-Broadcast Democracy: How Media Choice Increases Inequality in Political Involvement and Polarizes Elections*, "Political information in the current media environment comes mostly to those who want it." In other words, in our supersaturated media environment, serendipitous exposure to political-affairs content is far less common than it used to be. Passive news consumers are less informed and less likely to become informed than ever before.

The tragedy of the news media in the information age is that in their struggle to find a financial foothold, they have neglected to look hard enough at the larger implications of the new information landscape—and more generally, of modern life. How do people process information? How has media saturation affected news consumption? What must the news media do in order to fulfill their critical role of informing the public, as well as survive? If they were to address these questions head on, many news outlets would discover that their actions thus far—to increase the volume and frequency of production, sometimes frantically and mindlessly—have only made things more difficult for the consumer.

While it is naïve to assume that news organizations will reduce their output—advertising dollars are involved, after all—they would be wise to be more mindful of the content they produce. The greatest hope for a healthy news media rests as much on their ability to filter and interpret information as it does on their ability to gather and disseminate it. If they make snippets and sound bites the priority, they will fail. Attention—our most precious resource—is in increasingly short supply. To win the war for our attention, news organizations must make themselves indispensable by producing journalism that helps make sense of the flood of information that inundates us all.

The Limits of Human Attention Ours is a culture of multitasking, of cramming as many activities as possible into as short a period of time as possible. We drive and talk on our cell phones, check e-mail during meetings and presentations, eat dinner while watching TV. In part, says Maggie Jackson, author of *Distracted: The Erosion of Attention and the Coming Dark Age*, such multitasking "is part of a wider value system that venerates speed, frenetic activity, hyper-mobility, etcetera, as the paths to success. That's why we're willing to drive like drunks or work in frenzied ways, although it literally might kill us."

Many young people multitask to the extreme, particularly when it comes to media consumption. I've witnessed my twenty-two-year-old brother watch television while talking on the phone, IMing with several friends, composing an e-mail, and updating his Facebook page. A widely cited 2006 study by the Henry J. Kaiser Family Foundation found that 81 percent of young people engage in some form of media multi-tasking during a given week. But as cognitive psychologists have long known, human attention is

quite limited. Despite our best efforts, when we try to do more than one thing at once, we are less efficient and more prone to error. This is because multitasking is actually a process of dividing attention, of toggling back and forth between tasks.

Acquiring new information requires particularly focused attention, which includes the ability to ignore distractions. In order to absorb the information contained in a CNN newscast, for example, we must not only direct our attention to the person talking, but also filter out the running headlines, news updates, and financial ticker on the lower part of the screen. Torkel Klingberg, a professor of cognitive neuroscience at Karolinska Institute in Sweden and author of *The Overflowing Brain*, puts it simply: "If we do not focus our attention on something, we will not remember it." In other words, attention is a critical component of learning.

Michael Posner, a researcher who has dedicated his career to studying attention and a professor emeritus of psychology at the University of Oregon, explains attention as a system of three networks—alerting, orienting, and executive. Alerting refers to the state of wakefulness necessary to attend to information, while orienting is the process by which we respond to stimuli, such as movement, sound, or noise. Executive attention is the highest-order network, the one that we have conscious control over. If we are trying to study for a test or read a novel, we use it to direct and maintain our focus, as well as to suppress our reaction to competing stimuli like the din of a nearby conversation or television.

The information-saturated environment that we live in is, unsurprisingly, extremely demanding of our attention. Modern life—both at work and at home—has become so information-rich that Edward Hallowell, a Boston-area psychiatrist, believes many of us suffer from what he calls an attention-deficit trait, a culturally induced form of attention-deficit disorder. As he pointed out in a 2005 interview with CNET News, "We've been able to overload manual labor. But never before have we so routinely been able to overload brain labor." According to Hallowell and other psychiatrists, all these competing inputs prevent us from assimilating information. "What your brain is best equipped to do is to think, to analyze, to dissect, and create," he explains. "And if you're simply responding to bits of stimulation, you won't ever go deep." Journalist John Lorinc noted as much in an elegant article on distraction in the April 2007 issue of *The Walrus*:

> It often seems as though the sheer glut of data itself has supplanted the kind of focused, reflective attention that might make this information useful in the first place. The dysfunction of our information environment is an outgrowth of its extraordinary fecundity. Digital communications technology has demonstrated a striking capacity to subdivide our attention into smaller and smaller increments; increasingly, it seems as if the day's work has become a matter of interrupting the interruptions.

In a recent report, *Information Overload: We Have Met the Enemy and He Is Us*, the research firm Basex concluded that interruptions take up nearly 30 percent of a knowledge worker's day and end up costing American businesses $650 billion annually. Other studies show that interruptions cause significant impairments in performance on IQ tests.

In many ways, the modern age—and the Internet, in particular—is a veritable minefield of distractions. This poses a central challenge to news organizations whose mandate is to inform the public. Research by Pablo Boczkowski, who teaches communication studies at Northwestern University, has revealed that when we consume news online we do so for significantly less time than in print and that we do it while we're working. Further complicating matters is the disruptive nature of online advertising. Intrusive Web advertisements—washingtonpost.com recently featured one in which a Boeing helicopter flies right across the text of a news story—exploit our orienting network, which evolved to respond quickly to novel stimuli. Could we train ourselves to suppress our tendency to be distracted by such advertising? "You can get somewhat better, but it's hard to resist because it'll produce orienting," Posner explains. "The way you resist it is you bring your attention back as quickly as you can." Yet even if we were somehow able to eliminate ads, the sheer number of articles, headlines, and video and audio feeds on news Web sites makes focused attention difficult. Having to decide where to direct our attention and then maintain it makes reading and retaining news online a formidable task.**The Attention Economy**One of the most

useful frameworks for understanding journalism's challenges and behavior in the information age is the notion of the attention economy. Economics is the study of the allocation of resources and the basic principles of supply and demand, after all, and about a decade ago a handful of economists and scholars came up with the concept of the attention economy as a way of wrestling with the problem of having too much information—an oversupply, if you will—and not enough time or people to absorb it all.

The dynamics of the attention economy have created a complicated and hypercompetitive arena for news production and consumption. News media must not only compete with one another, as well as with an ever-increasing assortment of information and entertainment options, but also with the very thing that supports their endeavors—advertising. In fact, the advertising industry has been struggling with the dynamics of the attention economy for a couple of decades now. As the advertising landscape becomes more saturated, advertisers must work harder to get their messages to the consumer. But as Mark Crispin Miller, professor of media ecology at New York University, notes in the *Frontline* documentary *The Persuaders*:

> Every effort to break through the clutter is just more clutter. Ultimately, if you don't have clean, plain borders and backdrops for your ads, if you don't have that blank space, that commons, that virgin territory, you have a very hard time making yourself heard. The most obvious metaphor is a room full of people, all screaming to be heard. What this really means, finally, is that advertising is asphyxiating itself.

The news media also run the risk of self-asphyxiation in an information landscape crowded with headlines, updates, and news feeds. In order to garner audience attention and maintain financial viability, media outlets are increasingly concerned with the "stickiness" of their content. According to Douglas Rushkoff, host of *The Persuaders* and author of the forthcoming book *Life Incorporated*, the question for these organizations has become, "How do we stick the eyeballs onto our content and ultimately deliver the eyeballs to our sponsors?" As he dryly points out, "That's a very different mandate than how do we make information—real information—available to people. The information economy, then, is a competitive space. So as more people who are information providers think of themselves as competing for eyeballs rather than competing for a good story, then journalism's backwards." The rise of sound bites, headlines, snippets, infotainment, and celebrity gossip are all outgrowths of this attempt to grab audience attention—and advertising money. Visit a cable-news Web site most any day for an example along the lines of police: Woman in Cow Suit Chased Kids (CNN); or Man Beats Teen Girl Waiting in McDonald's Line (Fox News). As Northwestern's Boczkowski points out, "Unlike when most of the media were organized in monopolistic or oligopolistic markets, now they are far more competitive; the cost of ignoring customer preferences is much higher."

Meanwhile, the massive increase in information production and the negligible cost of distributing and storing information online have caused it to lose value. Eli Noam, director of the Columbia Institute for Tele-Information, explains that this price deflation is only partly offset by an increase in demand in the digital age, since the time we have to consume information is finite. "On the whole—on the per-minute, per-line, per-word basis—information has continuously declined in price," says Noam. "The deflation makes it very difficult for many companies to stay in business for a long time."

Thus, we come to the heart of journalism's challenge in an attention economy: in order to preserve their vital public-service function—not to mention survive—news organizations need to reevaluate their role in the information landscape and reinvent themselves to better serve their consumers. They need to raise the value of the information they present, rather than diminish it. As it stands now, they often do the opposite.

More-Faster-Better "Living and working in the midst of information resources like the Internet and the World Wide Web can resemble watching a firefighter attempt to extinguish a fire with napalm," write Paul Duguid and John Seely Brown, information scientists, in *The Social Life of Information*. "If your Web page is hard to understand, link to another. If a 'help' system gets overburdened, add a 'help on using help.' If your answer isn't here, then click on through another 1,000 pages. Problems with information? Add more."

Like many businesses in the information age, news outlets have been steadily increasing the volume and speed of their output. As the proliferation of information sources on the Web continues at a breakneck pace, news media compete for attention by adding content and features—blogs, live chat sessions with journalists, video and audio streams, and slideshows. Much of this is of excellent quality. But taken together, these features present a quandary: Do we persevere or retreat in the face of too much information? And as the AP study showed, even young news consumers get fatigued.

In psychology, passivity resulting from a lack of control is referred to as "learned helplessness." Though logic would suggest that an increase in available news would give consumers more control, this is not actually the case. As Barry Schwartz, the Dorwin Cartwright Professor of Social Theory and Social Action at Swarthmore College, argues in his book *The Paradox of Choice: Why More is Less*, too many choices can be burdensome. "Instead of feeling in control, we feel unable to cope," he writes. "Freedom of choice eventually becomes a tyranny of choice."

A recent study by Northwestern University's Media Management Center supports this phenomenon. It found that despite their interest in the 2008 election, young adults avoid political news online "because they feel too much information is coming at them all at once and too many different things are competing for their attention." The study participants said they wanted news organizations to display *less* content in order to highlight the essential information. "Young people want the site design to signal to them what's really important . . . instead of being confronted by a bewildering array of choices," write the researchers in their final report, *From "Too Much" to "Just Right": Engaging Millennials in Election News on the Web*.

The instinct that more is better is deeply ingrained in the modern psyche. David Levy, a professor at The Information School of the University of Washington, uses the phrase "more-better-faster" to describe the acceleration of society that began with the Industrial Revolution. According to Levy, we tend to define productivity in terms of speed and volume rather than quality of thought and ideas. "We are all now expected to complete more tasks in a smaller amount of time," writes Levy in a 2007 journal article. "And while the new technologies do make it remarkably efficient and easy to search for information and to collect masses of potentially relevant sources on a huge variety of topics, they can't, in and of themselves, clear the space and time needed to absorb and to reflect on what has been collected." In the case of news production, Swarthmore's Schwartz agrees. "The rhythm of the news cycle has changed so dramatically that what's really been excluded," he says, "is the time that it takes to think."

Implications for Democracy Our access to digital information, as well as our ability to instantly publish, share, and improve upon it at negligible cost, hold extraordinary promise for realizing the democratic ideals of journalism. Yet as we've seen, many news consumers are unable or unwilling to navigate what Michael Delli Carpini refers to as the "chaotic and gateless information environment that we live in today."

When people had fewer information and entertainment options, journalistic outlets were able to produce public-affairs content without having to worry excessively about audience share. As the Internet and the 24/7 news cycle splinter readership and attention spans, this is no longer the case. "Real journalism is a kind of physician-patient relationship where you don't pander to readers," says Bob Garfield, a columnist for *Advertising Age* and co-host of NPR's *On the Media*. "You give them some of what they want and some of what you as the doctor-journalist think they ought to have." Unfortunately, many news outlets feel they can no longer afford to strike the right balance.

As information proliferates, meanwhile, people inevitably become more specialized both in their careers and their interests. This nichification—the basis for *Wired* editor Chris Anderson's breakthrough concept of the Long Tail—means that shared public knowledge is receding, as is the likelihood that we come in contact with beliefs that contradict our own. Personalized home pages, newsfeeds, and e-mail alerts, as well as special-interest publications lead us to create what sociologist Todd Gitlin disparagingly referred to as "my news, my world." Serendipitous news—accidentally encountered information—is far less frequent in a world of TiVo and online customization tools.

Viewed in this light, the role of the journalist is more important than ever. "As society becomes splintered," writes journalist and author David Shenk in *Data Smog*, "it is journalists who provide the vital social glue to keep us at least partly intact as a common unit." Journalists work to deliver the big picture at a time when the overload of information makes it hard to piece it together ourselves. "The journalist's job isn't to pay attention simply to one particular field," explains Paul Duguid. "The job is to say, 'Well, what are all the different fields that bear on this particular story?' They give us the breadth that none of us can have because we're all specialists in our own particular area." In other words, the best journalism does not merely report and deliver information, it places it in its full and proper context.

Journalism's New Role The primacy placed on speed and volume in the information age has led to an uneven news landscape. "There is an over-allocation of resources on breaking and developing news production and constant updates," observes Boczkowski. "I think many news organizations are overdoing it." While headlines and updates are undoubtedly important, their accumulation is problematic. "Increasingly, as the abundance of information overwhelms us all, we need not simply more information, but people to assimilate, understand, and make sense of it," write Duguid and Seely Brown.

The question, then, is how?

As David Shenk presciently noted more than a decade ago, "In a world with vastly more information than we can process, journalists are the most important processors we have." The researchers who conducted the study for the AP concluded that the news fatigue they observed among young adults resulted from "an overload of basic staples in the news diet—the facts and updates that tend to dominate the digital news environment." In other words, the news they were encountering was underprocessed.

In order to address the problem, the AP has made a number of changes in the way it approaches news production. For starters, it instituted a procedure it calls 1-2-3 filing, which attempts to reduce news clutter and repetition (the days of endless write-throughs are over) while also acknowledging the unpackaged and real-time nature of news in the digital world. With 1-2-3 filing, reporters produce news content in three discrete parts, which they file separately: a headline, a short present-tense story, and, when appropriate, a longer in-depth account. By breaking down the news in this way, the AP hopes to eliminate the redundancy and confusion caused by filing a full-length article for every new story development. In 1-2-3 filing, each component replaces the previous component: the headline is replaced by the present-tense story, which is then replaced by the in-depth account.

The AP has also launched a series of initiatives aimed at providing consumers with deeper, more analytical content. It has created a Top Stories Desk at its New York headquarters to identify and "consider the big-picture significance" of the most important stories of the day. It has also begun developing interactive Web graphics to help explain complicated and ongoing stories like Hurricane Katrina and the Minnesota bridge collapse. And for 2008, the AP launched "Measure of a Nation," a multimedia series dedicated to examining the election "through the prism of American culture, rather than simply the candidates and the horse race." "Measure of a Nation" packages take a historical approach to covering such notions as myth, elitism, and celebrity in American presidential politics. In one article published in late August, for example, journalist Ted Anthony explains the powerful political influence of the Kennedy family over the past fifty years, drawing parallels between the campaigns of JFK and RFK and that of Barack Obama. As the AP writes in its report, these changes in approach represent "a concerted effort to think about the news from an end-user's perspective, re-emphasizing a dimension to news gathering and editing that can get lost in the relentless rush of the daily news cycle."

Much like educational institutions, the best news organizations help people convert information into the knowledge they need to understand the world. As Richard Lanham explains in *The Economics of Attention*, "Universities have never been simply data-mining and storage operations. They have always taken as their central activity the conversion of data into useful knowledge and into wisdom. They do this by creating attention structures that we call curricula, courses of study." Institutions of journalism do it by crafting thoughtful and illuminating stories. "Journalists who limit their role to news flashes are absolving themselves of any overarching obligation to the audience," writes Shenk in *The End of Patience*. "Mere

telling focuses on the mechanics of transmitting information of the moment, while education assumes a responsibility for making sure that knowledge sticks." The most valuable journalism is the kind that *explains*. "The first and foremost role that a journalist plays is to provide the information in a context that we wouldn't be able to get as amateurs," says Delli Carpini. "And I think that's where journalism should be focusing."

As it turns out, explanatory journalism may have a promising future in the market for news. On May 9, in partnership with NPR News, *This American Life* dedicated its hour-long program to explaining the housing crisis. "The Giant Pool of Money" quickly became the most popular episode in the show's thirteen-year history. CJR praised the piece (in "Boiler Room," the essay by Dean Starkman in our September/October issue) as "the most comprehensive and insightful look at the system that produced the credit crisis." And on his blog, *PressThink*, Jay Rosen, a journalism professor at New York University, wrote that the program was "probably the best work of explanatory journalism I have ever heard." Rosen went on to note that by helping people understand an issue, explanatory journalism actually creates a market for news. It gives people a reason to tune in. "There are some stories—and the mortgage crisis is a great example—where until I grasp the whole, I am unable to make sense of any part," he writes. "Not only am I not a customer for news reports prior to that moment, but the very frequency of the updates alienates me from the providers of those updates because the news stream is adding daily to my feeling of being ill-informed, overwhelmed, out of the loop."

Rather than simply contributing to the noise of the unending torrent of headlines, sound bites, and snippets, NPR and *This American Life* took the time to step back, report the issue in depth, and then explain it in a way that illuminated one of the biggest and most complicated stories of the year. As a result of the program's success, NPR News formed a multimedia team in late August to explain the global economy through a blog and podcast, both of which are called "Planet Money." And on October 3, *This American Life* and NPR aired a valuable follow-up episode, "Another Frightening Show About the Economy," which examined the deepening credit crisis, including how it might have been prevented and Washington's attempts at a bailout.

Along with supplying depth and context, another function of the modern news organization is to act as an information filter. No news outlet better embodies this aim than *The Week*, a magazine dedicated to determining the top news stories of the week and then synthesizing them. As the traditional newsweeklies are struggling to remain relevant and financially viable, *The Week* has experienced steady circulation growth over the past several years. "The purpose of *The Week* is not to tell people the news but to make sense of the news for people," explains editor William Falk. "Ironically, in this intensive information age, it's in some ways harder than ever to know what's important and what's not. And so I often say to people, 'With *The Week*, you're hiring this group of really smart, well-versed people that read for you fifty hours a week and then sit down and basically give you a report on what they learned that week.' "

Rather than merely excerpting and reprinting content, this slim magazine takes facts, text, and opinions from a variety of sources—approximately a hundred per issue—to create its own articles, columns, reviews, and obituaries. As Falk explains, there's a certain "alchemy" that occurs when you synthesize multiple accounts of a news story. And *The Week*'s success suggests that consumers are willing to pay for this. "We're a service magazine as much as we are a journalism magazine," says Falk. "People work ten, eleven hours a day. They're very busy. There are tremendous demands on their time. There are other things competing for your leisure time—you can go online, you can watch television or a dvd. So what we do is deliver to you, in a one-hour package or less, is a smart distillation of what happened last week that you need to pay attention to."

One ally in journalism's struggle to deal with information overload, meanwhile, may be the digital machinery that brought it about in the first place. While digital archiving and data tagging cannot replace human interpretation and editorial judgment, they have an important role to play in helping us navigate the informational sea. As any news consumer knows, searching for or following a story can be frustrating on the Internet, where information is both pervasive and transient. In its study, the AP observed that young consumers struggled to find relevant in-depth news. So the wire service stepped up an effort begun

in 2005 to tag all its articles, images, and videos according to a classification system of major news topics and important people, places, and things. These tags allow consumers, as well as news organizations and aggregators, to more effectively find and link to AP content. A number of other organizations, including *The New York Times* (check out the Times Topics tab on nytimes.com), *The Washington Post*, and CNN have similar projects under way, promising an opportunity to rapidly—and often automatically—provide consumers with a high level of detail, context, and graphical means of explanation. The Web site for BBC News may be the best example of how journalistic organizations can deliver context in the digital environment. A news story about the Russia-Georgia crisis, for example, is displayed alongside a list of links to a map of the region, a country profile, an explanation of the crisis, a summary of Russian foreign policy, and related news articles and video footage. All online BBC News stories are presented in this manner, giving consumers multiple ways to learn about and understand an issue. While no American site is this comprehensive, a handful of major news outlets, from CNN to NPR to the *National Journal*, have used this approach in creating special election 2008 Web pages. By linking stories to one another and to background information and analysis, news organizations help news consumers find their way through a flood of information that without such mediation could be overwhelming and nearly meaningless.

Why Journalism Won't Disappear While it's true that the Web allows the average individual to create and disseminate information without the help of a publishing house or a news organization, this does not mean journalism institutions are no longer relevant. "Oddly enough, information is one of the things that in the end needs brands almost more than anything else," explains Paul Duguid. "It needs a recommendation, a seal of approval, something that says this is reliable or true or whatever. And so journalists, but also the institutions of journalism as one aspect of this, become very important." Moreover, the flood of news created by the production bias of the Internet could, in the end, point to a new role for journalistic institutions. "We're expecting people who are not librarians, who are not knowledge engineers to do the work of knowledge engineers and librarians," says Jonathan Spira, CEO and chief analyst for the business research firm Basex and an expert in information overload. In other words, most of us lack the skills—not to mention the time, attention, and motivation—to make sense of an unrelenting torrent of information. This is where journalists and news organizations come in. The fact that there is more information than there are people or time to consume it—the classic economy-of-attention problem—represents a financial opportunity for news organizations. "I think that the consumers, being subjects to this flood, need help, and they know it," says Eli Noam. "And so therefore they want to have publications that will be selecting along the lines of quality and credibility in order to make their lives easier. For that, people will be willing to pay." A challenge could become an opportunity.

In fact, journalism that makes sense of the news may even increase news consumption. As Jay Rosen points out on his blog, explanatory journalism creates a "scaffold of understanding in the users that future reports can attach to, thus driving demand for the updates that today are more easily delivered." In a similar fashion—by providing links to background information and analysis alongside every news story—the BBC gives consumers frameworks for understanding that generate an appetite for more information. The future of news depends on the willingness of journalistic organizations to adjust to the new ecology and new economy of information in the digital age. "I think in some ways, we need a better metaphor," says Delli Carpini. "The gatekeeping metaphor worked pretty well in the twentieth century, but maybe what news organizations should be now is not gatekeepers so much as guides. You don't want gatekeepers that can say you can get this and you can't get that. You want people who can guide you through all this stuff."

Ironically, if out of desperation for advertising dollars, news organizations continue to chase eyeballs with snippets and sound bites, they will ultimately lose the war for consumer attention. Readers and viewers will go elsewhere, and so will advertisers. But if news organizations decide to rethink their role and give consumers the context and coherence they want and need in an age of overload, they may just achieve the financial stability they've been scrambling for, even as they recapture their public-service mission before it slips away.

http://www.cjr.org/feature/overload_1.php

Philosophers at work, and hoping for it

By Carlin Romano

Inquirer Book Critic

At precisely 10 p.m. Saturday at the American Philosophical Association's sprawling conference in the Philadelphia Marriott - the annual mass gathering of those who practice the world's oldest non-conclusive profession - a philosophical point was made.

> Evondra Acevedo, the academic group's employment coordinator, had announced that the "Candidates' Room," where graduate students and others apply for teaching jobs, was closed for the night.

> She'd been going since 3 p.m. A sign announced that the room would close at 10 p.m. She asked the 11 candidates still seeking service to come back in the morning.

> One young woman complained that she and her friend had been waiting for 30 minutes. A young man declared that he faced a 9 a.m. interview and needed service *now*.

> Acevedo politely listened, but stood her ground. She informed them, "Sorry, but I can't help you."

> That unguarded remark provoked a graduate student standing in front of her to near apoplexy.

> "That is JUST NOT TRUE," he exclaimed, eyes rolling before his peers as if sharing a logical discovery that had escaped previous generations. "That is SIMPLY NOT TRUE," he repeated, as if expecting her to take up the argument for the con position.

> If cooler heads had not prevailed, he might still be there, explaining to her the finer points of modal verbs (e.g., *must, can*).

> It was yet another sign during the last four days - along with the long beards reminiscent of 19th-century lithographs, the scraggly-haired women with wire-rim glasses, the elbow-patched 1950s sports jackets - that days before the Mummers, another colorful species had hit town.

> Though many still associate philosophy with ancient Greeks strolling through agoras, philosophy's modern setting, aside from the classroom, is the carpeted, partitioned meeting room of a big-city convention hotel.

> Unlike almost all other academic groups, the American Philosophical Association, headquartered at the University of Delaware in Newark, holds three meetings a year, one each for its Eastern, Central and Pacific Divisions.

> At the conferences, philosophy professors give papers and seek book contracts, graduate students seek jobs, and philosophy publishers seek the microset of Americans who buy their books.

> The Eastern Division meeting is by far the largest, taking place every December between Christmas and New Year's in a major eastern city. Known in the profession simply as "APA," it draws about 2,500 attendees each year - 2,200 in this recession year - and serves as the profession's chief hiring fair.

> On Sunday night, Jeremy Morris, 31, currently in a one-year visiting position at Ohio University,

scrutinized the Candidates' Room bulletin board for last-minute notices.

> Equipped with a doctorate from the University of Miami and a specialization in philosophy of language, Morris said he was encountering the same problem facing job seekers in other academic fields this year: freezing of advertised job searches and positions by universities and colleges cutting costs.

> "I've had one interview this year," he said, "whereas I had a number last year. I've had letters saying searches have been canceled."

> The scuttlebutt among APA's roughly 550 job-seekers was that more than 10 percent of 300-plus advertised positions may have been canceled. Morris, in his second year in the philosophy job market and handsomely outfitted in suit and ponytail, remained upbeat, even playful.

> "I'm single, good-looking, athletic, 6-4, my phone number is. . . ." he joked into a reporter's tape recorder.

> Asked where he'd be willing to go to teach philosophy, he replied, "Anywhere on the planet. Anywhere at all. Whether or not I get paid.

> "To tell you the truth," he quickly added, "the only thing that could push me out of philosophy is the student loans I've accrued."

> Passion for their subject marks people in philosophy more than it does those in disciplines with more obvious employment options. And that feeling appears as healthy as ever.

> In recent years, the APA has helped by displaying greater openness to diverse philosophical traditions. This year's program offered sessions sponsored by the Association of Chinese Philosophers in America, Concerned Philosophers for Peace, the Ayn Rand Society, and many more. The smorgasbord drew even distant non-job seekers to APA.

> Joshua Weinstein, 41, a native Philadelphian whose serves as director of studies at Jerusalem's Shalem Center - an Israeli think tank currently launching a new liberal arts institution, Shalem College - decided to make his first visit to APA.

> A Princeton grad with a doctorate in classical political philosophy from Hebrew University, Weinstein thinks "philosophy is becoming much more exciting as long-established presumptions are falling away. . . . There are just a lot of things going on that I did not expect would be going on, and, I suspect, were not going 10 years ago."

> To be sure, the panel on "Philosophical Perspectives on Female Sexuality" was not your grandpa's APA. Indiana University's Elizabeth Lloyd, in her paper on "Analyzing Bias in Evolutionary Explanations of Female Orgasm," crisply outlined how male assumptions ludicrously distort "Darwinian" explanations of this explosive adaptation.

> And the University of South Florida's Rebecca Kukla - a professor of obstetrics and gynecology as well as philosophy - offered a brilliant analytic comparison, in her "Depression, Infertility and Erectile Dysfunction: The Invisibility of Female Sexuality in Medicine," of male-directed ads for Viagra and ads aimed at female sexual dysfunction, demonstrating the ongoing belief that female sexuality, unlike male, cannot be located in a specific body part.

> At the same time, as at all APAs, major philosophers jousted and expounded. Following a memorial session for Richard Rorty, an American philosopher who broke free of the field into wider public recognition, Princeton's Cornel West, the noted African American thinker who has done the same, asked

how others might do so.

> One answer unlikely to satisfy West could be found at the book exhibits, where 40 publishers displayed wares.

> Dominating the stand of Open Court, a philosophy press, were volumes in its best-selling, much-imitated series "Popular Culture and Philosophy," whose constantly appearing new titles include *The Matrix and Philosophy* and *Buffy the Vampire Slayer and Philosophy* - all collections of essays by philosophy profs on the import of their pop-cultural subjects.

> "Our all-time best seller," confided David Ramsay Steele, the house's top editor, "is *The Simpsons and Philosophy* - more than 500,000 copies sold."

> Put that in your pipe, philosophy skeptics, and smoke it.

>

Contact book critic Carlin Romano at 215-854-5615 or cromano@phillynews.com.

Find this article at:
http://www.philly.com/inquirer/magazine/20081230_Philosophers_at_work__and_hoping_for_it.html?adString=inq.entertainment/magazine;!category=magazine;&randomOrd=010209071616

Still Paging Mr. Salinger

By CHARLES McGRATH

On Thursday, J. D. Salinger turns 90. There probably won't be a party, or if there is we'll never know. For more than 50 years Mr. Salinger has lived in seclusion in the small town of Cornish, N.H. For a while it used to be a journalistic sport for newspapers and magazines to send reporters up to Cornish in hopes of a sighting, or at least a quotation from a garrulous local, but Mr. Salinger hasn't been photographed in decades now and the neighbors have all clammed up. He's been so secretive he makes Thomas Pynchon seem like a gadabout.

Mr. Salinger's disappearing act has succeeded so well, in fact, that it may be hard for readers who aren't middle-aged to appreciate what a sensation he once caused. With its very first sentence, his novel "The Catcher in the Rye," which came out in 1951, introduced a brand-new voice in American writing, and it quickly became a cult book, a rite of passage for the brainy and disaffected. "Nine Stories," published two years later, made Mr. Salinger a darling of the critics as well, for the way it dismantled the traditional architecture of the short story and replaced it with one in which a story could turn on a tiny shift of mood or tone.

In the 1960s, though, when he was at the peak of his fame, Mr. Salinger went silent. "Franny and Zooey," a collection of two long stories about the fictional Glass family, came out in 1961; two more long stories about the Glasses, "Raise High the Roof Beam, Carpenters" and "Seymour: An Introduction," appeared together in book form in 1963. The last work of Mr. Salinger's to appear in print was "Hapworth 16, 1924," a short story that took up most of the June 19, 1965, issue of The New Yorker. In the '70s he stopped giving interviews, and in the late '80s he went all the way to the Supreme Court to block the British critic Ian Hamilton from quoting his letters in a biography.

So what has Mr. Salinger been doing for the last 40 years? The question obsesses Salingerologists, of whom there are still a great many, and there are all kinds of theories. He hasn't written a word. Or he writes all the time and, like Gogol at the end of his life, burns the manuscripts. Or he has volumes and volumes just waiting to be published posthumously.

Joyce Maynard, who lived with Mr. Salinger in the early '70s, wrote in a 1998 memoir that she had seen shelves of notebooks devoted to the Glass family and believed there were at least two new novels locked away in a safe.

"Hapworth," which has never been published in book form, may be our only clue to what Mr. Salinger is thinking, and it's unlike anything else he has written. The story used to be available only in samizdat — photocopies of photocopies passed along from hand to hand and becoming blurrier with each recopying — though it has become somewhat more accessible since the 2005 DVD edition of "The Complete New Yorker." In 1997 Mr. Salinger agreed to let Orchises Press, a small publisher in Alexandria, Va., bring out a hardcover edition, but five years later he backed out of the deal.

Ever since, Salinger fans have been poring over the text, looking for hidden meaning. Did the author's temporary willingness to reissue "Hapworth" indicate a throat-clearing, a warming up of the famously silent machinery? Or was it instead an act of closure, a final binding-up of the Glass family saga — one that, coming last but also at the chronological beginning, brings the whole enterprise full circle?

"Hapworth," to summarize the unsummarizable, is a letter — or rather a transcription of a letter — 25,000 words, written in haste, by the 7-year old Seymour Glass, away at summer camp, to his parents, the long-suffering ex-vaudevillians Les and Bessie, and his siblings Walt, Waker and Boo Boo, back in New York.

Seymour, we learn, is already reading several languages and lusting after Mrs. Happy, the young wife of the camp owner. He condescends to his campmates and dispenses advice to the various members of the family: Les should be careful about his accent when singing, Boo Boo needs to practice her handwriting, Walt his manners, and so on.

The letter concludes with an extraordinary annotated list of books Seymour would like sent to him — a lifetime of reading for most people, but in his case merely the books he needs to get through the next six weeks: "Any unbigoted or bigoted books on God or merely religion, as written by persons whose last names begin with any letter after H; to stay on the safe side, please include H itself, though I think I have mostly exhausted it. ... The complete works again of Count Leo Tolstoy. ... Charles Dickens, either in blessed entirety or in any touching shape or form. My God, I salute you, Charles Dickens!" And so on, all the way through Proust — in French, naturally — Goethe, and Porter Smith's "Chinese Materia Medica."

"Hapworth," in short, must be the longest, most pretentious (and least plausible) letter from camp ever written. But though it's the work of a prodigy, it's also, like all camp letters, a homesick cry for attention. Its author is the same Seymour who, while on his honeymoon in Florida years later (but — it gets confusing — 17 years earlier in real time, in the 1948 short story "A Perfect Day for Bananafish"), will take an automatic pistol from the bottom of his suitcase and shoot himself through the temple as his bride lies napping in the twin bed next to him. And the same Seymour — the family saint, poet and mystic — whom we've heard about at such length in the later Glass stories.

Or is he the same? The Seymour of "Bananafish," and "Raise High the Roof Beam," is more a sweetly charming neurotic than the ethereal, otherworldly figure described in "Seymour: An Introduction," who in turn seems not in the least like the superior, boastful little genius of "Hapworth." The discrepancies among the various versions of Seymour is such that some critics have questioned the motives and reliability of Buddy, Seymour's younger brother and the family scribe, who is our source for much of what we know (and also the transcriber of the "Hapworth" letter).

But that kind of tricky, Nabokovian reading feels forced in this case. Mr. Salinger seems less interested in keeping the details straight than in getting them right and offering some explanation, or justification perhaps, for that moment, still startling even after many rereadings, when Seymour blows his brains out. It's as if Mr. Salinger realized, belatedly, that he had prematurely killed his best character and wanted to make it up to him.

And at some point, it seems fair to say, he fell in love with this project — not just with Seymour but with the whole clan. Who can blame him? The Glasses are one of the liveliest, funniest, most fully realized families in all of fiction. The trouble is that like a lot of families, they occasionally take themselves too seriously and presume to lecture the rest of the world. In the early '60s, as a certain amount of sentimental and half-baked mysticism began to be spouted by some of the younger Glasses, the critics quickly turned on Mr. Salinger, and "Hapworth" was grumpily dismissed.

What makes "Hapworth" so fascinating, though, is that it's the only work of Mr. Salinger's in which the voice is not secure, as the young Seymour fidgets first with one tone and then with another — by turns earnest, anxious, playful and sarcastic. In effect he's always revising himself. He worries about his spirituality and then skewers his fellow campers. He wants to be like Jesus, and he wants to sleep with

Mrs. Happy. He yearns to be left alone, and is desperate to be noticed. He wants to be a saint, and even if he can't quite admit it yet, he wants to be a great author. Intentionally or not, he seems like a projection of his creator.

In general what has dated most in Mr. Salinger's writing is not the prose — much of the dialogue, in the stories especially and in the second half of "Franny and Zooey," still seems brilliant and fresh — but the ideas. Mr. Salinger's fixation on the difference between "phoniness," as Holden Caulfield would put it, and authenticity now has a twilight, '50s feeling about it. It's no longer news, and probably never was.

This is the theme, though, that comes increasingly to dominate the Glass chronicles: the unsolvable problem of ego and self-consciousness, of how to lead a spiritual life in a vulgar, material society. The very thing that makes the Glasses, and Seymour especially, so appealing to Mr. Salinger — that they're too sensitive and exceptional for this world — is also what came to make them irritating to so many readers.

Another way to pose the Glass problem is: How do you make art for an audience, or a critical establishment, too crass to understand it? This is the issue that caused Seymour to give up, presumably, and one is tempted to say it's what soured Mr. Salinger on wanting to see anything else in print.

Sadly, though, Mr. Salinger's spiritual side is his least convincing. His gift is less for profundity than for observation, for listening and for comedy. Except perhaps for Mark Twain, no other American writer has registered with such precision the humor — and the pathos — of false sophistication and the vital banality of big-city pretension.

For all his reclusiveness, moreover, Mr. Salinger has none of the sage's self-effacement; his manner is a big and showy one, given to tours-de-force and to large emotional gestures. In spite of his best efforts to silence himself or become a seer, he remains an original and influential stylist — the kind of writer the mature Seymour (but not necessarily the precocious 7-year-old) would probably deplore.

http://www.nytimes.com/2008/12/31/books/31sali.html?_r=1&ref=arts

The Second Shift in Academic Medicine

Medical school enrollments — once largely male — have an even gender split these days. But the senior faculty ranks have failed to achieve gender balance, in part because female medical school professors are more likely than their male counterparts to leave academe.Research published in the new issue of *Academic Medicine* suggests that part of the problem may be unequal demands on female professors at home, combined with a lack of flexibility about the idea of part-time careers in academic medicine.The study is based on a survey of all 615 full-time faculty members at the University of Minnesota Medical School, 57 percent of whom responded. Women and men reported equal levels of productivity by various measures and also of hours worked on the job.But off the job, differences were notable. The full-time female professors (in a profession where full time rarely fits into 40 hour weeks) reported that they performed an average of 31 hours a week in family and household duties, while the men reported an average of 19 hours.The women were less likely than the men to be married or have children. But of the male and female professors who are married, the men were much more likely than women to have spouses who worked at jobs less than full time.

Family Characteristics of Minnesota Medical Faculty, by Gender

Characteristic	Women	Men
No partner or spouse	19%	5%
Partner/spouse employed full time	70%	36%
Partner/spouse employed part time	5%	26%
Partner/spouse not employed	7%	33%
No children	16%	9%

Given the demographics and division of household labor, it may not be surprising that more women than men (33 percent vs. 14 percent) were interested in creating a part-time tenure track. And while women on average took longer parental leaves than did men (8 weeks vs. 2 weeks), 60 percent of women thought the length of their leaves was not adequate for their families, compared to 50 percent for men.

On a series of work/family balance issues, women were more likely than men to cite policies or practices as obstacles to their career success or satisfaction.

Obstacles Cited by Men and Women on the Faculty

Policy/Practice Cited	Women	Men
Lack of part-time promotion track	22%	3%
Meetings after 5 p.m. or on weekends	38%	18%
Lack of on-site child care	23%	11%
Lack of emergency child care	30%	16%
Inadequate formal parental leave policy	19%	5%

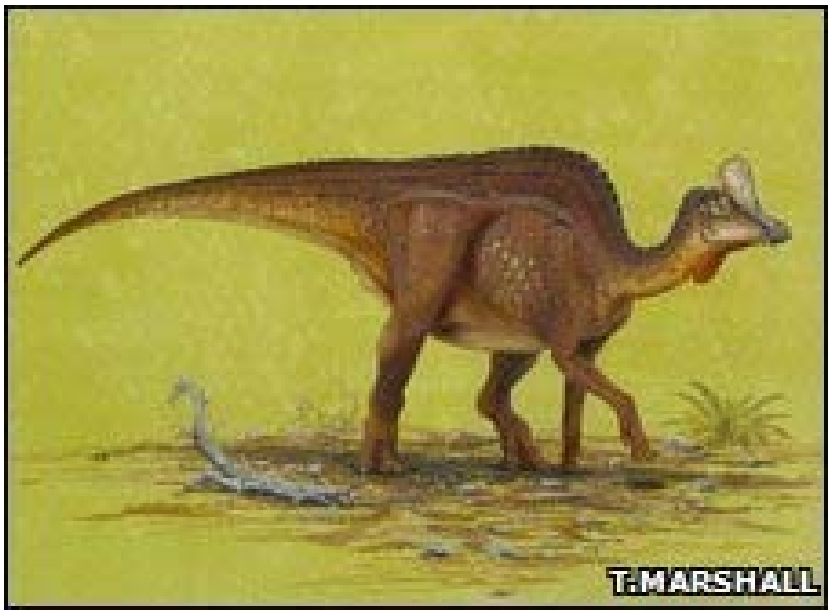
The same issue of *Academic Medicine* includes a commentary urging medical schools to find ways to create meaningful part-time opportunities for faculty members.

— Scott Jaschik

The original story and user comments can be viewed online at http://insidehighered.com/news/2009/01/02/medwomen.

China finds major dinosaur site

By Steve Jackson
BBC News



Scientists in China say they believe a group of dinosaur fossils discovered in the east of the country could be the largest collection ever found.

The researchers, from the Chinese Academy of Sciences, say they have unearthed 7600 dinosaur bones since March in Shandong province.

Most of the bones date back to the late Cretaceous period which is around the time when dinosaurs became extinct.

The scientists hope the find will help to explain why the creatures died out.

"Dinosaur City"

Zhucheng in Shandong province is known locally as "dinosaur city" and has been the scene of several important finds since the 1960s.

However, the researchers say a new fossil field discovered during mining explorations earlier this year appears to be even more important.

About 3000 dinosaur bones have been dug up from a single pit just a few hundred metres long and thousands of others have been unearthed at a number of sites nearby.

Professor Zhao Xijin, the palaeontologist in charge of the excavations, told Chinese state media: "This group of fossilised dinosaurs is currently the largest ever discovered in the world... in terms of area."

The full details of the findings have not yet been published. But they are reported to include tyrannosaurus and ankylosaurus bones, as well as what could be the largest duck-billed dinosaur ever excavated.

Extinction clues

Mr Zhao said the uncovering of so many remains in such a small area is significant.

"The discoveries are expected to contribute to research on the mystery of dinosaur extinction", he said.

Detailed information on the fossil find is not expected to be published in scientific journals until later in 2009.

However, a leading palaeontologist, Dr Paul Barrett, of London's Natural History Museum, told BBC News that the claim this find is the "world's largest" is likely to be credible.

Excavations are currently suspended for the winter but will resume when the weather gets warmer. The scientists say they're expecting to find even more dinosaur remains.

The local authorities in Shandong are making plans to set up a fossil park in the area.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/asia-pacific/7806062.stm

Published: 2008/12/31 17:44:07 GMT

'Bug' could combat dengue fever

Humans could be protected from dengue fever by infecting the mosquitoes carrying it with a parasite which halves their lifespan, say researchers.

Australian scientists, writing in the journal Science, found that Wolbachia bacteria spread well through laboratory-bred mosquitoes.

Only older mosquitoes pass on dengue - so killing them could cut disease.

Experts said it remained to be seen how well the bacteria would spread outside the laboratory.

The virus might also adapt to survive, they added.

Many thousands of cases of dengue fever occur worldwide each year, mainly in warmer tropical countries.

The virus is passed to humans when mosquitoes carrying it feed on their blood, and while there have been efforts to eradicate them using insecticides, these have been fraught with problems, including the ability of the mosquito to become resistant to the chemicals used.

The potential of Wolbachia as a way of controlling mosquito populations has been suggested for some time, but the latest study offers hope - albeit under laboratory conditions - that it might work.

The researchers from the University of Queensland in Brisbane picked a strain of Wolbachia known to halve the lifespan of its host.

The mosquito which carries the dengue virus is not naturally susceptible to the bacteria, so the researchers adapted it to create a successful infection.

The bacteria can be passed from infected female to offspring, and even though the cost in terms of lifespan should mean that infected insects should die out, Wolbachia has another trick up its sleeve.

It makes subtle changes to infected males which mean they can only produce offspring with infected females.

Older danger

As expected, the infection thrived in the laboratory population of mosquitoes, and halved their lifespan to just a few weeks.

This is potentially significant because, after a mosquito acquires the dengue virus by biting an infected animal or human, there is a period of incubation lasting from a week to three weeks before it can pass on the infection when biting.

This means that only mosquitoes older than this are likely to be dangerous to humans and even these are likely to die swiftly, reducing their ability to infect.

The researchers suggested that the parasite represented a potentially inexpensive way to tackle the problem, particularly in urban areas, where other methods of control were difficult.

Dr Andrew Read and Dr Matthew Thomas, specialists in infectious disease dynamics from the Pennsylvania State University in the US, said "substantial" reductions in disease transmission could occur, but there were still obstacles to success.

"Determining whether it can remove enough infectious mosquitoes will be a challenge," they wrote.

If the bacterial strain chosen was too virulent it would spread very slowly and large numbers of infected mosquitoes might need to be released, they said.

It was also possible that dengue virus strains would adapt to require a shorter incubation period, they said.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7804326.stm

Published: 2009/01/02 02:11:56 GMT

Evidence of 'risk-taking' brain

Scientists say they have found physical evidence of brain differences which may drive "thrill-seekers" to act impulsively or dangerously.

A small study from Vanderbilt University in the US found the biggest "risk-takers" processed a brain "reward" chemical dopamine differently.

Scans spotted fewer "receptors" for the chemical on the cells which make it.

The Journal of Neuroscience study could help explain why some are vulnerable to drug abuse and other addictions.

Animal experiments have already shown that, like humans, some respond differently to novel environments - and those who explore them are more likely to self-administer cocaine when given the chance.

This behaviour is believed to be bound up in the activity of dopamine, a brain hormone which, among other things, can produce a sense of enjoyment connected with certain activities.

Dopamine-producing cells have an inbuilt self-regulating system which is supposed to stop them making too much of the hormone.

"Autoreceptors" on the surface of these cells respond to rising levels by cutting down production.

Rats which show more impulsive behaviour also have fewer of these autoreceptors, and the Vanderbilt scientists set out to see if this was also true in humans.

Free-spenders

They used PET scans to look at the level of dopamine autoreceptors in 34 healthy humans, who had also been quizzed to find out their personality type.

Just as in the animals, a propensity towards thrill-seeking, spending money freely, and spontaneity, could be linked to lower levels of autoreceptors.

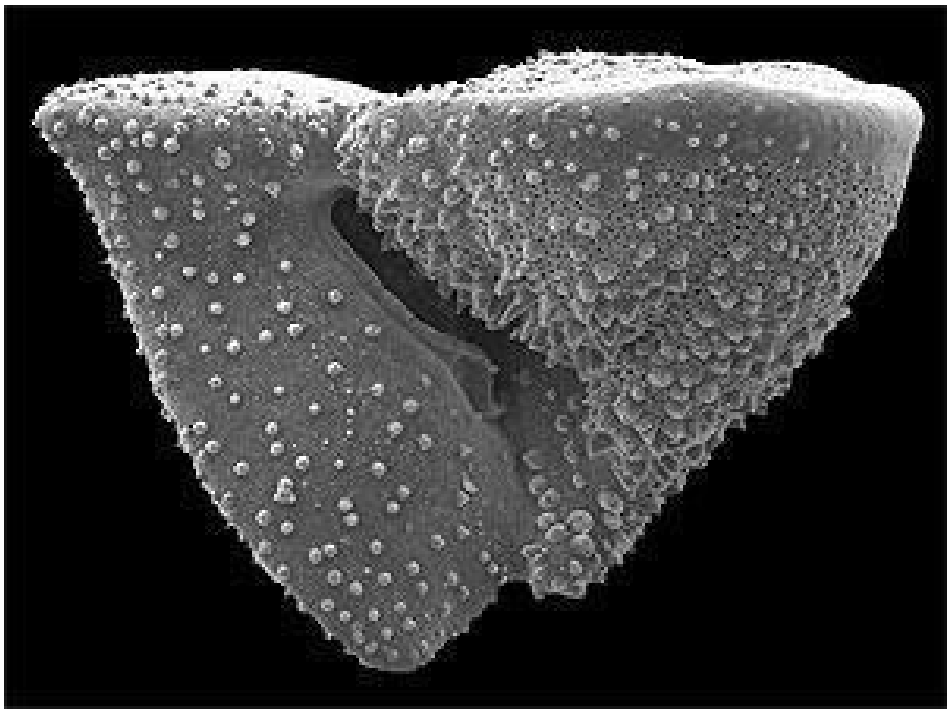
Dr David Zald, who led the study, said: "We've found that the density of these dopamine autoreceptors is inversely related to an individuals interest in and desire for novel experiences.

"Our research suggests that in high novelty-seeking individuals the brain is less able to regulate dopamine, and this may lead these individuals to be particularly responsive to novel and rewarding situations that normally induce dopamine release."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7802751.stm

Published: 2008/12/31 23:55:16 GMT

Longstanding Theory Of Origin Of Species In Oceans Challenged



New evidence uncovered by oceanographers challenges one of the most long-standing theories about how species evolve in the oceans. (Credit: Image courtesy of National Oceanography Centre/ University of Southampton)

ScienceDaily (Jan. 1, 2009) — New evidence uncovered by oceanographers challenges one of the most long-standing theories about how species evolve in the oceans.

Most scientists believe that allopatric speciation, where different species arise from an ancestral species only after breeding populations have become physically isolated from each other, is the dominant mode of speciation both on land and in the sea. The key to this theory is the existence of some kind of physical barrier that operates to restrict interbreeding (gene flow) between populations so that, given enough time, such populations diverge until they're considered separate species.

For example, finches that were blown by storms from South America to the Galapagos Islands (and were studied by Charles Darwin) were consequently isolated from their host populations and these isolated breeding colonies evolved separately from each other until they became separate species.

Research by Dr Philip Sexton formerly of the National Oceanography Centre, Southampton (now at the Scripps Institution of Oceanography, San Diego) and Dr Richard Norris (also of Scripps) suggests, however, that this mode of diversification may not be as prevalent for oceanic creatures as it is for land dwellers and somewhat controversially, they assert that the above model of speciation may actually be very rare in the world's oceans.

The oceans are not as uniform as one would think, but rather are made up of regional water masses that are distinct in their temperature and salinity. It has been theorized that the boundaries between these water masses act as barriers to the movement of plankton, which are organisms that cannot actively swim against currents, but instead drift with them. The existence of these supposed 'barriers' has resulted in the general assumption amongst scientists that allopatric speciation is the dominant mode of plankton diversification throughout the oceans. However, the new work published in the journal Geology suggests an altogether different picture.

Sexton and Norris examined the fossils of Truncorotalia truncatulinoides (a species of microscopic plankton and part of the group called 'foraminifera') buried in sediment layers beneath the seabed. By looking at different sediment layers from around the world containing these fossils, they were able to track the spread of this species from its ancestral home to its current distribution.

Previous work on this species had indicated that it first appeared about 2.8 million years ago in the Southwest Pacific and took until 2.0 million years ago to spread into other oceans. In line with the popular theory of allopatric speciation, previous thinking had been that the confinement of T. truncatulinoides to the Southwest Pacific for 800,000 years demonstrated that some kind of barrier (caused by the particular pattern of ocean currents) had restricted its range for that entire interval.

However, a detailed examination of sediment layers at two sites in the Atlantic revealed that T. truncatulinoides made a brief appearance in the Atlantic roughly 2.5 million years ago before disappearing again. Crucially, this appearance and subsequent disappearance exactly coincided with a major change in Earth's climate. Further scrutiny of the sediments revealed that the second Atlantic appearance of this plankton species at 2.0 million years ago was 'pulsed'; each pulse lasted 19,000 years, corresponding to cyclic 'oscillations' in Earth's solar orbit associated with the Ice Ages.

Sexton and Norris propose that it was the climate, and its role in determining the availability of favourable oceanic habitat, that restricted the distribution of T. truncatulinoides, rather than the presence of physical ocean barriers. In this new view, plankton are freely dispersed throughout the ocean but local conditions determine whether or not the species can 'take hold' and thrive. An analogy is that of coconuts, which sometimes wash up on the shore of Britain; cold temperatures prevent coconuts from germinating, but should the climate suddenly shift to a subtropical state, coconut trees might become a common sight lining Britain's shores.

This new idea that there are few, if any, barriers to the free dispersal of plankton throughout the world's oceans has been corroborated by genetic research showing that rates of gene flow throughout the oceans are remarkably high. Furthermore, distributions of a number of larger ocean-dwellers such as tuna and molluscs show that, despite having regions of favoured habitat, small numbers of them are regularly found outside of their 'core range'. These observations suggest that species' distributions are more controlled by habitat availability rather than by an inability to disperse.

Sexton and Norris' findings augment a growing body of evidence which support the idea that sympatric speciation, where different species arise from a parent species without the presence of physical barriers, is more common than previously thought. In this mode of speciation, the necessary isolation might instead be achieved through shifts in the timing or depth of reproduction. However, until more research offers a clearer picture of how speciation occurs in the oceans, Sexton and Norris' contention that sympatric and other similar processes are the "prevalent modes of marine speciation" will, no doubt, remain at odds with prevailing theories.

Sexton, Philip F. & Norris, Richard D. Dispersal and biogeography of marine plankton: long-distance dispersal of the foraminifer Truncorotalia truncatulinoides. Geology, 36 (11), 899-902 (2008).

Adapted from materials provided by National Oceanography Centre/ University of Southampton.

http://www.sciencedaily.com/releases/2008/12/081231175357.htm

Religion May Have Evolved Because Of Its Ability To Help People Exercise Self-control

Rural church. Religion may have evolved because of its ability to help people exercise self-control. (Credit: iStockphoto/Philip Dyer)

ScienceDaily (Jan. 1, 2009) — Self-control is critical for success in life, and a new study by University of Miami professor of Psychology Michael McCullough finds that religious people have more self-control than do their less religious counterparts.

These findings imply that religious people may be better at pursuing and achieving long-term goals that are important to them and their religious groups. This, in turn, might help explain why religious people tend to have lower rates of substance abuse, better school achievement, less delinquency, better health behaviors, less depression, and longer lives.

In this research project, McCullough evaluated 8 decades worth of research on religion, which has been conducted in diverse samples of people from around the world. He found persuasive evidence from a variety of domains within the social sciences, including neuroscience, economics, psychology, and sociology, that religious beliefs and religious behaviors are capable of encouraging people to exercise self-control and to more effectively regulate their emotions and behaviors, so that they can pursue valued goals. The research paper, which summarizes the results of their review of the existing science, will be published in the January 2009 issue of Psychological Bulletin.

"The importance of self-control and self-regulation for understanding human behavior are well known to social scientists, but the possibility that the links of religiosity to self-control might explain the links of religiosity to health and behavior has not received much explicit attention," said McCullough. "We hope our paper will correct this oversight in the scientific literature." Among the most interesting conclusions that the research team drew were the following:

- Religious rituals such as prayer and meditation affect the parts of the human brain that are most important for self-regulation and self-control;

- When people view their goals as "sacred," they put more energy and effort into pursuing those goals, and therefore, are probably more effective at attaining them;
- Religious lifestyles may contribute to self-control by providing people with clear standards for their behavior, by causing people to monitor their own behavior more closely, and by giving people the sense that God is watching their behavior;
- The fact that religious people tend to be higher in self-control helps explain why religious people are less likely to misuse drugs and alcohol and experience problems with crime and delinquency.

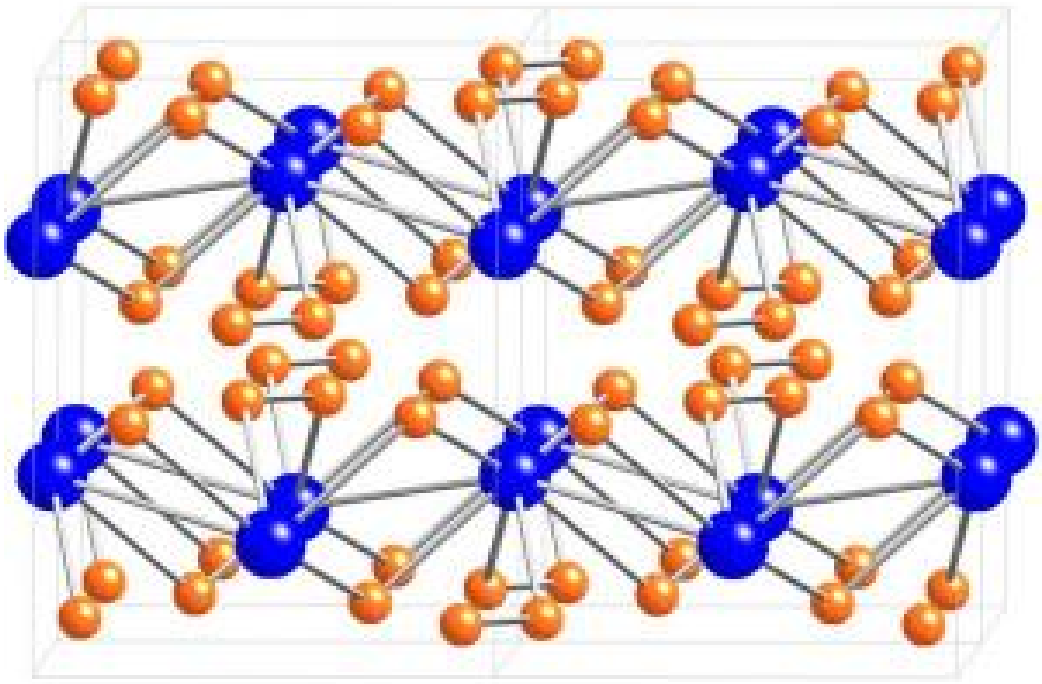
McCullough's review of the research on religion and self-control contributes to a better understanding of "how the same social force that motivates acts of charity and generosity can also motivate people to strap bomb belts around their waists and then blow themselves up in crowded city buses," he explained. "By thinking of religion as a social force that provides people with resources for controlling their impulses (including the impulse for self-preservation, in some cases) in the service of higher goals, religion can motivate people to do just about anything."

Among the study's more practical implications is that religious people may have at their disposal a set of unique psychological resources for adhering to their New Year's Resolutions in the year to come.

Adapted from materials provided by University of Miami.

http://www.sciencedaily.com/releases/2008/12/081231005355.htm

Crystallographers Use Computers To Find New Superconductor



The structure of germanium hydride under high pressure, according to the calculations. The germanium atoms are green and the hydrogen atoms orange. (Credit: zVg)

ScienceDaily (Jan. 1, 2009) — Calculations by researchers led by Artem Oganov at the Laboratory of Crystallography predict that germanium hydride will be superconducting at relatively high temperatures, but will be easier to process than the high-temperature superconductors known up to now.

196° Celsius below zero counts as a high temperature for people who work with superconductors, because this is the boiling point of nitrogen at 77 Kelvin, the units of measurement used by physicists. Thus a material can be cooled down to this temperature with liquid nitrogen, which is cheap and easy to manufacture. This is why materials that are superconducting at this temperature are attractive for technical applications. Such materials exist and are called “unconventional superconductors” – unconventional because the mechanism of their superconductivity is not understood.

The highest transition temperature found up to now – the temperature below which a material becomes superconducting – was for a cuprate, a copper compound, and lies at 166 K (-107°C). The problem is that cuprates have a similar consistency to graphite, which we know from pencil leads. Cuprates are difficult to work mechanically; for example, attempts to produce long wires from them have hitherto been unsuccessful. Cuprates are also difficult to manufacture and are often toxic.

Conventional superconductors have none of these problems, but those currently known do not become superconducting until far below the boiling point of nitrogen, somewhere between absolute zero and 39 Kelvin (–234°C).

13 degrees still missing

Scientists are now searching for a conventional superconductor whose transition temperature is above 77 Kelvin. A team of scientists led by Artem Oganov at the Laboratory of Crystallography of ETH Zurich

has moved a big step closer to this goal. As they reported recently in Physical Review Letters, computer calculations have shown that germanium hydride (GeH4) is a conventional superconductor with a transition temperature of 64 Kelvin. Thus they are now only 13 degrees short of the nitrogen limit.

It might be possible to bridge these 13 degrees by doping the material with tin or silicon. However, germanium hydride must also be under high pressure to become superconducting: about two megabars are needed, i.e. about a million times more than the pressure in the tyres of a motor car. Such pressure cannot be achieved industrially, although it can in laboratories. A laboratory in Germany already plans to expose germanium hydride to this pressure this month.

Artem Oganov has no doubt that the results of the laboratory experiment will agree with his calculations. His algorithms have already proved correct for other materials. For example, the calculations for SiH4 agreed with the measurements, whereas earlier calculations by other groups were wide off the mark. When Oganov first published his method three years ago, it caused great excitement throughout the world. Oganov says that, when he advertised for a post-doc position, one of the applicants was a professor, “one of China’s cleverest theoretical physicists.” Yanming Ma obtained the post and was involved in numerous discoveries during his two years in Oganov’s group at ETH Zurich. He has since returned to China. The current publication on germanium hydride was the result of collaboration between the groups led by Ma and Oganov. The first author is Ma’s doctoral student Guoying Gao.

On 1 December Oganov himself took up a professorship at the State University of New York where he will lead his own laboratory in which, among other things, he will continue the search for superconductors. One aim is to find all the possible stable structures composed of defined elements such as Ge and H – perhaps one of them will be an interesting superconductor.

Superconductivity

When a material becomes a perfect conductor below a certain temperature, this is called superconductivity, which means that an electric current can flow through it without any resistance. The phenomenon was discovered in 1911 by the Dutchman Kamerlingh Onnes. Nowadays, superconductors are used only in a few areas, for example in magnetic resonance tomography, in the magnets for the LHC particle accelerator at CERN and in a few magnetic levitation railways.

Journal reference:

1. Gao et al. **Superconducting High Pressure Phase of Germane**. *Physical Review Letters*, 2008; 101 (10): 107002 DOI: 10.1103/PhysRevLett.101.107002

Adapted from materials provided by ETH Zurich.

http://www.sciencedaily.com/releases/2008/12/081227215352.htm

Weakness In Internet Security Uncovered

ScienceDaily (Jan. 1, 2009) — Independent security researchers in California and researchers at the Centrum Wiskunde & Informatica (CWI) in the Netherlands, EPFL in Switzerland, and Eindhoven University of Technology (TU/e) in the Netherlands have found a weakness in the Internet digital certificate infrastructure that allows attackers to forge certificates that are fully trusted by all commonly used web browsers.As a result of this weakness it is possible to impersonate secure websites and email servers and to perform virtually undetectable phishing attacks, implying that visiting secure websites is not as safe as it should be and is believed to be. By presenting their results at the 25C3 security congress in Berlin on the 30th of December, the experts hope to increase the adoption of more secure cryptographic standards on the Internet and therewith increase the safety of the internet.

When you visit a website whose URL starts with "https", a small padlock symbol appears in the browser window. This indicates that the website is secured using a digital certificate issued by one of a few trusted Certification Authorities (CAs). To ensure that the digital certificate is legitimate, the browser verifies its signature using standard cryptographic algorithms. The team of researchers has discovered that one of these algorithms, known as MD5, can be misused.The first significant weakness in the MD5 algorithm was presented in 2004 at the annual cryptology conference "Crypto" by a team of Chinese researchers. They had managed to pull off a so-called "collision attack" and were able to create two different messages with the same digital signature. While this initial construction was severely limited, a much stronger collision construction was announced by the researchers from CWI, EPFL and TU/e in May 2007. Their method showed that it was possible to have almost complete freedom in the choice of both messages. The team of researchers has now discovered that it is possible to create a rogue certification authority (CA) that is trusted by all major web browsers by using an advanced implementation of the collision construction and a cluster of more than 200 commercially available game consoles.

The team of researchers has thus managed to demonstrate that a critical part of the Internet's infrastructure is not safe. A rogue CA, in combination with known weaknesses in the DNS (Domain Name System) protocol, can open the door for virtually undetectable phishing attacks. For example, without being aware of it, users could be redirected to malicious sites that appear exactly the same as the trusted banking or e-commerce websites they believe to be visiting. The web browser could then receive a forged certificate that will be erroneously trusted, and users' passwords and other private data can fall in the wrong hands. Besides secure websites and email servers, the weakness also affects other commonly used software.

"The major browsers and Internet players – such as Mozilla and Microsoft – have been contacted to inform them of our discovery and some have already taken action to better protect their users," reassures Arjen Lenstra, head of EPFL's Laboratory for Cryptologic Algorithms. "To prevent any damage from occurring, the certificate we created had a validity of only one month – August 2004 – which expired more than four years ago. The only objective of our research was to stimulate better Internet security with adequate protocols that provide the necessary security."

According to the researchers, their discovery shows that MD5 can no longer be considered a secure cryptographic algorithm for use in digital signatures and certificates. Currently MD5 is still used by certain certificate authorities to issue digital certificates for a large number of secure websites. "Theoretically it has been possible to create a rogue CA since the publication of our stronger collision attack in 2007," says cryptanalyst Marc Stevens (CWI). "It's imperative that browsers and CAs stop using MD5, and migrate to more robust alternatives such as SHA-2 and the upcoming SHA-3 standard," insists Lenstra.

Adapted from materials provided by Ecole Polytechnique Fédérale de Lausanne.

http://www.sciencedaily.com/releases/2008/12/081231005357.htm

Four Years After Tsunami, Coral Reefs Recovering

A succesful coral transplant site in Aceh, Indonesia, some four years after the tsunami. (Credit: Rizya Legawa)

ScienceDaily (Jan. 1, 2009) — A team of scientists from the New York-based Wildlife Conservation Society (WCS) has reported a rapid recovery of coral reefs in areas of Indonesia, following the tsunami that devastated coastal regions throughout the Indian Ocean on December 26, 2004.

The WCS team, working in conjunction with the Australian Research Council Centre of Excellence for Coral Reef Studies (ARCCoERS) along with government, community and non-government partners, has documented high densities of "baby corals" in areas that were severely impacted by the tsunami.

The team, which has surveyed the region's coral reefs since the December 26, 2004 tsunami, looked at 60 sites along 800 kilometers (497 miles) of coastline in Aceh, Indonesia. The researchers attribute the recovery to natural colonization by resilient coral species, along with the reduction of destructive fishing practices by local communities.

"On the 4th anniversary of the tsunami, this is a great story of ecosystem resilience and recovery," said Dr, Stuart Campbell, coordinator of the Wildlife Conservation Society's Indonesia Marine Program. "Our scientific monitoring is showing rapid growth of young corals in areas where the tsunami caused damage, and also the return of new generations of corals in areas previously damaged by destructive fishing. These findings provide new insights into coral recovery processes that can help us manage coral reefs in the face of climate change."

While initial surveys immediately following the tsunami showed patchy (albeit devastating) damage to coral reefs in the region, surveys in 2005 indicated that many of the dead reefs in the study area had actually succumbed long ago to destructive fishing practices such as the use of dynamite and cyanide to

catch fish. It is also possible that the crown of thorns starfish—a marine predator—had caused widespread coral mortality.

Since then, some communities have moved away from destructive fishing and have even begun transplanting corals to recover damaged areas.

For example, Dodent Mahyiddin, a dive operator on Weh Island, leads an effort to transplant corals onto hand-laid underwater structures to restore a badly damaged reef in front of the remains of his dive shop, which was also destroyed by the tsunami. Already he is seeing widespread colonization of young corals.

On a larger scale, the WCS team is working to establish community-based coral reef protected areas based on customary marine laws that were first established in the 1600's and maintained throughout Dutch colonial rule. The laws empower local communities to manage their own local marine resources rather than adhere to nationalized protected areas.

Healthy coral reefs are economic engines for Acehnese communities, according to WCS, supplying commercially valuable food fish as well as tourism dollars from recreational diving.

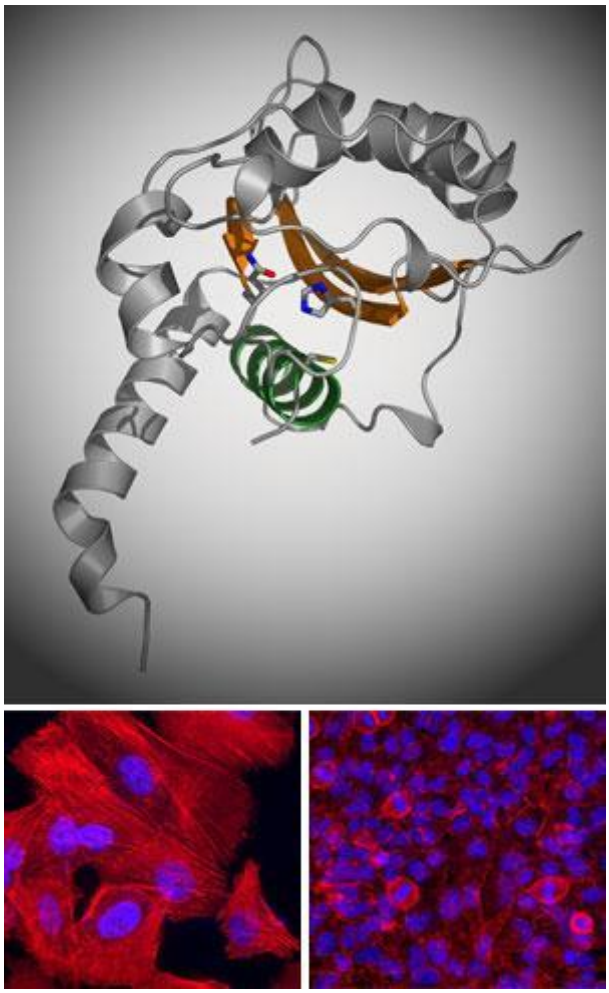
"The recovery, which is in part due to improved management and the direct assistance of local people, gives enormous hope that coral reefs in this remote region can return to their previous condition and provide local communities with the resources they need to prosper," said Dr. Campbell. "The recovery process will be enhanced by management that encourages sustainable uses of these ecosystems and the protection of critical habitats and species to help this process."

The study area is adjacent to the "Coral Triangle," a massive region containing 75 percent of the world's coral species shared by Indonesia, Malaysia, Papua New Guinea, Philippines, Solomon Islands, and Timor-Leste.

Adapted from materials provided by Wildlife Conservation Society, via Newswise.

http://www.sciencedaily.com/releases/2008/12/081227225250.htm

Structure Of Virulent Pathogen Revealed



Under arrest. Structural studies show that Cif (top), an enzyme that bacteria injects into host cells to stop them from dividing, must have three amino acid residues (pieces containing blue, red and yellow) in order to do its work. Cells exposed to the normal form of Cif (bottom left) produce stress fibers (red) and stop dividing. These problems do not appear in cells (bottom right) exposed to a mutant form of Cif lacking one of the three residues. (Credit: Image courtesy of Rockefeller University)

ScienceDaily (Jan. 1, 2009) — Like high-profile politicians, pathogenic bacteria dispatch advance teams to make way for their arrival. But these bacterial agents don't just secure a safe passage, as a Secret Service detail might do. Rather they are teams of molecules that bacteria inject into cells they want to colonize, sent to hijack their hosts' biochemistry to serve their master's microbial needs. These molecules — called virulence factors — co-opt essential cell functions including the reproduction cycle and cell structure assembly, suppressing the cells' defenses against bacterial invasion and causing disease.

Now researchers at The Rockefeller University have revealed the crystal structure of one virulence factor common to the meaner strains of Escherichia coli that are the leading causes of dangerous bouts of diarrhea in developing countries. The structure, a kind of molecular image that shows the position and identity of every atom in the so-called cycle inhibiting factor (Cif), offers clues as to how this particular bacterial weapon works and, potentially, how to defend against it or even use it to attack cancer.

"Cif shuts down cell cycle progression in a way we don't yet understand. If we can figure this out, we may be able to find ways to inhibit the cell cycle in certain tissues that we don't want to grow, like

tumors," says C. Erec Stebbins, associate professor and head of the Laboratory of Structural Microbiology at Rockefeller. The research of Stebbins and his colleagues, published in the Journal of Molecular Biology, is a significant advance toward understanding exactly how Cif manipulates the cells it invades.

Using the century-old, labor-intensive technique of x-ray crystallography to identify the structure of the protein, researchers showed Cif is part of a prominent "superfamily" of enzymes including cysteine proteases and acetyltransferases. Like these enzymes, Cif contains three amino acid residues — a catalytic triad — that are essential to its virulence. Stebbins and colleagues used point mutations to remove each of these residues and then tested the mutants for whether they could arrest the cell cycle. When test cells are exposed to bacteria with regular Cif, they puff up, form tell-tale stress fibers and are essentially frozen at the stage of cell reproduction just before mitosis. None of the mutants had this effect on the host cells, however, showing that the residues were critical to Cif's work.

Further work will aim to elucidate what part of the cell Cif targets as well as its exact molecular mechanism of action. "Once we get the target for Cif's enzymatic activity, we will determine how it arrests the cell cycle, and that could teach us a way to manipulate the cell cycle ourselves," Stebbins says.

Journal reference:

1. Yun Hsu et al. **Structure of the Cyclomodulin Cif from Pathogenic Escherichia coli**. *Journal of Molecular Biology*, 384(2): 465%u2013477 (December 12, 2008) DOI: 10.1016/j.jmb.2008.09.051

Adapted from materials provided by Rockefeller University.

http://www.sciencedaily.com/releases/2008/12/081227222321.htm

Clockwork That Drives Powerful Virus Nanomotor Discovered

Image of DNA entering the gp17 motor complex on the T4 capsid. (Credit: T4:2 - Motor Packing, Copyright 2008 Seyet LLC)

ScienceDaily (Dec. 31, 2008) — Peering at structures only atoms across, researchers have identified the clockwork that drives a powerful virus nanomotor.

Because of the motor's strength--to scale, twice that of an automobile--the new findings could inspire engineers designing sophisticated nanomachines. In addition, because a number of virus types may possess a similar motor, including the virus that causes herpes, the results may also assist pharmaceutical companies developing methods to sabotage virus machinery.

Researchers from Purdue University in West Lafayette, Ind., and the Catholic University of America in Washington, D.C., collaborated on the study that appears in the Dec. 26, 2008, issue of the journal Cell.

"The discovery of how this virus motor functions represents a significant milestone in the investigation of viral processes," says David Rockcliffe, the program director who oversees a National Science Foundation (NSF) grant that partly funded the research. "This research is a breakthrough that not only may lead to the development of a means of arresting harmful infections, but it also points to possible ways in which nano-devices could be fashioned,"

The virus in the study, called T4, is not a common scourge of people, but its host is: the bacterium Escherichia coli (E. coli). Purdue researchers studied the virus structures, such as the motor, while the Catholic University researchers isolated the virus components and performed biochemical analyses.

"T4 is what's called a 'tailed virus'," says Purdue biologist Michael Rossmann, one of the lead researchers for the study. "It is actually one of the most common types of organisms in the oceans of the world. There are many different, tailed, bacteria viruses--or phages--and all of these phages have such a motor for packaging their DNA, their genome, into their pre-formed heads."

The virus is well known to scientists. "T4 has rich history going back to 1940s when the original genetic tools to understand virus assembly were developed," adds biologist Venigalla Rao of Catholic University, also a lead researcher on the study. "T4 has been an important model system to tease out the details of basic mechanisms by which viruses assemble into infectious particles."

For the recent study, analyses involved two sophisticated instruments capable of studying structures at the nanometer (billionth of a meter) scale. One of the techniques, x-ray crystallography, showed the ordered arrays of atoms in the various structures, while another, called cryo-electron microscopy, let the researchers study the broader shape of the structures without the need for coating or drying out the specimens.

Having already determined the structures of a number of other viral components and how they self-assemble, in this study the researchers focused their attention on the small motor that some viruses use to package DNA into their "heads", protein shells also called capsids.

Not all viruses have a motor such as the one found in the T4 virus, but some viruses that cause human diseases posses molecular motors with similar functions, and likely have similar structures. T4 uses its motor to pack about 171,000 basepairs of genetic information to near-crystalline density within its 120 nanometer by 86 nanometer capsid.

The researchers found that the motor is located at the intersection of the capsid and the virus "tail" and is made of a circular array of proteins called gene product 17 (gp17). Five, two-part, gp17 proteins combine to form a pair of conjoined rings, arrayed so that their upper segments form an upper ring and their lower segments form a lower ring.

As a T4 virus assembles itself, the lower ring of the motor structure attaches to a strand of DNA, while the upper ring attaches to a capsid. The upper and lower rings have opposite charges, which allow the motor to contract and release, alternately tugging at the DNA like a ring of hands pulling on a rope.

The process draws the DNA strand upwards into the capsid where it is protected from damage, enabling the virus to survive and reproduce. After the DNA is inside the capsid, the motor falls off, and a virus tail attaches to the capsid.

Until now, researchers did not know how T4, or any other virus, accomplished the DNA packaging. According to Rao, "Since the assembly of herpes viruses closely resembles that of T4, this research might provide insights on how to manipulate herpes infections."

While many questions remain, adds Rossmann, the virus may lend itself to a variety for medical purposes. One example Rossmann cites is as a potential new weapon to fight dangerous microbes.

"Bacteriophages like T4 are a completely alternative way of dealing with unwanted bacteria. The virus can kill bacteria in its process of reproduction, so use of such viruses as antibiotics has been a long looked-for alternative to overcome the problems which we now have with antibiotics."

Adapted from materials provided by National Science Foundation.

http://www.sciencedaily.com/releases/2008/12/081229200748.htm

Family Rejection Of Lesbian, Gay And Bisexual Children Linked To Poor Health In Childhood

ScienceDaily (Dec. 31, 2008) — For the first time, researchers have established a clear link between family rejection of lesbian, gay and bisexual (LGB) adolescents and negative health outcomes in early adulthood.

A new paper, authored by Caitlin Ryan, PhD, Director of the Family Acceptance Project and her team at the César E. Chávez Institute at San Francisco State University, shows that negative parental behaviors toward LGB children dramatically compromises their health. The discovery has far reaching implications for changing how families relate to their LGB children and how a wide range of providers serve LGB youth across systems of care.

"For the first time, research has established a predictive link between specific, negative family reactions to their child's sexual orientation and serious health problems for these adolescents in young adulthood such as depression, illegal drug use, risk for HIV infection, and suicide attempts," said Ryan, who is the lead author of the paper. "The new body of research we are generating will help develop resources, tools and interventions to strengthen families, prevent homelessness, reduce the proportion of youth in foster care and significantly improve the lives of LGBT young people and their families."

Research Findings:

- Higher rates of family rejection during adolescence were significantly associated with poorer health outcomes for LGB young adults.
- LGB young adults who reported higher levels of family rejection during adolescence were 8.4 times more likely to report having attempted suicide, 5.9 times more likely to report high levels of depression, 3.4 times more likely to use illegal drugs, and 3.4 times more likely to report having engaged in unprotected sexual intercourse, compared with peers from families that reported no or low levels of family rejection.
- Latino males reported the highest number of negative family reactions to their sexual orientation in adolescence.

"This study clearly shows the tremendous harm of family rejection, even if parents think they are well-intentioned, following deeply held beliefs or even protecting their children," said Sten Vermund, MD, a pediatrician and Amos Christie Chair of Global Health at Vanderbilt University.

"In today's often hostile climate for LGBT youth, it is especially important to note that both mental health issues like depression and suicide and HIV risk behaviors were greatly increased by rejection," Dr. Vermund said. "Given the ongoing HIV epidemic in America, in which half of all new cases of HIV are found in men who have sex with men and there is growing concern about prevention messages reaching young people, it is vital that we share these findings with parents and service providers who work with youth in every way.

"When put to practical, day-to-day use and shared with families and those who serve LGBT youth, these findings will lead to healthier, more supportive family dynamics and better lives for LGBT young people."

The prevailing approach by pediatricians, nurses, social workers, school counselors, peer advocates and community providers has focused almost exclusively on directly serving LGBT youth, and does not consider the impact of family reactions on the adolescent's health and well-being.

Subsequent work with ethnically diverse families by the Family Acceptance Project indicates that parents and caregivers can modify rejecting behavior once they understand the serious impact of their words and actions on their LGBT children's health. In addition, even a little change in parental behavior appears to have a clear impact on decreasing LGBT young people's risk. This new family-related approach to

working with LGBT youth being developed by the Family Acceptance Project engages families as allies in decreasing the adolescent's risk and increasing their well-being while respecting the family's deeply held values.

"We are using our research to develop a new model of family-related care to decrease the high levels of risk for LGBT young people that restrict life chances and full participation in society," said Ryan. "Our easy-to-use behavioral approach will help families increase supportive behaviors and modify behaviors their LGBT children experience as rejecting that significantly increase their children's risk. However, redirecting practice and professional training from not asking about family reactions to a young person's LGBT identity to engaging families in promoting their LGBT children's well-being requires a substantial shift on the part of both mainstream and LGBT providers, health systems and community programs."

Journal reference:

1. Caitlin Ryan et al. **Family Rejection as a Predictor of Negative Health Outcomes in White and Latino Lesbian, Gay and Bisexual Young Adults**. *Pediatrics*, January 2009

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

http://www.sciencedaily.com/releases/2008/12/081229080901.htm

Genes That Made 1918 Flu Lethal Isolated

ScienceDaily (Dec. 31, 2008) — By mixing and matching a contemporary flu virus with the "Spanish flu" — a virus that killed between 20 and 50 million people 90 years ago in history's most devastating outbreak of infectious disease — researchers have identified a set of three genes that helped underpin the extraordinary virulence of the 1918 virus.

Writing December 29 in the Proceedings of the National Academy of Sciences, a team led by University of Wisconsin-Madison virologists Yoshihiro Kawaoka and Tokiko Watanabe identifies genes that gave the 1918 virus the capacity to reproduce in lung tissue, a hallmark of the pathogen that claimed more lives than all the battles of World War I combined.

"Conventional flu viruses replicate mainly in the upper respiratory tract: the mouth, nose and throat. The 1918 virus replicates in the upper respiratory tract, but also in the lungs," causing primary pneumonia among its victims, says Kawaoka, an internationally recognized expert on influenza and a professor of pathobiological sciences in the UW-Madison School of Veterinary Medicine. "We wanted to know why the 1918 flu caused severe pneumonia."

Autopsies of 1918 flu victims often revealed fluid-filled lungs severely damaged by massive hemorrhaging. Scientists assumed that the ability of the virus to take over the lungs is associated with the pathogen's high level of virulence, but the genes that conferred that ability were unknown.

Discovery of the complex and its role in orchestrating infection in the lungs is important because it could provide a way to quickly identify the potential virulence factors in new pandemic strains of influenza, Kawaoka says. The complex could also become a target for a new class of antiviral drugs, which is urgently needed as vaccines are unlikely to be produced fast enough at the outset of a pandemic to blunt its spread.

To find the gene or genes that enabled the virus to invade the lungs, Kawaoka and his group blended genetic elements from the 1918 flu virus with those of a currently circulating avian influenza virus and tested the variants on ferrets, an animal that mimics human flu infection.

For the most part, substituting single genes from the 1918 virus onto the template of a much more benign contemporary virus yielded agents that could only replicate in the upper respiratory tract. One exception, however, included a complex of three genes that, acting in concert with another key gene, allowed the virus to efficiently colonize lung cells and make RNA polymerase, a protein necessary for the virus to reproduce.

"The RNA polymerase is used to make new copies of the virus," Kawaoka explains. Without the protein, the virus is unable to make new virus particles and spread infection to nearby cells.

In the late 1990s, scientists were able to recover genes from the 1918 virus by looking in the preserved lung tissue of some of the pandemic's victims. Using the relic genes, Kawaoka's group was able to generate viruses that carry different combinations of the 1918 virus and modern seasonal influenza virus.

When tested, most of the hybrid viruses only infected the nasal passages of ferrets and didn't cause pneumonia. But one did infect the lungs, and it carried the RNA polymerase genes from the 1918 virus that allowed the virus to make the key step of synthesizing its proteins.

In 2004, Kawaoka and his team identified another key gene from the 1918 virus that enhanced the pathogen's virulence in mice. That gene makes hemagglutinin, a protein found on the surface of the virus and that confers on viral particles the ability to attach to host cells.

"Here, I think we are talking about another mechanism," Kawaoka says. The RNA polymerase is used to make copies of the virus once it has entered a host cell. The role of hemagglutinin is to help the virus gain access to cells.

In addition to the study's lead authors, Watanabe and Kawaoka, co-authors of the new PNAS paper are Shinji Watanabe, Jin Hyun Kim and Masato Hatta, also of UW-Madison; and Kyoko Shinya of Kobe University. The work was funded by the Japanese Ministry of Education, Culture, Sports, Science and Technology and by grants-in-aid from the Ministry of Health, Labor and Welfare of Japan.

Adapted from materials provided by University of Wisconsin-Madison.

http://www.sciencedaily.com/releases/2008/12/081229200738.htm

Another Reason To Avoid High-fat Diet: It Can Disrupt Our Biological Clock, Say Researchers

New results from experiments with laboratory mice suggest there is a cause-and-effect relation between diet and biological clock imbalance. (Credit: iStockphoto/Kristen Johansen)

ScienceDaily (Dec. 31, 2008) — Indulgence in a high-fat diet can not only lead to overweight because of excessive calorie intake, but also can affect the balance of circadian rhythms – everyone's 24-hour biological clock, Hebrew University of Jerusalem researchers have shown.

The biological clock regulates the expression and/or activity of enzymes and hormones involved in metabolism, and disturbance of the clock can lead to such phenomena as hormone imbalance, obesity, psychological and sleep disorders and cancer.

While light is the strongest factor affecting the circadian clock, Dr. Oren Froy and his colleagues of the Institute of Biochemistry, Food Science and Nutrition at the Hebrew University's Robert H. Smith Faculty of Agriculture, Food and Environment in Rehovot, have demonstrated in their experiments with laboratory mice that there is a cause-and-effect relation between diet and biological clock imbalance.

To examine this thesis, Froy and his colleagues, Ph.D. student Maayan Barnea and Zecharia Madar, the Karl Bach Professor of Agricultural Biochemistry, tested whether the clock controls the adiponectin signaling pathway in the liver and, if so, how fasting and a high-fat diet affect this control. Adiponectin is secreted from differentiated adipocytes (fat tissue) and is involved in glucose and lipid metabolism. It increases fatty acid oxidation and promotes insulin sensitivity, two highly important factors in maintaining proper metabolism.

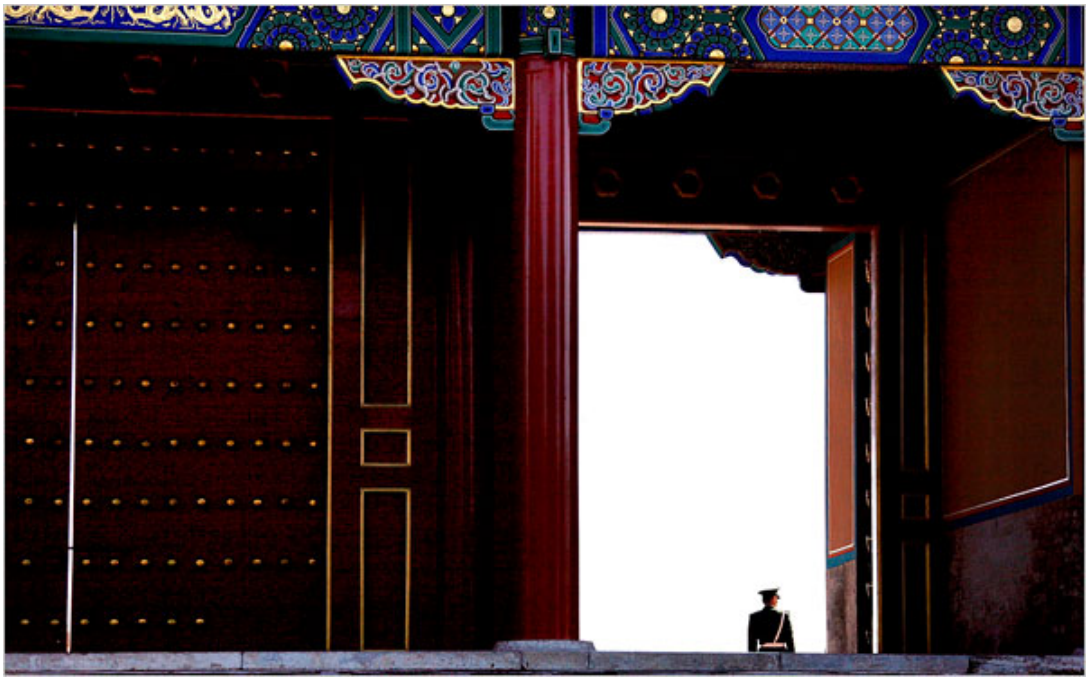
The researchers fed mice either a low-fat or a high-fat diet, followed by a fasting day, then measured components of the adiponectin metabolic pathway at various levels of activity. In mice on the low-fat diet, the adiponectin signaling pathway components exhibited normal circadian rhythmicity. Fasting resulted in a phase advance. The high-fat diet resulted in a phase delay. Fasting raised and the high-fat diet reduced adenosine monophosphate-activated protein kinase (AMPK) levels. This protein is involved in fatty acid metabolism, which could be disrupted by the lower levels.In an article soon to be published by the journal Endocrinology, the researchers suggest that this high-fat diet could contribute to obesity, not only through its high caloric content, but also by disrupting the phases and daily rhythm of clock genes. They contend also that high fat-induced changes in the clock and the adiponectin signaling pathway may help explain the disruption of other clock-controlled systems associated with metabolic disorders, such as blood pressure levels and the sleep/wake cycle.

Adapted from materials provided by Hebrew University of Jerusalem, via AlphaGalileo.

http://www.sciencedaily.com/releases/2008/12/081228191054.htm

Dusting Off a Serene Jewel Box

By ANDREW JACOBS



BEIJING — Like any sensible adult, the Emperor Qianlong planned ahead for his retirement. A compulsive poet who oversaw the unprecedented expansion of China's borders, Qianlong began creating a refuge in 1771, at 61, for his golden years.

Unlike his predecessors, who ruled until death or disability, Qianlong, the fifth emperor of the Qing Dynasty, vowed to abdicate at 85 and settle down in comparatively modest quarters carved out of the Forbidden City, the imperial behemoth with 8,700 rooms that anchors the Chinese capital.
Employing the finest craftsmen of the day he spent five years building a fanciful collection of pocket gardens, banquet rooms, prayer halls and a single-seat opera house. The Palace of Tranquillity and Longevity, as it is known, would be a place to meditate, write poetry and enjoy the reviving company of his many concubines.
But like many men with abundant power and large egos, Qianlong refused to take a final bow. Even after handing the throne to his son, he kept a firm hand on his empire and remained in the Forbidden City's sprawling royal quarters. He died, at 89, without ever having spent a night in his retirement home.
Emperors came and went, insurrections raged, but somehow Qianlong's two-acre jewel box remained untouched. In 1924, when China's civilian rulers tossed the last emperor out of the Forbidden City, the gates to Qianlong's miniature palace were chained shut and largely forgotten.
For decades stories circulated among art historians of a mothballed Qing Dynasty retreat, its embroidered thrones thick with dust. Word eventually reached the World Monuments Fund, a nonprofit organization dedicated to saving imperiled historic sites across the globe. Since 1965 the fund has restored scores of Eastern European synagogues and South American cathedrals — even Ernest Shackleton's expedition hut in Antarctica — but a Chinese palace interior was something entirely new.
"We had serious misgivings, especially given the deterioration, and we wondered if it would be possible," said Bonnie Burnham, the organization's president.
Six years and $3 million later the first building to be restored, Juanqinzhai, or Studio of Exhaustion From Diligent Service, has just been completed. It was an ambitious endeavor, made all the more complex by the delicate dance that takes place whenever Chinese and Westerners are forced to reconcile divergent sensibilities.

In a country where historic preservation usually entails razing a structure and replacing it with a brightly painted replica, Juanqinzhai is something of a milestone. The pavilion's slavishly faithful restoration is an archetype that both Chinese and American conservators hope to replicate over the next eight years, as the remaining 26 buildings are refurbished. The $15 million effort will be financed by the Americans, with much of the work carried out by employees of the Palace Museum, which runs the Forbidden City.
The Americans contribute their well-practiced conservation techniques; the Chinese, their deep understanding of Qianlong's architectural tastes and decorative predilections. The supporting cast includes aging artisans whose rarefied skills somehow survived the Culture Revolution, when traditional craftsmanship was considered bourgeois and worthy of punishment.
Zheng Xinmiao, the director of the Palace Museum, described the collaborative process as "charting uncharted waters." "It gave us precious experience in both theory and practice," he said during the ribbon cutting in November.
Juanqinzhai, which is to open to the public in the coming months, brings to life a level of detail rarely seen in historic Chinese buildings. Conceived as a pleasure pavilion, it is a simple rectangular box dolled up inside with translucent embroidered screens, jade-inlaid wall hangings and a distinctively Chinese form of carved decoration that involves layering bamboo skin atop dark zitan wood. The pavilion is strewn with upholstered thrones — anywhere an emperor sat was a throne — and cloisonné tablets bearing Qianlong-inspired couplets.
The pavilion's tour de force is the private theater, which provided the emperor with a cozy perch to view chaqu, a form of opera invented by a commoner that became all the rage in 18th-century Beijing. Qianlong, who supposedly composed 40,000 poems, became a chaqu aficionado, spending long hours writing stanzas about dreamy landscapes, flower picking and the glories of a stiff drink.
For art historians Juanqinzhai's most beguiling elements are the panoramic murals of the pavilion painted on silk. Wisteria cascades from the ceiling and magpies soar over the tiled roofs of the palace. The blend of traditional Chinese painting with the Western use of perspective and optical illusion is a testament to Qianlong's embrace of Giuseppe Castiglione, an Italian artist and missionary who lived in Beijing at the time. The emperor was a voracious collector and art patron who encouraged his court painters to study Castiglione's work.
Derided in the past for his family's "barbarian" origins in Manchuria, not part of China at the time, Qianlong has been enjoying something of a renaissance in recent years. In this new official narrative he represents an era of military strength and material wealth before China succumbed to corruption, foreign domination and, as many Chinese see it, national humiliation. Despite the Qing Dynasty's non-Chinese beginnings, Qianlong has been transformed into an idealized Chinese ruler, said Geremie R. Barmé, professor of Asian history at the Australian National University.
Mr. Barmé, the author of "The Forbidden City," a cultural history published in 2008 by Harvard University Press, takes a jaundiced view of the Qianlong revival and in particular a spate of recent architectural restorations in Beijing that embrace the "Qianlong style." He said that many historic buildings, including Juanqinzhai, were associated with more than one emperor and that preservation efforts should reveal that truth.
"I think the results are lovely," he said, "but after a while it gets tiresome to see everything restored back to this presumed last great moment in Chinese history."

http://www.nytimes.com/2009/01/01/arts/design/01forb.html?th&emc=th

'Blood pressure gene' affects 20%

One in five white people carries a gene fault which could raise their risk of high blood pressure, research suggests.

The STK39 gene variant was found after scanning the entire genetic code of hundreds of people in the US and Europe.

Those with the variant had raised blood pressure compared with those carrying other versions.

The US research was published in the Proceedings of the National Academy of Sciences.

High blood pressure, also called hypertension, is important because, over time, it can increase the chances of heart problems, strokes and kidney failure.

It is thought that one in four people living in western countries has high blood pressure, often undiagnosed.

Scientists looking for genetic vulnerabilities to the condition have explored dozens of possible genes, but STK39 has emerged as a front runner following the University of Maryland School of Medicine study.

The researchers concentrated their efforts on 542 members of the Amish community in Pennsylvania, looking at their entire genetic make-up while testing their blood pressure.

When this linked variants of the STK39 gene to high blood pressure, it made sense - the gene produces a protein which controls how the kidneys process salt - a key factor in changing blood pressure.

Lifestyle choices

The result was reproduced when other groups Caucasian volunteers were tested, and the researchers estimated that 20% from this ethnic group carried it.

Dr Yen-Pei Christy Chang, one of the researchers, said: "This discovery has great potential for enhancing our ability to tailor treatments to the individual - what we call personalised medicine."

However, he added: "Hypertension is a very complex condition, with numerous other genetic, environmental and lifestyle factors involved.

"The STK39 gene is only one important piece of the puzzle."

Professor Alan Shuldiner, also from the University of Maryland, said: "With this new scanning approach, we are able to uncover genes that have previously eluded us."

Mike Rich, the executive director of the Blood Pressure Association, described the research as "interesting".

"It may help us identify those individuals who may be more prone to hypertension," he said.

"However, there are already indicators which can help us determine who is more likely to develop the condition, such as a family history of hypertension, heart disease, stroke, and poor diet and lack of exercise.

"The things you learn from your parents in terms of lifestyle and habits will probably have as much effect on your chances of developing hypertension as the genes they pass down to you."

Professor Mark Caulfield, a researcher in the genetics of hypertension from Queen Mary's, University of London, said the evidence pointed towards many different genes each having a small effect on blood pressure.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7802743.stm

Published: 2008/12/30 08:06:42 GMT

Leaving Platform That Elevated AIDS Fight

By LAWRENCE K. ALTMAN, M.D

Dr. Peter Piot, the only head of the United Nations AIDS program in its 13-year history, is retiring on Wednesday. He is credited as the person most responsible for making heads of state understand the political, economic and social ramifications of a pandemic that rivals the worst in history.

Although the toll of infected people and deaths grew during his tenure, Dr. Piot, 59, said in an interview that he had achieved a number of successes. He attributed them to basing policy recommendations on scientific evidence.

He said his program had raised global public concern about AIDS; vastly increased the money spent to try to blunt the pandemic; lowered the price of life-extending antiretroviral drugs for millions of infected people in poor countries; and gave a voice to socially marginalized groups like gay men and injecting drug users, who are at great risk for AIDS yet had virtually no say in poor countries.

Dr. Piot (pronounced PEA-ott) recalled that when he became executive director in 1996, about $250 million was spent that year in developing countries on the disease.

“Trying to fix a global epidemic with that kind of money is impossible, but that is what we were expected to do,” he said.

The current figure is about $10 billion, and Dr. Piot said that “if we had the kind of money that we have today 10 years ago, we would have never had an epidemic so out of control.”

Dr. Piot’s program was born in part out of widespread frustration with a lack of coordination among United Nations agencies concerned with AIDS — particularly the World Health Organization, which was responsible for monitoring the disease’s global reach. In the early to mid-1990s, the health organization’s leadership was widely criticized for a seeming inability to cope with a pandemic of the dimensions and social complexities of AIDS.

So member governments created a program to coordinate the United Nations’ role in defeating AIDS. The program now has 10 co-sponsors, all of them part of the United Nations system.

Dr. Piot, who helped discover the Ebola virus and was one of the first scientists to study AIDS, was named executive director by Boutros Boutros-Ghali, then the United Nations secretary general.

“When we started, AIDS was definitely not on the world’s political agenda, and now it is,” said Dr. Piot, speaking by telephone while participating in AIDS meetings in Africa, where the disease has taken its greatest toll.

Dr. Piot helped the United Nations characterize AIDS as a global security issue and make the disease the focus of the General Assembly’s first session ever devoted to any health issue. And he helped add AIDS to the agendas of world economic forums.

As executive director, he said, he soon came to realize that scientists alone could not defeat AIDS. Success would also require strong political support from government leaders and civic groups.

The United Nations offered him a rare platform and access to the world’s top leaders. He traveled the world — 23 countries in 2008 alone, and countless more over his tenure. Through moral suasion, his scientific expertise and his experience as a student political activist in his native Belgium, he was able to sway the views of many heads of state.

His position requires a palette of skills, he said. The director needs sound scientific knowledge of the viral disease and its sociological ramifications; appreciation of the economic and political realities of rich and poor countries; and the diplomatic skills to talk to a pope, pharmaceutical industry executives and AIDS activists, among many others.

Dr. Piot said he was confident that his deputy and successor, Michel Sidibé of Mali, had the skills to keep AIDS a top global health issue.

Critics contend that the United Nations should not have created a separate program devoted to a single disease, even a pandemic, because a narrow focus can diminish the attention to other health problems.

Dr. Piot replies that without his program’s efforts, millions more people would have died. While a separate agency may not seem the most rational approach, he said, “it works, and that is what matters.” He added that “well-focused organizations have much greater impact than those with broader mandates.”

AIDS has highlighted the difficulty of delivering antiretroviral drugs to patients in poor countries, thereby focusing world attention on the underlying cause: a lack of effective health care infrastructures.

That understanding has had an unexpected benefit, Dr. Piot said: “attracting more money to strengthen these health systems.” Indeed, in many cases AIDS financing has been the only investment those systems have received.

A turning point in the direction of the United Nations AIDS program took place in Dr. Piot’s first year as executive director: the marketing of powerful drug combinations that can allow many people with H.I.V. to live near-normal lives.

The drugs, too expensive even for many patients in rich countries, were far beyond the reach of the tens of millions of infected people in the developing world.

At first, Dr. Piot said, “the development agencies and the traditional public health communities were dead set against making access to treatment available in poor countries.”

Although he was skeptical at first about negotiating with industry to lower the drugs' cost in poor countries, he encouraged more optimistic staff members to try it anyway, "because no one else was doing it."

Negotiating lower prices was "largely Unaids's work until the Clinton Foundation came in and shaved off the last bits to further lower the costs," Dr. Piot said.

Dr. Piot has endured criticism, including for having published inflated estimates of the number of people infected with H.I.V. in the early years."We were wrong; we overestimated the potential of the epidemic in Asia, particularly in India," he replied. "But we underestimated in several African countries, and we definitely underestimated in Eastern Europe, where we had not seen that epidemics were building up in Russia and Ukraine."

But he denied as "absurd" the accusation from some critics who contended that he deliberately inflated the figures to raise the profile of AIDS. "We have review panels, which include top epidemiologists from the world's top academic and research and public health institutions," he said. "Every estimate involves hundreds of people, and any of them would have denounced efforts to distort the figures."

Current estimates are that 33 million people are living with H.I.V. and 20 million have died since the disease was first recognized in the United States in 1981.

Working with political leaders was a constant challenge, Dr. Piot said. Because member states run the United Nations, criticizing any of them can be ticklish, if not impossible.

As H.I.V. ravaged South Africa, Thabo Mbeki, its president for much of Dr. Piot's tenure, virtually denied that the virus caused AIDS. Dr. Piot could not convince him otherwise.

Similarly, Dr. Piot said he wished he could have persuaded Russia to permit methadone substitution therapy for injecting drug users, who are fueling a growing AIDS epidemic. "Are these mistakes?" he said. "Well, they certainly are failures, let us put it that way, in the sense that I have not been able to convince the leadership there to go for a scientific approach."

On the other hand, he went on, in China "the top leadership did change completely their policy on injecting drug use, and that was in 2005."

In an ideal world, Dr. Piot said, he would have leaders create large nationwide and worldwide campaigns to prevent AIDS. That effort would require sustaining AIDS awareness; using marketing efforts to promote condom use; creating incentives for people to be tested for H.I.V.; organizing circumcision clinics for males in some countries; and encouraging scientists to work more closely and share data in the effort to develop an H.I.V. vaccine.

"It is not the 'what' that is lacking in preventing AIDS," he said. "It is the 'how to organize it' that is key."

In May, Dr. Piot will move to Imperial College London to create an institute of global health. An aim is to nurture a younger generation of students to apply the lessons of the AIDS battle to other diseases, including chronic and noninfectious ones like heart disease, which are not well studied in the developing countries.

Despite the financial difficulties of starting a new program at this time, he said, "there is so much interest in global health that I am quite optimistic."

http://www.nytimes.com/2008/12/30/health/30docs.html?nl=8hlth&emc=hltha1#

Smiles and scowls 'in our genes'

The facial expressions we make to show or hide our emotions are hardwired into our brains rather than learned during life, a study has concluded.

Blind and sighted athletes made the same expressions when they won and lost, US researchers found.

This, the study reported in the Journal of Personality and Social Psychology study suggests, meant the expressions were not picked up by watching others.

The researchers believe they could be remnants of evolutionary history.

The idea that facial expressions are in-built is not new - scientists have suggested it since the 1960s.

However, the study at San Francisco State University provides some of the strongest evidence yet to support it.

Professor David Matsumoto and his team compared 4,800 photographs, capturing the expressions of sighted and blind judo athletes at medal ceremonies at the 2004 Olympic and Paralympic Games.

In each case, the faces of gold and silver medal winning athletes were scrutinised.

While the winners frequently showed genuine joy at their victory, those in the lesser medal positions often produced "social smiles" - smiles involving only mouth movement, indicating that they may be artificial rather than spontaneous.

No biting

The researchers concluded that sighted and blind competitors showed or controlled their expressions in exactly the same way.

Professor Matsumoto said: "The statistical correlation between the facial expressions of sighted and blind individuals was almost perfect.

"This suggests something genetically resident within us is the source of facial expressions of emotion.

"Losers pushed their lower lip up as if to control the emotion on their face and many produced social smiles - individuals blind from birth could not have learned to control their emotions in this way through visual learning, so there must be another mechanism.

"It could be that our emotions, and the systems to regulate them, are vestiges of our evolutionary history."

He said that humans might have learned that rather than express negative emotions by yelling, biting or throwing insults, they may have developed a system that automatically closes the mouth to prevent it.

Dr Bridget Waller, from the University of Portsmouth, said that primates often used a "bare teeth display" to signal to other primates that they were not going to attack them, and humans might have inherited a similar system.

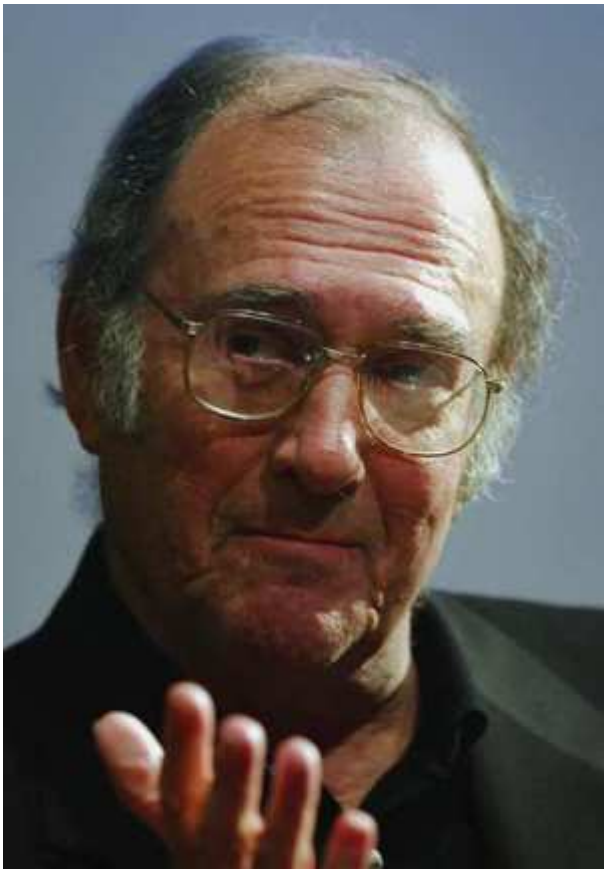
"It is a way of signalling your benign intent. It may not be so much that you are stopping yourself from doing something, but actually demonstrating to somebody else that you are not going to do it.

She warned: "People can think that all communication revolves around language, when it happens on so many other levels, such as body language and facial expression."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7798687.stm

Published: 2008/12/29 06:00:18 GMT

Appreciation: The playwright who gave us 'Pinteresque'
3:24 PM, December 26, 2008



Harold Pinter, who died Wednesday after a long bout with cancer, will go down as the most important modern English-language playwright after Samuel Beckett. He wouldn't have minded coming in second. Plus he gave the world a sharper adjective — Pinteresque.

Beckett was an idol and mentor to Pinter, as well as a friend. Pinter took inspiration from the Irish writer's profound concentration of language and metaphor, breadth of literary and philosophical knowledge, Proustian appreciation of the subjectivity of memory, recognition of the power struggles in human relations and harrowing comedy in the face of the 20th century's apocalyptic worst.

In effect, Pinter brought Beckett's game indoors, transferring it from barren heaths, garbage cans and mounds of earth to recognizable domestic English settings. Shabby in Pinter's early years, these rooms became posher as he began to reap the fruits of his success in both theater and film, where he was a noted screenwriter (enjoying an especially productive relationship with Joseph Losey), a pungent actor and an occasional director.

But Pinter was always his own man. And to understand him, one has to recognize the specifics of his background, as a Jewish kid from the East End of London whose adolescence was darkened by the Second World War and as an actor who gleaned as much about playwriting from working as a rep player alongside such British acting legends as Donald Wolfit as he did from studying Beckett.

Where Pinter grew up, violence and anti-Semitic hatred weren't abstract matters. After the war, in his economically debilitated, politically explosive part of town, he learned to avoid physical confrontations — a danger, he acknowledged, for anyone who "remotely looked like a Jew" — by talking to thugs hanging out outside the club he used to frequent: "Are you all right?" "Yes, I'm all right." "Well, that's all right then, isn't it?"

Language, which is so often a weapon in his plays, is also a reliable shield, "a constant stratagem to cover nakedness," as the playwright himself once described it. David Hare was right to pay Pinter the ultimate Auden compliment of having "cleaned the gutters of the English language, so that it ever afterwards flowed more easily and more cleanly." But Pinter's poetic density, shot through with those signature gaping silences, wasn't deployed for its own sake.

The assaultive threat hovering over his characters is what shapes their jagged conversation. In Pinter's view, Kafka was one of the few writers who had got it right: The nightmarish knock on the door isn't just

a paranoid delusion. The urge to dominate is fundamental to our territorial natures. We know we're not safe, and our canine vigilance readies us to attack and defend.

Pinter's rough-and-tumble roots also informed his political perspective, which became more explicit in his plays in the 1980s and could admittedly become rather truculent in his speeches and editorials, most notably in his 2005 Nobel lecture, "Art, Truth & Politics," in which he took the opportunity to rail against what he saw as the long-standing brutality of American foreign policy.

But for all his vehemence and posturing, Pinter was too gifted with words and too astute a critic to be dismissed as an ideological crank. He was also too deft a psychologist, understanding what the British psychoanalyst D.W. Winnicott meant when he wrote that "being weak is as aggressive as the attack of the strong on the weak" and that the repressive denial of personal aggressiveness is perhaps even more dangerous than ranting and raving. (All that stiff-upper-lip business can be murderous.)

Pinter's early career as an actor helped him theatricalize these insights. In Michael Billington's admiring biography, Pinter reveals what he learned working beside Wolfit, a barnstormer who could generate the most extraordinary "savagery and power" by the simple turning of his cloak. Wolfit provided Pinter with a master class in dramatic timing, demonstrating the potency of silence and the way delay can turn suspense into something wonderfully excruciating.

All of this permeated his playwriting, which invested everyday objects with an uncanny sense of Hitchcockian menace. When we talk about something being Pinteresque, we're referring to that state of anxiety in which seemingly harmless encounters can provoke the most fearfully ambiguous threats. A glass of water may sometimes be just a glass of water, but in "The Homecoming," one of modern drama's signal achievements, it becomes a line in the sand between Ruth and Lenny, seductively antagonistic in-laws who are sussing each other out.

Pinter's emergence in 1958 with "The Birthday Party," followed shortly by "The Caretaker," was both thrilling and baffling. The new theatrical vocabulary had to be decoded. Characters didn't arrive with their birth certificates and back stories in a convenient carrying case; the dialogue ran down subterranean pathways; and the plots typically involved an outsider's incursion into the delicate equilibrium of a private space. Also, nothing could be trusted — not language, not memory and certainly not reality, which always entails a war of personal fictions.

Pinter later applied these innovations to his political plays, revealing totalitarian regimes as deranged dances between oppressors, who find endless ways of reaffirming the banality of evil, and the oppressed, who use all their wiles to protect themselves from the unavoidable blows. These dramas might not have the same staying power. But in 2001, Pinter himself starred in "One for the Road" in New York and demonstrated just how smoothly the domestic dynamics of his earlier works could fold into the more geopolitical concerns of his later ones.

The plays are ultimately gifts to actors who can master the verbal precision while maintaining an aura of unforced mystery. These are the qualities that director Peter Hall found in Vivien Merchant, Pinter's first wife, who originated the role of Ruth in "The Homecoming" in 1965. And I've come upon them a few times myself — with Penelope Wilton in "A Kind of Alaska," Lindsay Duncan in "Ashes to Ashes" and Michael Gambon in "The Caretaker."

Experience Pinter's sorcery in such expert hands and you're hooked for life.

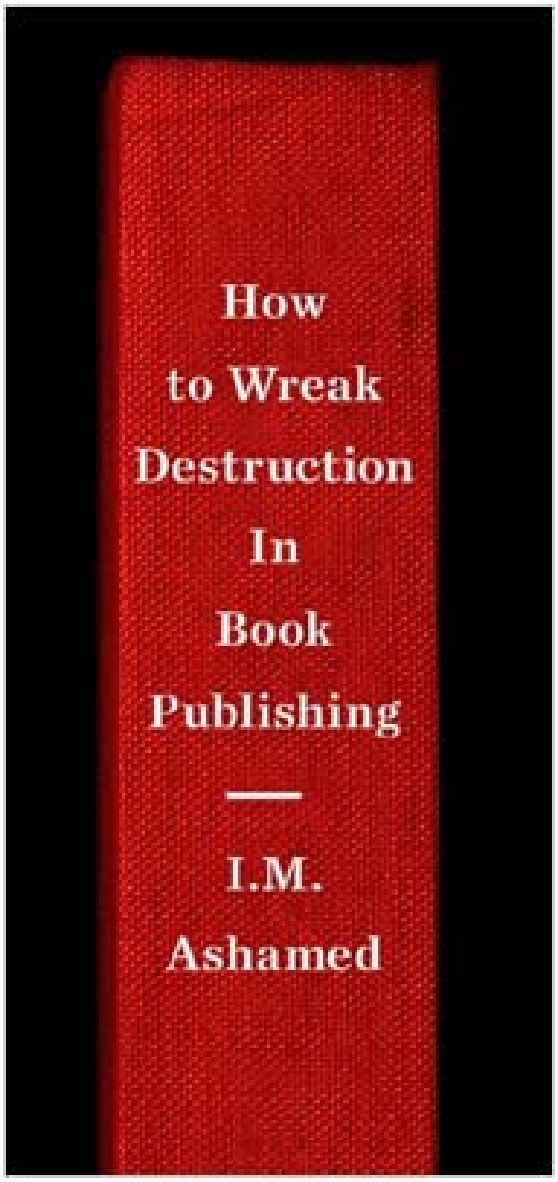
-- Charles McNulty

Photo: Harold Pinter in 2004. Credit: Bruno Vincent / Getty Images

http://latimesblogs.latimes.com/culturemonster/2008/12/pinter-apprecia.html

Bargain Hunting for Books, and Feeling Sheepish About It

By DAVID STREITFELD



Book publishers and booksellers are full of foreboding — even more than usual for an industry that's been anticipating its demise since the advent of television. The holiday season that just ended is likely to have been one of the worst in decades. Publishers have been cutting back and laying off. Houghton Mifflin Harcourt announced that it wouldn't be acquiring any new manuscripts, a move akin to a butcher shop proclaiming it had stopped ordering fresh meat.

Bookstores, both new and secondhand, are faltering as well. Olsson's, the leading independent chain in Washington, went bankrupt and shut down in September. Robin's, which says it is the oldest bookstore in Philadelphia, will close next month. The once-mighty Borders chain is on the rocks. Powell's, the huge store in Portland, Ore., said sales were so weak it was encouraging its staff to take unpaid sabbaticals.

Don't blame this carnage on the recession or any of the usual suspects, including increased competition for the reader's time or diminished attention spans. What's undermining the book industry is not the absence of casual readers but the changing habits of devoted readers.

In other words, it's all the fault of people like myself, who increasingly use the Internet both to buy books and later, after their value to us is gone, sell them. This is not about Amazon peddling new books at discounted prices, which has been a factor in the book business for a decade, but about the rise of a worldwide network of amateurs who sell books from their homes or, if they're lazy like me, in partnership with an Internet dealer who does all the work for a chunk of the proceeds.

They get their books from friends, yard sales, recycling centers, their own shelves. castoffs (I just bought a book from a guy whose online handle was Clif Is Emptying His Closet). Some list them for as little as a penny, although most aim for at least a buck. This growing market is achieving an aggregate mass that is starting to prove problematic for publishers, new bookstores and secondhand bookstores.

For readers and collectors, these resellers, as they are called, offer a great service. Lost in the hand-wringing over the state of the book industry is the fact that this is a golden age for those in love with old-fashioned printed volumes: more books are available for less effort and less money than ever before. A book search engine like ViaLibri.net can knit together 20,000 booksellers around the world offering tens of millions of nearly new, used or rare books.

One consequence has been to change the calculations involved in buying a book. Given the price, do I really want to read this? Now it's become both an economic and a moral issue? How much do I want to pay, and where do I want that money to go? To my local community via a bookstore? To the publisher? To the author?

In theory, I want to support all of these fine folks. In practice, I decide to save a buck.

Here's one example of how I casually wreak destruction. I was reading "Sylvia," an account by the late short-story master Leonard Michaels of his unstable first wife. Looking for material about Mr. Michaels, I saw his friend Wendy Lesser had written a long essay about him in a book published last year by Pantheon. I could buy a new paperback edition of that book, "Room for Doubt," for $13.95 plus tax in a bookstore. But there were dozens of copies from resellers available online for as little as one cent, plus shipping.

A penny felt a little chintzy, even for me, so I bought a hardcover copy for 25 cents from someone who called herself Heather Blue, plus a few bucks for shipping. Neither my local bookstore nor Pantheon — whose parent, Random House, announced this month it would cut costs by reducing five divisions to three — nor the author got a share. The book looked good as new.

Ms. Lesser is the publisher of The Threepenny Review, a literary journal. She lives in Berkeley, Calif., where, as it happens, there is no longer a large general interest bookstore. Cody's, in its prime one of the country's great stores, closed its last outlet in June. The Barnes & Noble store there also recently closed. Andy Ross, the former owner of Cody's, told me that buying books online "was not morally dubious, but it is tragic. It has a lot of unintended consequences for communities."

Mr. Ross said he realized that Cody's was doomed when he noticed that in the last year he hadn't sold a single copy of that old-reliable for undergraduates, Kant's "Critique of Pure Reason." Students presumably were buying it online. Sales of classics and other backlist titles used to be the financial engine of publishers and bookstores as well, allowing them to take chances on new authors. Clearly that model is breaking. Simon & Schuster, which laid off staffers this month, cited backlist sales as a particularly troubled area.

Michael Barnard, who owns Rakestraw Books in Danville, Calif., not far from Berkeley, was more critical of me. He said that I was taking Ms. Lesser's work while depriving her of an income, and that I would regret my selfish actions when all the physical stores were gone.

Ms. Lesser's editor, Dan Frank, said that the rise of resellers like Heather Blue meant that there was no longer a set price for a book at any one time. If you want it during those first few weeks when it is new, you will pay a premium. If you can wait, it might be only a pittance. "These cracks and fractures will only grow bigger," he said.

Ms. Lesser herself was philosophical. "I am a pragmatist, not a thin-skinned, delicate little writer who thinks everything needs to be what it is in heaven," she said. Still, she sounded a little taken aback at the going rate for her books. "Twenty-five cents? That's all it was?"

At least this way, the writer said, she gained a reader if not an income. If I had had to search for the book in a store, maybe I would never have found it.

"With the Internet, nothing is ever lost," Ms. Lesser said. "That's the good news, and that's the bad news."

And what of the woman who sold me the book? She told me via e-mail that her real name was Heather Mash and that she worked as a domestic violence case manager in a women's shelter not too far from Berkeley. She didn't set out to subvert the publishing and bookselling world, she said. Like most of us who sell online, Ms. Mash began because she had too many books and wanted to raise money to buy more. "I would rather sell a book for a penny and let someone enjoy it than keep it collecting dust," she said.

No industry undermined by its greatest partisans will thrive long. CD sales plunged after music could be downloaded. Newspapers are hurting even as their readership is mushrooming online. As the Heather Mashes proliferate, traditional bookstores will continue to fade.

Secondhand outlets that don't sell online are already an anachronism. Even the novelist Larry McMurtry, whose enormous secondhand shop in Archer City, Tex., was probably the biggest holdout against the Internet, has surrendered.

The first book he sold online was a signed copy of "84, Charing Cross Road," the classic account of a woman in postwar New York who bought her books from a London shop she never saw. Helene Hanff's slim volume used to be cherished for its depiction of a vanished era. Now it seems simply ahead of its time.

http://www.nytimes.com/2008/12/28/weekinreview/28streitfeld.html?_r=1&ref=books&pagewanted=all

The Polaroid: Imperfect, Yet Magical

By MICHAEL KIMMELMAN

The next few months will end an era that began six decades ago with a contraption called the Model 95 camera. That accordion-style machine delivered instant photography at a price tag equivalent to some $850 today. The SX-70, which spit out color prints, arrived in 1972. American life during the late 20th century had found its Boswell.

The demise of Polaroid's instant film cameras has been coming for years. Digital technology did it in. The decision this year by the company that Edwin Land founded to stop manufacturing the film has left devotees who grew up with Polaroid's palm-size white-bordered prints bereft. They have signed up in the thousands as members of SavePolaroid.com. Digital cameras that print instant pictures have materialized to fill the void, providing a practical substitute. But as in most affairs of the heart, logic is beside the point.

Cold-blooded blogs during the last year have dished about Polaroid's leaky developers and the impossibility of making copies from instant film prints or of fiddling with them, which, by the way, was precisely why police photographers long ago cottoned to them for crime scenes and mug shots. A friend the other day also complained about how Polaroids often came out yellow and, when left on the rainy porch or stuck onto the refrigerator door along with the shopping lists and report cards, ended up faded and curled.

All true. One is reminded of the pragmatists' disdain for long-playing records when compact disks arrived. Then D.J.'s and audiophiles revived LPs, in part precisely for the virtues of its inconvenience. That is to say, LPs, like Polaroids, entailed certain obligating rituals. Igor Stravinsky near the end of his life spent evenings confined to a chair. He listened often to Beethoven. His assistant, Robert Craft, would cue the records up, then, when one side was finished, rise from his seat, carefully flip the vinyl disk over, place the needle at the beginning, and rejoin the composer, a simple act of devotion required by the limits of LP technology, endlessly repeated until it became a routine binding Stravinsky and Craft like father and son.

I can still picture my own father with his Polaroid camera. "Cheese," he would actually say, and the machine would whir before expelling a print with the negative still attached, requiring the shutterbug to wait a prescribed time before peeling it off. My father would check his watch, shaking the covered snapshot as if the photograph were a thermometer. Then at the right moment, with a surgeon's delicate hands, he would separate the negative in a single motion and reveal — well, who knew what.

Because that was part of the beauty of the Polaroid. Mystery clung to each impending image as it took shape, the camera conjuring up pictures of what was right before one's eyes, right before one's eyes. The miracle of photography, which Polaroids instantly exposed, never lost its primitive magic. And what resulted, as so many sentimentalists today lament, was a memory coming into focus on a small rectangle of film.

Or maybe not. Digital technology now excuses our mistakes all too easily — the blurry shot of Aunt Ruth fumbling with a 3-wood at the driving range; or the one of Cousin Jeff on graduation day where a flying

Frisbee blocked the view of his face; or of Seth in his plaid jacket heading to his first social, the image blanched by the headlight of Burt's car coming up the driveway; or the pictures of you beside the Christmas tree where your hair is a mess.

Digital cameras let us do away with whatever we decide is not quite right, and so delete the mishaps that not too often but once in a blue moon creep onto film and that we appreciate only later as accidental masterpieces. In fact, the new technology may be not more convenient but less than Polaroid instant film cameras were, considering the printers and wires and other electronic gadgets now required, but at this one thing, the act of destruction, a source of unthinking popularity in our era of forgetfulness and extreme makeovers, digital performs all too well. Polaroids, reflecting our imperfectability, reminded us by contrast of our humanity.

Glossy talismans in unreal colors, as ephemeral as breath on glass, they wreaked all the more havoc with our emotions for being so unassuming and commonplace. One of history's least dewy-eyed photographers, Walker Evans spent his last years snapping some 2,500 Polaroids. During the early 1970s, to help introduce its product, Polaroid doled out SX-70s with unlimited film to a few prominent photographers, Evans among them.

He was having trouble wielding bigger cameras by then, and, clunky though it could be, the SX-70 gave him a fresh lease on life. Its point-and-shoot technology nicely dovetailed with his lean, laconic, democratic scrutiny of the world, stripping photographs down to their bare-bone essentials. It was a prosaic machine for an art about prosaic things in which, as in the camera itself, Evans found a kind of grave eloquence.

A contrarian, he also embraced its off-key colors and the fact that many other photographers didn't take the everyman device seriously (not yet anyway). Along with some fish-eyed close-ups of pretty young women he was trying to impress, Evans composed abstract vignettes and snapped street signs that let him fool around with words and puns as he had done decades earlier and generally better. But he also shot great pictures of ready-mades, like the toothy grill of a junked pink Ford parked in a bunch of weeds, a bittersweet elegy of bygone America that in his hands stayed blessedly clear of nostalgia.

Other artists came to love Polaroids, of course. Warhol recognized it as the perfect tool to capture the gaudy, passing glamour of the disco 1970s, not to mention the genitals of visitors to the Factory, whom he apparently asked to drop their pants for posterity's sake. ("It was surprising who'd let me and who wouldn't," he reportedly said.) Conceptual artists like Vito Acconci identified with its quotidian efficiency and William Wegman made a nice career photographing Weimaraners he called Man Ray and Fay Ray. David Hockney produced Cubist collages; Chuck Close, portraits. The paradox of such a mass-market machine serving elite purposes proved irresistible to many artists and the Polaroid snapshot became a cliché in high art circles, whose diaristic potential continues to lure chroniclers of fashion like Dash Snow.

Ultimately, though, it's the populist tradition that lends the demise of Polaroid instant film its poignancy: the power of all those ordinary pictures to salvage forgotten lives — and the finality of the moment after which the mass of billions of snapshots preserving millions of anonymous instants of happiness or private consequence ceases to grow and, with us, heads toward oblivion.

In "The Emigrants," W. G. Sebald's narrator by chance notices an item in a Lausanne newspaper about the discovery of a dead Alpine climber, a long-forgotten man who happened to have been very dear to someone the narrator once knew and had himself nearly forgotten. The climber's remains were suddenly released by a glacier in Switzerland, where he had gone missing 72 years earlier.

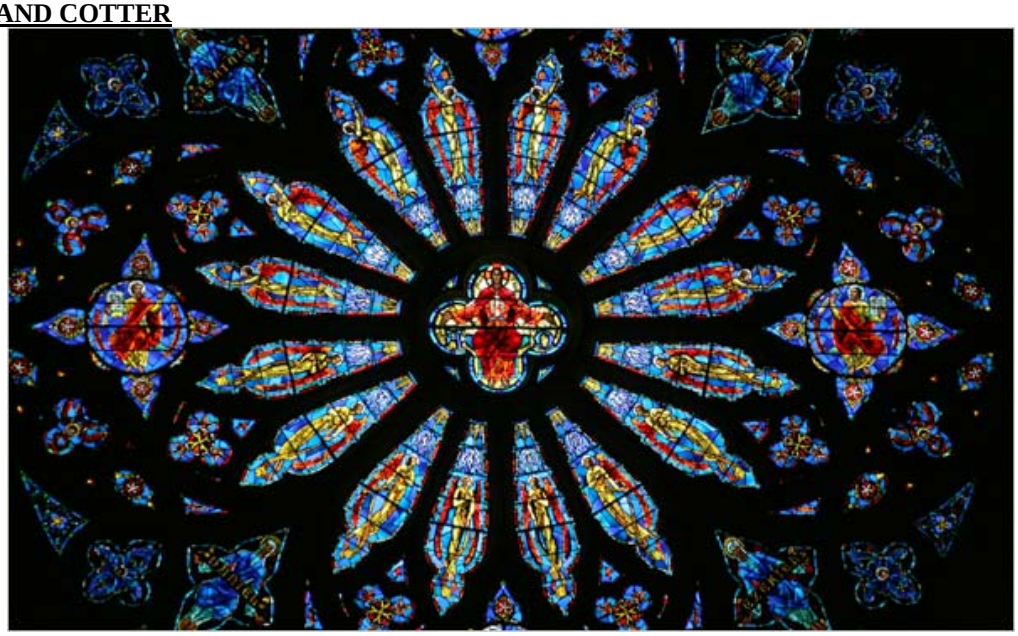
"And so they are ever returning to us, the dead," Sebald writes. "At times they come back from the ice more than seven decades later and are found at the edge of the moraine, a few polished bones and a pair of hobnailed boots."

Or as a yellowing Polaroid snapshot we dumped into a shoebox one day long ago and forget in a corner of the attic; or clipped to the back of the sun visor in the old Buick; or that migrated behind the refrigerator, waiting to be rediscovered.

http://www.nytimes.com/2008/12/28/weekinreview/28kimmelman.html?ref=design&pagewanted=all

Full Constant Light

By HOLLAND COTTER



At this dark time of the year, we like light. So we have festivals of light: Hanukkah, Kwanzaa, Christmas, and New Year's Eve too, with its bright parties, and fireworks, and the fabulous walk-in lantern that is Times Square.

Times Square, of course, is a lantern year round. In cities the lights are always on. To a large degree cities are constructed of light enclosed and released. This is what attracts people to them, the great blaze that never goes out. And the light is extremely varied. From our Bronx apartment, we look one way and see sunlight changing color on nearby high rises and a Milky Way of all-night Manhattan lights beyond. The view in the other direction is to empty sky and the Hudson, by day as mutable in tone as gray jade and all but invisible after dark unless a passing ship tells you it's there. Same city, different impressions of light. But this is true in any neighborhood, anywhere, just as it is true of images of light in art spread across the city. And the way light looks depends a lot on who's looking. In the 19th century American landscape artists hiked the wilderness, taking field notes on natural light, obsessively recording its qualities at specific times and places. When they returned to their city studios to paint, though, they bathed their landscapes in a theatrical glow that showed little evidence of direct observation.

For them light was a complex element; a hard, recordable fact, yes, but also a symbol, a big idea. In a new nation still deeply religious and in search of a triumphal identity, light in art implied revelation. And what was being revealed was God's plan for America as the chosen land, the New Eden. Divine light shone on it and on the artists inventing its national image.

Time passed. Culture changed. And light, ever volatile, has taken on many other roles in art. Sometimes it is used to obscure rather than clarify meaning. Sometimes it serves as a warning rather than a warming agent. Traditional religious associations hold. Light streaming from the great Rose Window at the Cathedral Church of St. John the Divine seems austerely empyreal in the recently scrubbed and brightened interior.

But increasingly, illumination has become a private experience, the way poetry is: one piece matched to one reader, a reader willing to be "lit with piercing glances into the life of things," to quote Marianne Moore. Moore, a lifelong New York City resident, did not take aesthetic revelation casually, but she was pragmatic. She understood you had to seek it to find it. She found a constant source in her hometown.

Poetic and pragmatic is an apt description of New York and its light. This is an island city — of its five boroughs only the Bronx is part of the North American mainland — with an island light, alternately obdurate and romantically moody. It can be too candid. Noon light in New York is not going to make you

look rosy if you're pale, or rested if you're tired, or younger than you are. But its toughness is democratic: it falls on everybody and everything the same way.

You can see this in a set of photographs by Rudy Burckhardt (1914-1999) at the Metropolitan Museum of Art. Born in Switzerland, Burckhardt came to Manhattan in 1935 when the city was still in the grip of the Depression. Fascinated by the city but shy about using a camera on the street, he first shot architectural details, then the feet of pedestrians and finally the walkers themselves, most of whom didn't notice him. That warming up is documented in the slender album Burckhardt put together and hand-titled "New York, N. Why?" Its original pages, with pasted-in pictures and six sonnets by his partner at the time, the poet and dance critic Edwin Denby, make up the Met show.

With its images of newsstands, advertising and sidewalk traffic, the album is an essay in period culture. And with its shots of architecture it becomes a study in light used by the artist as a ready-made construction material, as solid as steel and stone, as abstract as the bars and blocks of Mondrian. In front of the light structures New Yorkers boogie and strut in place, nailed down by their cast-iron shadows.

Denby's poems echo the pictures' mock-monumentalism:

When they build for a million a day to use it,
What is the point in, say, five hundred years,
Abroad they've still got the pyramid of Whoosis,
Would it last in New York? The answer is, who cares.

In 1939, while Burckhardt and Denby were compiling the album, they met Fairfield Porter, a figurative painter and near-contemporary who would later become a probing art critic. Most of his paintings were portraits of friends and family set in domestic interiors, with the figures and space alike defined by modulations of light and shading.

Someone once asked Porter what he looked for when he visited museums. "Light," he said. He found it in the art of Édouard Vuillard and in the paintings of Edward Hopper, a big influence. Hopper's light tends toward the stagey, but in a painting like "Queensborough Bridge," at the Whitney Museum, it doesn't go there. It doesn't hint at teasing, B-movie back story. It's realism plain style: an image of a particular structure in the particular light of a damp gray day.

When the poet John Ashbery described Porter's colors as "transparent and porous, letting the dark light of space show through," he might have been speaking of Hopper too, or of this Hopper at any rate. Like Porter's art, Hopper's exemplifies one version of American-style luminosity, painting that has some sort of spiritual dimension, but is also as unpretentiously humane as a piece of fine, body-friendly furniture.

I'd say the same of certain abstract art too, including the early woven work of Lenore Tawney. Tawney, who died last year at 100, developed a distinctive, unfancy, off-the-loom tapestry technique that left areas of otherwise dense weave translucent. An example from the 1950s, "Jupiter," is now on view at the Museum of Arts and Design, though disadvantageously displayed, flat against a wall.

Were it freely suspended, preferably near a window, light would filter through the fabric. Such a presentation would allow the central, circular planetary emblem to optically shimmer and spin and would clarify the equal importance of two sources for Tawney's art: Bauhaus practice and Asian mysticism. "A shine is that which when covered changes permission," wrote Gertrude Stein. "Jupiter" should be given permission to shine.

The quality of transparency — letting light through — sounds straightforward enough but isn't. When Ralph Waldo Emerson referred to himself as a "transparent eyeball," he was talking about extreme experiences of cosmic consciousness, and ego loss as destabilizing as it was ecstatic. The poet Anne Porter, the wife of Fairfield, spoke of transparency as desirable but paradoxical, describing poetry and art that "lucidly shows you something that is a mystery."

For the contemporary artist Daniel Joseph Martinez transparency as fulll disclosure is suspect and potentially subversive. His new sculpture "the west bank is missing, i am not dead, am i," installed in the City University of New York Graduate Center, has, it seems, nothing to hide. In the form of two enormous upright rings, it is made of clear plastic, looks abstract and is fully visible from the street.

The piece is, however, coded. Odd-shaped patterns stamped into the plastic were molded from two architectural models. One was for a suburban development in Irvine, Calif.; the other, inspired by that plan, for an Israeli settlement project on the West Bank. In the United States modern suburban communities have often served to isolate middle-class whites from urban minorities. In Israel, Mr. Martinez suggests, another kind of apartheid is in operation.

None of this is immediately evident from the glowing, helix-shaped sculpture. But once understood, its lucidity clouds over. In this case, as so often in politics, transparency means hiding truth in plain sight.

Mr. Martinez is not a romantic when it comes to using light as a symbol; other politically minded artists are. In 1950 the California artist Chesney Bonestell (1888-1986) produced a fantastically melodramatic oil sketch of an apocalyptic scene: New York City ruined and in flames after an atom bomb attack.
The picture, at the New-York Historical Society, was commissioned as a magazine illustration at the height of cold war paranoia. Now, inevitably, it brings 9/11 to mind. But it also carries art historical resonances: the reds and oranges of Bonestell's conflagration are the same used in 19th-century American paintings of sunsets, intended as emblems of a nation under providential care.
Just such a sunset is essential to a Robert Gober installation called "Prison Window" at the Andrea Rosen Gallery in Chelsea, though here the effect is distanced, if not sardonic. There isn't much to the installation, which is basically a piece of stage design consisting of a small barred window set in the gallery wall with a sunset painted on a second wall behind it.
We all know such light and have feelings about it, possibly strong ones: sunset sadness is built into our culture; late-day light is associated with partings, endings, the coming of night, not to mention Hollywood westerns. Is Mr. Gober suggesting we are prisoners of such feelings, locked in by nostalgia — that passive and unprogressive emotion — and by art that promotes it?
Whatever his meaning, there's no question that light is a trigger of memory. And much art, like much poetry, is focused on the past, examining it, revising it or simply evoking it as George Tooker does in his 1952 painting "Garden Party," included in his retrospective at the National Academy Museum.
Mr. Tooker's formally exacting work has taken several directions in the past half-century, alternating political subjects with portraiture and religious painting. In "Garden Party" he is dealing in personal memory, specifically the recollections of summers when he was a child and even more specifically what light was like then: the early evening sky with the moon and one star; the soft flush of Japanese lanterns in the garden. Although the painted scene is highly stylized, the light rings true. It feels like the real, lived-in but long-lost thing, the way it does in the paintings of Aelbert Cuyp and Edward Hicks and Watteau.
Past is past, and if one
remembers what one meant
to do and never did, is
not to have thought to do
enough? Like that gather-
ing of one of each I
planned to gather one
of each kind of clover,
daisy, paintbrush that
grew in that field
the cabin stood in and
study them one afternoon
before they wilted. Past
is past. I salute
that various field.
The poem, about the past remembered and embraced, is by the New York writer James Schuyler (1923-1991), about whose work Fairfield Porter wrote it "tends toward a deceptively simple Chinese visibility, like transparent windows on a complex view."
What is most complex about the view — any view — is the reality of change, every minute, all the time, "like in water a reflection" as Denby puts it in the palooka patois of his sonnets. The light on the buildings outside the windows changes, the all-night lights of the city, the shadow of clouds on the river, the light through a rose window, the light through a sculpture, the light in Times Square, where one year will soon be seen out, while another, with a sizzle of light, brought in. Change, like light, can be blinding; it can also show the next right way to go. All we can do about the confusion is what artists do: keep looking and thinking, and making the mind and eye — Denby once more — the shutter of a camera that is open forever.

http://www.nytimes.com/2008/12/26/arts/design/26ligh.html?_r=1&ref=design&pagewanted=all

Should Patients Be Told of Better Care Elsewhere?

By DENISE GRADY

Six years ago, a relative of mine found out that she had rectal cancer and would need surgery, radiation and chemotherapy. She lives in a small town, and she consulted a local surgeon at a community hospital.

He was pleasant and kind, and clearly explained her condition and the operation he would perform. He was also painfully honest, and said that because the tumor was large, he doubted that he would be able to save the sphincter muscles that make bowel control possible. She would very likely need a colostomy, a procedure to divert wastes out through an opening cut in the abdomen, and would have to wear a colostomy bag for the rest of her life.

My relative thought it over. Being treated close to home had seemed so easy and convenient, and she dreaded the thought of shopping around for doctors when she was feeling sick, vulnerable and anxious. It was tempting to think that she would receive first-rate treatment no matter where she went.

But she also recognized that this was a small hospital, and a surgeon who probably spent more time fixing hernias and taking out gallbladders than he did operating on cancer patients. She decided that she wanted a doctor who operated on patients like her all the time, and that the two-hour trip to a cancer center would be worth the trouble.

And so it was: she found a surgeon who specialized in rectal cancer, and today she's in good health, with no need for a bag. She might have done just as well with the local surgeon, but we both doubt it.

An article published online in October in the journal PLoS Medicine really hit home with me. Noting that the quality of cancer care is uneven, its authors argued that as part of the informed-consent process, doctors have an ethical obligation to tell patients if they are more likely to survive, be cured, live longer or avoid complications by going to Hospital A instead of Hospital B. And that obligation holds even if the doctor happens to work at Hospital B, and revealing the truth might mean patients will take their business someplace else.

"It's only fair," said Dr. Leonidas G. Koniaris, an author of the article and a cancer surgeon at the Miller School of Medicine at the University of Miami.

Studies have confirmed the common-sense notion that practice makes perfect, and the medical profession has known for at least 30 years that how well people fare after surgery often depends on where it was performed. For a given operation, outcomes are generally best at "high volume" hospitals, which perform it often. The difference between high- and low-volume centers is not just the surgeon's skill, but also the level of expertise in other areas that are crucial after surgery, like nursing, intensive care, respiratory therapy and rehabilitation, Dr. Koniaris said. The same principles apply to treating cancer.

But patients are not often told during the informed-consent process that the results of cancer treatment can vary among hospitals, according to Dr. Koniaris and his co-author, Nadine Housri, a medical student.

"I think it's sort of starting to happen but hasn't really become a dialogue yet," Dr. Koniaris said.

The strongest evidence that volume makes a difference comes from studies of surgery for pancreatic and esophageal cancer, but Dr. Koniaris said the experience of the surgeon and the whole medical team was important in any major cancer surgery.

He was not surprised to hear about my relative. He was an author of a study published in 2007 that found that people with rectal cancer survived longer and were more likely to have operations that saved the

sphincter at teaching hospitals than at community ones — even though the university hospitals were more likely to take on difficult cases with large tumors. Another study in which he participated suggested that women with advanced breast cancer received more comprehensive therapy and survived somewhat longer when treated at teaching hospitals rather than at community ones.

Some medical experts say complicated treatments like surgery for cancer or heart problems should be regionalized — done strictly at specialized, high-volume centers, not at centers that don't perform the operations often enough to become really good at them. But Dr. Koniaris and Ms. Housri suggested still another option."We brought up the idea that maybe it should just be up to the patient," Dr. Koniaris said.

Studies have found that some people still prefer to be treated close to home even if the risks are higher there. Maybe they shouldn't be forced to travel, especially if the difference is not large, Dr. Koniaris said.

Asked if he practiced what he preached, Dr. Koniaris said yes, that as a surgeon he sometimes sent patients to other doctors, especially for pancreatic cancer and liver tumors.

His article pointed out that in a few cases in the United States and Australia, courts have ruled that doctors who had operated on people with poor results should have informed the patients that more experienced surgeons were available.

PLoS Medicine framed the article by Dr. Koniaris and Ms. Housri as a debate, with two other researchers taking different views. Dr. Robert J. Weil, a neurosurgeon at the Cleveland Clinic, argued that although it might seem a good idea to inform patients of differences in outcomes among hospitals, there would be "a variety of hurdles."

Which hospitals would be chosen for comparison? And as medicine advances and changes, Dr. Weil asked, "is it possible to compare hospitals or even recent time periods, especially when faced with disease courses that may extend over years?" He also suggested that if hospitals were forced to give patients comparative information, it might lead some to avoid difficult cases, to make their numbers look better. And he pointed out that patients might have no idea what to make of the information, because most people have a hard time gauging risk or understanding that statistics apply to a population but don't predict the fate of an individual.

David I. Shalowitz, a bioethicist, said that expecting surgeons and hospitals to disclose information about other doctors and medical centers would create an untenable conflict of interest for them and should be avoided.

The question of what the doctor's obligation is remains unresolved. People can ask doctors for comparative information, but many patients would fear giving offense. And judging by volume alone may have its pitfalls, because there are bound to be some hospitals that do lots of operations badly and some that perform few but do them well.

(For people who want to find out how a specific hospital performs in treating certain illnesses and performing operations, the government Web site www.hospitalcompare.hhs.gov provides information. In addition, some states require that hospitals publish their infection rates; that information is at www.hospitalinfection.org.)

Some people will try to sort out whatever information they can obtain or, as my relative did, simply figure that the odds will be most in their favor if they can find their way to a doctor or surgeon who takes care of a lot of people who are a lot like them. For now, many patients facing tough decisions are pretty much on their own.

http://www.nytimes.com/2009/01/06/health/06seco.html?_r=1&nl=8hlth&emc=hltha1

Some Protect the Ego by Working on Their Excuses Early

By BENEDICT CAREY

Every ugly exam score, blown deadline and failed project provides the opportunity to try out new excuses. It was a blowup at home. A sick cat. An emergency at work.

Not to mention the roadways: if only they hadn't been so icy.

This kind of talk is so familiar that most people quickly dismiss it, even when it comes out of their own mouth.

This is one reason that genuine excuse artisans — and there are millions of them — don't wait until after choking to practice their craft. They hobble themselves, in earnest, before pursuing a goal or delivering a performance. Their excuses come preattached: I never went to class. I was hung over at the interview. I had no idea what the college application required.

"This is real self-sabotage, like drinking heavily before a test, skipping practice or using really poor equipment," said Edward R. Hirt, a psychologist at Indiana University. "Some people do this a lot, and often it's not clear whether they're entirely conscious of doing it — or of its costs."

Psychologists have studied this sort of behavior since at least 1978, when Steven Berglas and Edward E. Jones used the phrase "self-handicapping" to describe students in a study who chose to take a drug that they were told would inhibit their performance on an exam (the drug was actually inert).

The urge goes well beyond a mere lowering of expectations, and it has more to do with protecting self-image than with psychological conflicts rooted in early development, in the Freudian sense. Recent research has helped clarify not just who is prone to self-handicapping but also its consequences — and its possible benefits.

In the original conception, Dr. Berglas and Dr. Jones identified self-handicapping in students who were told they had aced a test made up of impossible-to-answer questions. They had "succeeded" without knowing how or why. "These are the people who are told they are brilliant, without knowing how that inference is derived," said Dr. Berglas, now an executive coach in the Los Angeles area. He understood

the impulse, he said; he himself first experimented with drugs in high school just before taking the SAT, on which he was expected to get a perfect score — a reckless stunt that provided the seed for the theory.

The urge to shoot one's own foot seems to be stronger in men than in women. In surveys, Dr. Hirt and others have measured the tendency by asking people to rate how well a series of 25 statements describes their own behavior — for example, "I try not to get too intensely involved in competitive activities so it won't hurt too much if I lose or do poorly." Men tend to score higher on these measures and, in lab studies, to handicap themselves more severely.

Yet given the opportunity, and a good reason, most people will claim some handicap. In a paper published last summer, Sean McCrea, a psychologist at the University of Konstanz in Germany, described experiments in which he manipulated participants' scores on a variety of intelligence tests. In some, the subjects could choose to prepare before taking the test or could join the "no practice" group.

Sure enough, Dr. McCrea found that those told they got bad scores blamed a lack of practice, if they could, and that citing this handicap cushioned the blow to their self-confidence.

But the handicap also had another effect. In another experiment, participants who had a good excuse for their poor scores — distracting noises, pumped through headphones they wore during the test — were less motivated to prepare for a subsequent test than those who had no excuse. "The handicap allowed them to say, 'All things considered, I actually did pretty well,' " Dr. McCrea said in a phone interview. "And there's no drive to get better."The burn of embarrassment is, in some sense, the pilot light of motivation.

As a short-term strategy, self-handicapping is often no more than an exercise in self-delusion. Studies of college students have found that habitual handicappers — who skip a lot of classes; who miss deadlines; who don't buy the textbook — tend to rate themselves in the top 10 percent of the class, though their grades slouch between C and D.

Those who succeed despite their flirtations with disorder typically grow increasingly fond of the handicap itself, whether drink or drugs or defying rules. "With success, expectations go up, and the behavior gets more extreme," said Dr. Berglas, author of "Reclaiming the Fire: How Successful People Overcome Burnout" (Random House, 2001).

But the tactic doesn't fool many people. In a recent study, James C. McElroy of Iowa State University and J. Michael Crant of Notre Dame had 246 adults evaluate the behavior of characters in several workplace anecdotes. The participants' impressions of a character began to sour after the second time the person cited a handicap.

"What happens here is that if you do it often, observers attribute your performance to you, but begin to view it as part of your disposition, i.e., you're a whiner," Dr. McElroy wrote in an e-mail message. "But you can avoid this happening if someone else does the handicapping for you, and surprisingly enough, even if they do it often."

That, too, is well known among the very best of excuse makers: for best results, recruit an apologist.

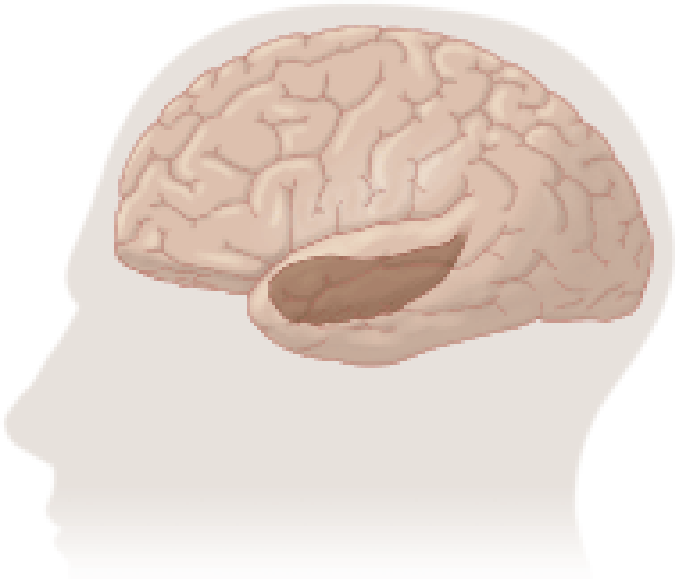
The important thing for some is, no matter the method, to avoid considering the alternative explanation.

"It's like the line from the old Brando movie 'On the Waterfront': 'I coulda been a contender,' " Dr. Hirt said. "In the long term, that may be easier to live with for some people than to know that they did their very best and failed."

http://www.nytimes.com/2009/01/06/health/06mind.html?nl=8hlth&emc=hltha1

Blood Sugar Control Linked to Memory Decline, Study Says

By RONI CARYN RABIN



Spikes in blood sugar can take a toll on memory by affecting the dentate gyrus, an area of the brain within the hippocampus that helps form memories, a new study reports.

Researchers said the effects can be seen even when levels of blood sugar, or glucose, are only moderately elevated, a finding that may help explain normal age-related cognitive decline, since glucose regulation worsens with age.

The study, by researchers at Columbia University Medical Center and funded in part by the National Institute on Aging, was published in the December issue of Annals of Neurology.

“If we conclude this is underlying normal age-related cognitive decline, then it affects all of us,” said lead investigator Dr. Scott Small, associate professor of neurology at Columbia University Medical Center. The ability to regulate glucose starts deteriorating by the third or fourth decade of life, he added.

Since glucose regulation is improved with physical activity, Dr. Small said, “We have a behavioral recommendation — physical exercise.”

In the study, researchers used high-resolution functional magnetic resonance imaging to map brain regions in 240 elderly subjects. They found a correlation between elevated blood glucose levels and reduced cerebral blood volume, or blood flow, in the dentate gyrus, an indication of reduced metabolic activity and function in that region of the brain.

By manipulating blood sugar levels in mice and monkeys, researchers said, they tried to confirm a cause-and-effect relationship between the glucose spikes and the reduced blood volume, Dr. Small said.

Bruce S. McEwen, who heads the neuroendocrinology lab at Rockefeller University in New York and was not involved in the research, said the study’s findings were “compelling,” with important implications not just for the elderly but for the growing number of overweight children and teens at risk of Type 2 diabetes.

"When we think about diabetes, we think about heart disease and all the consequences for the rest of the body, but we usually don't think about the brain," he said. "This is something we've got to be really worried about. We need to think about their ultimate risks not only for cardiovascular disease and metabolic disorders, but also about their cognitive skills, and whether they will be able to keep up with the demands of education and a fast-paced complex society. That's the part that scares the heck out of me."

Previous observational studies have shown that physical activity reduces the risk of cognitive decline, and studies have also found that diabetes increases the risk of dementia. Earlier studies had also found a link between Type 2 diabetes and dysfunction in the dentate gyrus.

Sheri Colberg-Ochs, an associate professor of exercise science at Old Dominion University in Norfolk, Va., said her research has found that regular exercise, even light physical activity, can offset the potentially negative effects of Type 2 diabetes on cognitive function. It is not clear what the mechanism is, she said, but may have something to do with the effect of insulin.

"This new study is interesting in that it allows for a greater understanding of which region of the hippocampus is likely most affected by poorly controlled diabetes," she said.

But the elevations in blood glucose seen in the new study are more subtle and would not be considered a disease state, Dr. Small said.

"It's part of the normal process of aging, much like wrinkling of skin," he said. "It happens to all of us inexorably, and it worsens progressively across the life span."

http://www.nytimes.com/2009/01/01/health/31memory.html?nl=8hlth&emc=hltha2

The Instincts to Trust Are Usually the Patient's

By SANDEEP JAUHAR, M.D

Not long ago, I took care of an elderly man with congestive heart failure. A few days into his stay in the hospital, he told me he was not going to make it out alive. "I am going to die here," he whispered, as if letting me in on a secret.

I tried to reassure him: on the scale of disease I normally treat, his case was relatively mild. But then he became sicker.

His bloated legs dripped fluid, soaking his bed sheets and puddling on the tile floor. His blood pressure dropped. He became delirious. I was perplexed by the precipitous downturn. What did my patient know that I did not?

After several days of keeping round-the-clock vigil in the intensive care unit, his wife of nearly 50 years could no longer bear his suffering and requested hospice care. A few hours before he died, groggy from morphine, he managed to summon a few moments of lucidity. Gripping his wife's hand, he said to her, "You're doing the right thing."

Every day in medicine there are examples of patients who know they are about to die, even if no one else does. They often have a feeling of impending doom before a catastrophic event like a heart attack or a fatal infection, and though doctors don't know how to explain it, most of us take it seriously.

When we talk about instinct in medicine, we usually talk about expert clinicians grasping diagnoses in ways that seem to defy analytical explanation. These doctors appear to know almost intuitively which data to focus on and which to ignore. Of course, their decision-making is based on experience and deductive reasoning (and perhaps on evidence, too), yet it seems almost mystical.

I will never forget the time in medical school when we presented a baffling case to the chief of medicine. He made a diagnosis of primary pulmonary hypertension within seconds, on the basis (he claimed) of the loudness of the second heart sound, an incredible feat of observation and logical synthesis.

This sort of diagnostic intuition is becoming rare in the current era of technological medicine. Patients today often receive a battery of tests even before a physician examines them. The results, usually expressed in numbers that give a misleading impression of absolute precision, tend to lull doctors into a sort of laziness that has atrophied instinct.

On the other hand, doctors' prognostic instincts have always been poor. In my work as a critical care cardiologist, I am often asked to predict how long someone is going to live. I know how useful such projections can be to patients and their families, but I rarely, if ever, venture a guess because they are so often inaccurate. (I am usually too optimistic.)

So it amazes and baffles me when patients have a sixth sense about their own deaths. Last year, my team cared for a woman who told us calmly on morning rounds that she had a feeling she was going to die that day.

A few hours later she complained of belly pain, and when a tube was inserted through her nose and into her stomach, old digested blood — "coffee ground" secretions — came up. Her blood count plummeted, and within a few hours she had spiraled into shock and multiple organ failure, even before we could get a CAT scan to see what was going on. It was totally unexpected, one of the most rapid noncardiac deaths I have ever witnessed.

I don't know how my patient was seemingly able to predict her own demise. Perhaps high levels of circulating adrenaline caused a reaction similar to a panic attack; I don't know. But I have learned over time to take such intuitions very seriously.

Sometimes, morbid instincts derive from other sources. In 2007, The New England Journal of Medicine had the story of a cat named Oscar who lives in a nursing home in Providence, R.I., and seems to have an uncanny sense for when elderly residents are about to die.

He goes to their rooms, curls up beside them — even those residents for whom he has previously shown little interest — and purrs. Staff members at the facility have learned that this is a telltale sign of impending death, having witnessed this behavior in the deaths of at least 25 patients. "This is a cat that knows death," one doctor said. "His instincts that a patient is about to die are often more acute than the instincts of medical professionals."

No doubt there are more such animals. But I have learned that the best instincts in medicine derive from the patients themselves. Their intuitions about their own health may be denigrated by doctors. But we must learn to pay attention to them. As my patients have taught me, they often hold the vital clue.

Sandeep Jauhar is a cardiologist on Long Island and the author of the recent memoir "Intern: A Doctor's Initiation."

http://www.nytimes.com/2009/01/06/health/views/06case.html?nl=8hlth&emc=hltha8

In War and Floods, a Family's Leitmotif of Love, Memories and Secrets

By MICHIKO KAKUTANI

LARK AND TERMITE

By Jayne Anne Phillips

Illustrated. 254 pages. Alfred A. Knopf. $24.

Jayne Anne Phillips's intricate, deeply felt new novel reverberates with echoes of Faulkner, Woolf, Kerouac, McCullers and Michael Herr's war reporting, and yet it fuses all these wildly disparate influences into something incandescent and utterly original.

Following in the wake of several less than magical works, "Lark and Termite" emerges as a novel every bit as powerful and emotionally piercing as Ms. Phillips's 1984 classic "Machine Dreams." Like that earlier book this novel depicts a family in West Virginia, subject to the centrifugal forces of history, and also like that earlier book it harnesses the author's fecund language to burrow into the psyches of these people, probing the emotional fallout that war (in this case the Korean war, not Vietnam) will have on all their lives. It is a novel that conjures with poetic ferocity the love that binds a young soldier named Leavitt to his bride, Lola, back home in the States; and the love that will develop between his son, Termite, who is unable to walk or talk; and Termite's half-sister, Lark, who will become his caretaker, protector and soul mate.

In the hands of another writer such subject matter might easily turn into maudlin melodrama, but Ms. Phillips knows her characters so intimately and tackles their stories with such ferocity that the novel does not devolve into soap opera but instead ascends into the higher, more rarified altitudes of fable.

As her evocation of the fevered experience of drugs and sex in her early stories first demonstrated, Ms. Phillips creates characters with an intensely sensual apprehension of the world, and in these pages she conveys their experiences with a visceral immediacy, be it Leavitt's hallucinatory memories of Lola, as he lies dying in a dank tunnel in the Korean countryside, or Termite's wordless perceptions of the world around him, happily immersed in the roar of a train passing overhead on the tracks or pleasurably absorbed in the swirl of a bit of blue plastic from a dry-cleaning bag that he likes to twist back and forth in his hands. Repeated images and leitmotifs link these people's stories together, lending the novel a haunting musical quality, even as they suggest the unconscious, almost magical bonds shared by people who are connected by blood or love or memory.

Using one of her favorite narrative techniques Ms. Phillips tells these characters' stories from alternating points of view. Leavitt's chapters take place in July 1950, when as one of the first American soldiers into Korea he finds himself trapped under friendly fire. The chapters featuring Termite, as well as those narrated by Lark and Lark's aunt, Nonie, take place nine years later in the small West Virginia town of Winfield .

Lark and Nonie speak to us directly, while the chapters depicting Leavitt and Termite are delivered in the third person, but in each case Ms. Phillips communicates their experience with enormous urgency, using a sort of electric stream-of-consciousness prose that owes debts in equal measures to Kerouac's "On the

Road" and Woolf's "To the Lighthouse." Whereas her writing can sometimes sound self-consciously literary — as though she were showing off what acrobatics she can make words perform — she puts her verbal fluency here at the service of her characters' stories, illustrating them with scenes that burn like cinematic images, complete with soundtracks, in our minds.

There's Lark in a night-school typing class, where the clacking of the keys becomes a chorus, the machines exploding "with noise, running over themselves," the ominous sound of her clerical future if she ever manages to graduate. There's Leavitt, running memories through his head like rosary beads, to sustain himself in Korea, remembering the "glittery concrete and asphalt," the chain-link fences and tenements of the Philadelphia neighborhood where he grew up and the magic expanse of Lola's bed, under the slow turn of a ceiling fan, on the top floor of the building that housed the Louisville, Ky., club where she sang standards and blues. And there's Termite, carried by Lark to the attic to wait out the raging flood that has overtaken their small town, hearing the river surge with the rain, the water now inside the house and rising, as he and Lark wait for a neighbor to rescue them by boat.

Ms. Phillips conveys Lark's protective love for Termite in clear, unsentimental terms: he is such a part of her that when she's with him, "he feels like alone to me"; "he's like a hum that always hums so the edge of where I am is blunt and softened." She fears that the people from Social Services, who want to put Termite in a special school, will take him away; she does not think of the day when he will be too heavy for her to lift or the day when she might marry and have children of her own. When she was younger, she used to believe that Termite's head — which he has difficulty holding up when he's tired — was so heavy "because there was so much in it he couldn't tell or say," that "he'd kept all the words I couldn't call up, our mother's words and words about her" in his brain.

Just why their mother abandoned Termite and Lark and turned them over to her sister Nonie is the central mystery in this novel, a mystery that Lark longs to unravel and that Nonie keeps from her out of fear that the truth will prove too painful to bear. The secret of Lark's own paternity is one that goes to the heart of Nonie's conflicted relationship with her sister and that informs her stoic determination to raise these two children as her own. Although the answers to these secrets are rather abruptly dumped on Lark and the reader near the end of the book, Ms. Phillips has done such an assured and sympathetic job of delineating all her characters and their complicated ties to one another that these revelations feel completely fitting and in retrospect perhaps even obvious. However rushed the ending of this novel might be, the characters, like those in "Machine Dreams," are so indelible, so intimately drawn, that they threaten to move in and take up permanent residence in the reader's mind.

http://www.nytimes.com/2009/01/06/books/06kaku.html?th&emc=th

Females 'less physically active'

Females are less physically active at both ends of life than their male counterparts, two studies suggest.

Researchers studied activity levels in school children and the over 70s - and in both cases found males tended to be more active.

The studies are being presented at the UK Society for Behavioural Medicine annual conference.

Liverpool John Moores University found girls take part in 6% less vigorous playtime activity than boys.

The researchers, who focused on 10 and 11 year-old children in the school playground, found that boys and girls tend to play differently.

Girls tended to spend time in smaller groups and engage in verbal games, conversation and socialising.

Most boys, however, played in larger groups, which lend themselves more to physically active games, such as football.

Researcher Dr Nicky Ridgers said: "It is a concern that girls' activity levels are lower than boys and, although it is just one piece in a complex picture, this could be contributing to girls being overweight and obese.

"Schools should be aware of the differences between the way girls and boys behave in the playground and the fact that girls tend to favour small group activities.

"They could then consider the availability of equipment and provision of playtime activities that would encourage girls to take part in more vigorously active play."

Older people

The gender difference was mirrored in a second study, led by the University of Bristol, which looked at activity levels among the over-70s.

In general, levels of physical activity were very low among most people of both sexes aged over 70.

More than 70% of the people who took part in the study walked for fewer than 5,000 steps a day.

However, women were more likely to be less active than men.

Researcher Professor Ken Fox said: "Men accomplish more higher intensity physical activity than women and this seems to be explained by trips out of the house.

"However, there is evidence that they also sit down for longer periods in the day.

"Women do more lower intensity activity which probably represents daily tasks around the house.

"This would suggest that traditional family roles are still identifiable in this generation."

Professor Adrian Taylor, of the University of Exeter, which is organising the conference, said development of ways to promote greater physical activity across all age groups was vital.

He said: "Society and our environment are leading us to do increasingly less physical activity with adverse health consequences such as heart disease, diabetes and mental health problems for people of all ages."

Professor Alan Maryon-Davis, president of the UK Faculty of Public Health, said both findings had important public health implications.

He said: "Vigorous activity helps build strong bones and joints. I'm worried that girls who are less active at playtime could be more vulnerable to osteoporosis (brittle bone disease) in later life.

"All the more reason to ensure that girls have plenty of organised sports and active games.

"For people in their 70s the key needs are mobility and flexibility, so a mix of activities is important for men and women alike to keep up their suppleness, strength and stamina - all the more reason to take up dancing!"

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7811398.stm

Published: 2009/01/06 00:26:48 GMT

Stress hormone 'a marker for ME'

Low levels of the stress hormone cortisol marks out children at higher risk of developing chronic fatigue syndrome as adults, experts believe.

These children if exposed to trauma, particularly emotional maltreatment and sexual abuse, had a six-fold increased risk for CFS, evidence shows.

Cortisol regulates the body's response to stress and a lack may hinder this coping mechanism, say the US authors.

Their work is published in the journal Archives of General Psychiatry.

Myalgic encephalomyelitis (ME), or CFS, causes long-term - and in some cases debilitating - tiredness which is not relieved by rest or sleep.

It is estimated that 250,000 people in the UK have the condition.

The authors of the latest study recruited 113 people with CFS and 124 other people without CFS as a control from a population of nearly 20,000 adults living in Georgia, the US.

The study participants were asked to complete a questionnaire on five different types of childhood trauma including emotional, physical and sexual abuse, and emotional and physical neglect.

They also gave saliva samples to record levels of cortisol over one hour after awakening, typically an individual's highest cortisol level for the day.

Abuse in childhood was a strongly linked to CFS, although not all of those with a traumatic childhood went on to develop CFS and not all of those with CFS as adults had been abused as children.

Only the individuals with CFS and a history of childhood trauma had lower than normal cortisol levels, however.

Early stress

Experts know that certain experiences children have while the brain is developing and vulnerable can make a difference in the way the body reacts to stress later in life.

This may have long-term health consequences, including CFS, said lead researcher Christine Heim of Emory University School of Medicine.

"The study indicates that low cortisol levels may actually reflect a marker for the risk of developing CFS rather than being a sign of the syndrome itself.

"Trauma that occurs at different times in childhood may be linked to different long term changes. It's an area in which more work is needed."

Sir Peter Spencer, CEO of Action for ME, said: "Childhood trauma has been linked to a higher incidence of all kinds of medical problems over the years and ME is no exception - but it is important to make one thing crystal clear. A diagnosis of ME does not mean that a patient has been mistreated or had a bad childhood.

"ME may be triggered by a wide range of factors including glandular fever, chickenpox, shingles, viral meningitis, gastroenteritis, salmonella and Lyme disease. The main conclusion that I draw from this rather limited study is the urgent need for much more biomedical research into the causes, risk factors and development of this very distressing illness."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7811359.stm

Published: 2009/01/06 00:29:24 GMT

Scientists dismiss 'detox myth'

There is no evidence that products widely promoted to help the body "detox" work, scientists warn.

The charitable trust Sense About Science reviewed 15 products, from bottled water to face scrub, and found many detox claims were "meaningless".

Anyone worried about the after-effects of Christmas overindulgence would get the same benefits from eating healthily and getting plenty of sleep, they said.

Advertising regulators said they looked at such issues on a case-by-case basis.

The investigation, done by research members of the Voice of Young Science network, was kicked off by a campaign to unpick "dodgy" science claims - where companies use phrases that sound scientific but do not actually mean anything.

They challenged the companies behind products such as vitamins, shampoo, detox patches and a body brush on the evidence they had to support the detox claims made.

No two companies seemed to use the same definition of detox - defined by the Oxford English Dictionary as the removal of toxic substances or qualities.

In the majority of cases, producers and retailers were forced to admit that they had simply renamed processes like cleaning or brushing, as detox, the scientists said.

Toxins

One researcher investigated a Garnier face wash which claimed to detoxify the skin by removing toxins.

The "toxins" turned out to be the dirt, make-up and skin oils that any cleanser would be expected to remove, she said.

A five-day detox plan from Boots which claimed to detoxify the body and flush away toxins was also criticised for not being backed by evidence.

Evelyn Harvey, a biologist who looked into the product, said that if consumers followed the healthy diet that was recommended alongside the supplement they would probably feel better - but it would have nothing to do with the product itself.

The researchers warned that, at worst, some detox diets could have dangerous consequences and, at best, they were a waste of money.

Tom Wells, a chemist who took part in the research, said: "The minimum sellers of detox products should be able to offer is a clear understanding of what detox is and proof that their product actually works.

"The people we contacted could do neither."

Alice Tuff, from Sense About Science, added: "It is ridiculous that we're seeing a return to mystical properties being claimed for products in the 21st Century and I'm really pleased that young scientists are sharing their concerns about this with the public."

The Advertising Standards Authority said it would investigate such claims on a case-by-case basis if a complaint was made.

"If a product is making claims not substantiated by the evidence submitted by the company we would challenge that."

A spokeswoman from Boots said its five-day detox plan encouraged people to drink water and includes ingredients that "battle against toxins and help protect from the dangers of free radicals".

And Garnier commented: "All Garnier products undergo rigorous testing and evaluation to ensure that our claims are accurate and noticeable by our consumers."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7808348.stm

Published: 2009/01/05 02:35:33 GMT

Proving the Benefits of Peer Instruction

The University of Colorado at Boulder has gone clicker crazy. Thousands of its undergraduate students own the electronic devices, which instructors across the campus use to gauge how well students are grasping the material in their courses. The university has also been a leader in experimenting with emerging methods of teaching, as many professors incorporate "peer instruction" designed to encourage students to discuss concepts with, and learn from, each other. There, as elsewhere, though, many other professors remain skeptical about new technologies and new teaching methods.Tin Tin Su, an associate professor in the university's molecular, cellular and developmental biology department and a participant in Boulder's Science Education Initiative, has been among the professors who use the clickers in their courses, surveying students throughout a lecture to ensure that they were understanding the concepts.Her own use of the devices confirmed the conclusions of studies she'd read showing that students who answered in-class questions using clickers were more likely to answer a question correctly after they'd had a chance to discuss it among themselves and then revote. But those studies left her with a nagging doubt: "Is the percentage of correct answers going up because they're really learning from each other, or because a neighbor says, 'Oh, B's the right answer,' and they're adopting that student's answer?"Without knowing that, Su says, "the study's only half done."So she and several colleagues decided to do the rest of the job, the results of which appear in the January 2 issue of *Science* magazine, a special issue on education and technology (subscription required). In an undergraduate genetics course, students were, on 16 occasions during the course of a semester, asked a pair of "isomorphic" questions, which have different facts but require students to apply the same principles or concepts. Instructors asked students one of the questions, had them "click" their answers, discuss the question with their neighbors, and then revote. Then, they were asked to answer the second question individually, via the clickers.A significantly higher percentage of students answered the second question correctly than did so on either the original question or the first question when it was asked a second time (without revealing the results from the first query). And of the students who answered the first question wrong, but got it right when it was re-asked, 77 percent answered Question 2 correctly."This result suggests that most students who initially did not understand a concept were able to apply information they learned during the group discussion and correctly answer an isomorphic question," the researchers write in their study. In addition, they note, 44 percent of students who answered the first question wrong both times it was asked still answered the second one correctly. "We speculate that when this group of students discussed [question 1], they were making sense of the information, but were unable to apply their new knowledge until presented with a fresh question on the same concept."The study is noteworthy, the researchers suggest, because by seeking students' responses to a question that they have not answered before, and that they answer without directly discussing with their peers, the researchers show that students appear to improve their performance "primarily from student gains in conceptual understanding rather than simply from peer influence."That is especially true, they note, because the study also shows that a majority of the discussion groups would have included no students who answered the first question correctly on the first try. So some of the students who answered that question right on the second try appear to have done so having gleaned important conceptual knowledge from the discussions with their peers.Su, the Colorado professor, said she hoped that the study, by showing that peer instruction helps students learn, would encourage professors who are wedded to a lecture-only format to consider incorporating peer discussion and other more collaborative methods into their curriculums.But the researchers said they recognized that yet another step would be necessary to show how peer instruction stacks up against instructor-only teaching. So as a followup study this last semester, says Michelle Smith, a science teaching fellow with the Science Education Initiative and a research associate in molecular and cell biology, the researchers repeated the experiment, substituting explanation by the instructor for peer discussion, and then adding a third test in which the students talk to each other, and then have the instructor add his or her own explanation of the concept.The results are not yet in, Smith says, but early data suggest that a combination of peer instruction and professor-led discussion produces the best performance.

— Doug Lederman

The original story and user comments can be viewed online at http://insidehighered.com/news/2009/01/05/peer.

Diamond clues to beasts' demise

By Molly Bentley
Science reporter

The controversial idea that space impacts may have wiped out woolly mammoths and early human settlers in North America has received new impetus.

Nano-diamonds and other exotic impact materials have been unearthed in thin sediments, Science magazine reports.

The age of these materials coincides with the start of a millennium-long climate cooling event known as the Younger Dryas - some 13,000 years ago.

Many large animals vanish from the archaeological record at this time.

It is also the period in Earth history that sees the demise of Clovis culture - the prehistoric civilisation that many regard as the first human occupation of North America.

Taken together, it all makes for a compelling story, claims the team behind the latest research.

Question of origin

The group used transmission electron microscopy (TEM) to identify tiny impact diamonds found at a range of sites - four of them Clovis archaeological digs - across North America. Diamonds form through intense pressure and heat.

"We've discovered nano-diamonds that are not normally produced through average processes on the surface of the Earth," said James Kennett, a geologist at the University of California, Santa Barbara, and author on the Science paper.

"They indicate there was an extra-terrestrial event on Earth 12,900 years ago," he told BBC News.

Scientists last year reported the discovery of five types of nano-diamonds along with impact material such as iridium and magnetic microspherules in the Younger Dryas impact layer, a thin blanket of sediment 12,900 years old.

The new analysis with TEM, they said, confirmed an abundance of diamonds in carbon spherules - melt material that forms in a fraction of a second - and the identification of lonsdalite, or hexagonal diamonds, associated with meteorite explosions.

The sheer number of diamonds - up to a million times that found in neighbouring sediment - and their presence inside spherules, refutes the speculation that the material is the normal rain of meteorite debris, says Allen West, a retired geophysicist in Arizona and a co-author.

"There is no other way that hexagonal diamonds could have ended up in a carbon spherule in this number," said Dr West.

Diamond 'rain'

The absence of some traditional impact material and visible craters in North America led researchers to speculate that a meteoroid or comet disintegrated before exploding in a cluster of airbursts.

Researchers argue that the airbursts could have triggered a series of dramatic climate shifts - including colder temperatures and an abrupt change in vegetation - that would have made survival difficult for large mammals and Clovis hunters.

The cause of the disappearance of Clovis culture and megafauna has long been debated.

Sceptics of the impact theory are not won over by the latest data. While scientists agree that something dramatic occurred on Earth 12,900 years ago, the theory that it was an exploding space rock has been cast by some as long on dramatic flair, short on compelling evidence.

Nicholas Pinter, a geologist at Southern Illinois University, said he had yet to see classic evidence of an asteroid impact.

The so-called discrete layers of material were not of a uniform age, he said. Microspherules, for example, rain down all the time and are present throughout the geological record.

"My graduate student found some on his mailbox," said Dr Pinter.

While Dr Kennett proposed that ordinary carbon was forged into diamonds in the intense pressure of an airburst, Dr Pinter said nano-diamonds are now being identified at other locations and times without credible evidence of any impact.

The suggestion that they could have been produced by an airburst event is "untested and highly implausible," he argued.

"Time will tell, but so far the Younger Dryas impact looks like an increasingly desperate fishing expedition for supporting evidence," said Dr Pinter.

Fire trace

Impact theorists maintain that the diamonds peak in abundance in the impact stratum.

The thumb width layer appears in a number of sites across North America including Murray Springs in Arizona and the Channel Islands off the coast of Southern California.

It lies beneath a black mat of biomass formed during the Younger Dryas.

The bottom-most film contains charcoal and soot, thought to be associated with impact fires, said University of Oregon geo-archaeologist Doug Kennett, son of James Kennett and another author on the Science paper, who has studied sedimentary vegetation and charcoal records.

No mega-fauna skeleton or Clovis artefact has been found above the impact layer or the black mat, he said.

"The black mat covers them like a blanket," said Dr Kennett.

Before they disappeared, woolly mammoths and other massive beasts such as sabre-toothed cats, giant sloth, camels, and teratorns (predatory birds with a nearly four-metre wingspan) roamed North America.

Doug Kennett doubts the theories of over-hunting, climate change and disease used to account for their extinction. There are not enough Clovis kill sites to suggest that the animals were over-hunted, for example, he said.

The animals' disappearance coincides with that of Clovis artefacts in the archaeological record 12,900 years ago. Prehistoric Clovis Indians lived broadly across North America for a few hundred years.

They were big game hunters, who introduced a sophisticated new Stone Age technology - the fluted spear point, known today as the Clovis Point.

The Paleo-Indians vanish at the onset of the post-Ice Age Younger Dryas, or Big Freeze, that snapped Earth back to near glacial conditions, where it lingered for about 1,200 years.

Crater conundrum

The causes of the woolly mammoth extinction, the collapse of Clovis culture and the onset of the cold snap have long been debated. But only the impact theory accounts for the simultaneous occurrence of all three, said Doug Kennett.

Others are wary of the link. Jeff Severinghaus, a geochemist who studies ice cores at Scripps Institution of Oceanography, is sceptical that an impact could have led to the temperature plunge.

He said records from Greenland suggested the cooling began earlier than 12,900 years ago. However, he is keeping an open mind.

"I'm still in a wait-and-see mode," added Dr Severinghaus.

Cosmic impacts are known to have profound climate consequences.

In this case, scientists propose that flash heat and pressure from an explosion destabilised the edges of the Laurentide ice sheet that covered North America, adding fresh water to the North Atlantic, and slowing the conveyor of warm water that heats Western Europe.

Impact debris kicked into the atmosphere would have cooled the Earth and led to a number of ecological disruptions, including abrupt shifts in vegetation.

Critics say that with an impact comes a crater, such as at Chicxulub in the Yucatan, Mexico, which supports the theory that dinosaurs were wiped out by an asteroid impact 65 million years ago.

But an airburst in which an impactor explodes in the Earth's atmosphere - such as that over Tunguska, Siberia, in 1908 - might not produce a crater, said Dr James Kennett.

The energy released in the Tunguska blast was at least five megatons, said Dr West. The Younger Dryas impact would have been much larger.

"Imagine 1,000 to 10,000 atomic bombs detonating within a few minutes over two continents," he said.

'Violates' understanding

Had the Clovis people witnessed the event, said Dr West, they would have seen a brilliant flash followed by others in quick succession.

The sky would be a canopy of fire, and shock waves would flatten trees. Miniscule diamonds would drizzle over tens of thousands of kilometres, a third of the way around the planet.

Nasa (Ames) space scientist David Morrison says the abundance of nano-diamonds is an "interesting mystery", but he does not think they were produced by cosmic airbursts.

A comet or asteroid that fragmented in Earth's atmosphere might have time to disperse over a few hundred kilometres, but certainly not thousands of kilometres across a continent, he said.

"I know of no mechanism that would break up a comet and distribute it over North America in the way they suggest," Dr Morrison told BBC News.

"It violates what we understand about cosmic impacts," he said.

Scepticism is necessary when building a new scientific theory. But, Dr West said, there was particular resistance to that of a Younger Dryas impact because the event occurred in modern human history and was so abrupt.

"People still like to think of geological processes happening slowly over time," he explained.

"It's unsettling that something happening in a few minutes could flip our climate and cause widespread extinctions."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7808171.stm

Published: 2009/01/02 17:27:07 GMT

DANCE ON CAMERA
Showing Dance on Film, Kirov to Busby Berkeley

By ROSLYN SULCAS

Dance on film can exist as an art form quite different from dance onstage. When a director makes us see or think about movement in new ways, or uses a camera as a choreographic tool to amplify our senses, dance and film can seem a perfect fit. But that's a rare occurrence, as a trawl through some of the works to be shown at the Dance on Camera festival, opening on Wednesday at the Walter Reade Theater, quickly shows.

The festival, co-sponsored by the Film Society of Lincoln Center and Dance Films Association, is now in its 13th year, and it does a stalwart service in bringing together a selection of new features and shorts. (This year also includes a focus on a not-so-recent dance-on-camera phenomenon, Busby Berkeley.)

Unlike more specialized dance-film festivals, where entries are shown in various categories (screen choreography, documentation, stage performance and the like), Dance on Camera lumps its offerings — 39 this year — in an eclectic grab bag of composite programs. This can have a serendipitous upside: if you go to see Juan Caño Arecha's documentary on the famed flamenco personality Antonio Gades, you'll also encounter two films, directed and choreographed by David Fernández, that feature New York City Ballet and American Ballet Theater dancers in somewhat unusual departures from their usual onstage personae.

But there's no connection between these offerings. Two documentaries might have made you think about the choices filmmakers face in treating their subject. And putting Mr. Fernández's fairly straightforward, agreeable works with other dance pieces made for camera might have raised questions about this whole approach.

The opening-night program, "Ballet Then and Now," includes what is probably the festival's most appealing feature for a broad audience. It is Bertrand Norman's "Ballerina," a 77-minute documentary about what he terms "the St. Petersburg ballerina," and it looks at five Kirov dancers — Alina Somova, Evgenia Obraztsova, Diana Vishneva, Svetlana Zakharova and Ulyana Lopatkina — all at different stages of their careers.

There is much in here that ballet lovers should adore. The behind-the-scenes look at an admission exam for 10-year-olds at the Vaganova Academy (the former Imperial Ballet School) shows implacable middle-aged men and women pulling the fragile long legs of skinny little girls up to their ears or bending the

children backward to the ground. The one-on-one rehearsals at the Kirov's Maryinsky Theater, in which dancers are lovingly coached in the nuances of their solos, make us feel the weight of history and tradition in the room. And there are daily-class glimpses of a cheerful, colorfully dressed Ms. Vishneva.

There is also much to feel extremely irritated about, chiefly the lugubrious voice-over by Diane Baker, who utters woolly platitudes like "In the land where ballet is a national art, ballet dancers enjoy unstinting prestige and stars draw crowds by their names alone" and "Russian female dancers were sublimated in a series of masterpieces, the most famous of which remains 'Swan Lake.' " Mr. Norman is clearly a fan, fascinated by the way the ballerina's glamorous facade masks the sweat and toil of the studio. There are lots of shots of panting exhaustion or defeated moments. "God, when is it going to stop?" Ms. Zakharova asks Olga Moiseyeva, her coach, as they rehearse "Swan Lake." It's a question that encompasses the endless corrections, the constant rehearsals, the never-ending quest for unobtainable perfection — and the answer is: Never.

But the film spends too much time on moody atmosphere shots of the offstage dancers, and its editing and continuity control are annoyingly vague. It never addresses the question that balletomanes will want answered: What is specific about the St. Petersburg ballerina? And by showing dancers who are all successful, whatever their rank in the company (even the corps de ballet newbie, Ms. Somova, gets a debut as Odette/Odile in "Swan Lake"), Mr. Norman makes the backstage tears look eminently worthwhile.

"Ballerina" is paired with Gillian Lacey's charming "Play: On the Beach With the Ballets Russes," which simply shows footage of the dancers horsing around on a beach in Sydney, Australia, at different moments during their tours between 1936 and 1940. Ms. Lacey probably overdoes the repetition of the sequences, set to an original score by Alexander Balanescu, without narration or on-screen titles. But "Play" is so delightful, with so much incidental information about the way people danced 70 years ago, that this (and my wish that the dancers had been identified) doesn't matter much.

The second opening-night program does have the focus that most of the programs lack: four pieces, commissioned by the Experimental Media Performing Arts Center (known as Empac), that purport to look at the future of dance and new media technologies. Unfortunately none of them make a very good case for that future. The best of the bunch is "Nora," a biographical film by Alla Kovgan and David Hinton about the Zimbabwean dancer Nora Chipaumire, which succeeds in combining a rough personal narrative with poetic, allusive imagery.The remaining works are far less compelling. Joby Emmons's "Kino-Eye" follows the choreographer Elena Demyanenko through Moscow via video surveillance effects with much crackling and popping of multiple screens and murky silhouettes, accomplishing very little. Victoria Marks and Margaret Williams's "Veterans" is a well-meaning portrait of five young men trying to come to terms with recent military service. And "Propriedad Horizontal," by David Farías, Carla Schillagi and María Fernanda Vallejos, which films dancers from all sorts of angles as they maneuver along a narrow passageway, is only briefly intriguing.

The "Magnetic Cinema x 3" program on Thursday also seems to attempt some sort of coherence, putting Pierre Coulibeuf's film "Magnetic Cinema" together with Daniel Belton's "Matchbox" and Julien Condemine's "Sens 1." Mr. Coulibeuf's and Mr. Belton's films are moody explorations of something or other. "Magnetic Cinema" has naked women crawling out of the surf and nerdy men saying things like "Administrating seismic organizer"; Mr. Condemine's work has two topless women fastened together at the ankle, rolling around on a sheet of bubble wrap. Perhaps I am not sensitive enough to understand the poetry of either of these films; all I can say is that they were about as interesting as, well, watching bubble wrap being popped.

Dance on Camera begins Wednesday and runs through Jan. 17 at the Walter Reade Theater, 165 West 65th Street, Lincoln Center. Full schedule of films and related events: dancefilms.org, (212) 875-5600.

http://www.nytimes.com/2009/01/07/arts/dance/07came.html?_r=2&pagewanted=all

Help for Confused Customers of Self-Help Books

Study finds that not all self-help books are created equal — some are actually pretty good.

- By: Tom Jacobs | January 01, 2009 | 12:00 PM (PST)

Ariel Camilo

More than 5 percent of Americans suffer from depression or anxiety on an ongoing basis, and many turn to self-help books for knowledgeable advice. But these volumes differ dramatically in usefulness and accuracy, according to a new systematic study of 50 best-sellers.

"The tremendous variability we found was a surprise," said lead author Richard Redding, a professor of law at Chapman University and a former research professor of psychology at Drexel University. "There are some that are totally bogus, and some which are pretty good. If I were seeing patients, I would recommend some of the ones towards the top of our list."

The study, which targeted books on anxiety, depression or trauma, contains both good and bad news. On the one hand, 18 percent of the volumes — that is, nine out of the 50 — included advice the authors considered potentially harmful. One recurring example was a recommendation to take herbal supplements that could interact in harmful ways with other medications, advice the researchers found acceptable only if it included a caveat to check with your doctor first.

On the other hand, the authors found that 60 percent of the books were well-grounded in up-to-date research, featuring information on causes and cures that has been backed up by solid evidence. "Sixty percent is not great, but I was expecting it to be much lower," Redding said. "I was pleasantly surprised by that."

Topping their list is *The OCD Workbook* by Bruce M. Hyman, followed closely by *Dying of Embarrassment* by Barbara Markway; *The Shyness and Social Anxiety Workbook* by Martin M. Antony; *Overcoming Compulsive Hoarding* by Fugen Neziroglu; and *Stop Obsessing* by Edna B. Foa.

The lowest-ranked volume was *How to Win Over Depression* by Tim LaHaye. The co-author of the *Left Behind* series of novels popular among millennial-minded Christians, LaHaye has no background in psychology.

Redding and three colleagues — all university-affiliated psychologists with backgrounds in both research and clinical practice — selected the books by searching the online bookseller Amazon.com and the Barnes & Noble and Borders chains. All of the volumes were published between 1992 and 2005.

They evaluated each book in 19 categories, including:

• The author discloses the assumptions or values underlying the treatment approach.
• The book clearly articulates reasonable expectations about the benefits to expect from self-help therapy.
• The book provides specific and accurate guidance for the reader to self-diagnose.
• The book provides specific and accurate guidance for readers to measure their progress.
• Overall, this book is easy to understand by a layperson.

They found that a book's usability tracked quite closely with its accuracy; the understandable, well-written volumes were also most likely to contain good information. "The books that tend to be good tend to be good all-around," Redding said.

But they also found a troubling exception.

"One shortcoming we noticed in many of the books — even a lot of the good books — is they often failed to provide advice to readers on when they needed to seek professional help," Redding said. "Another common problem is they often failed to give adequate advice to readers in terms of how to monitor their progress; what to do if the suggestions in the book aren't effective; and what to do if they have a relapse."

Overall, the books that received the highest scores were those that focused on specific problems using a cognitive-behavioral perspective — that is, a structured, directive approach that encourages people to alter self-destructive thinking patterns.

Redding conceded that this approach is easier to quantify than some other types of psychology, but he said the researchers were aware of that potential bias and successfully avoided it.

"All four of us have different theoretical orientations," he said. "Most of us are pretty eclectic. We weren't biased in terms of the specific way measurements should be done. But with any therapeutic approach, there has to be some way to measure progress, and some way for the patient to know when to seek help."

Redding conceived of the study during one of his almost-weekly visits to his local Barnes & Noble, where he tends to gravitate toward the psychology section. One day it dawned on him that "these books are consumed by the millions, but nobody has ever evaluated their usefulness."

What's more, he realized, with the concept of "evidence-based practice" gaining in popularity, this was the perfect time to conduct such an evaluation.

"Over the last 15 years, there has been a lot of research that tries to identify, based on the science, what kind of treatments are appropriate for what kinds of psychological problems," he said. "Twenty or 30 years ago, that was totally up to the individual psychologist. Today, the American Psychiatric Association and the American Psychological Association both are working on treatment protocols for different types of disorders.

"It's much like with physical illnesses: If you have a certain type of heart problem, certain types of medication are called for and others are inappropriate. We're moving toward the same thing in psychology."

With that in mind, the researchers based their ratings in part on whether the books reflect "current research and knowledge." Since, by definition, that standard is constantly changing, Redding agreed that it would be useful to conduct such a survey every decade or so.

In the meantime, he hopes other academics use the template he and his colleagues developed to rate other types of self-help books — say, on parenting.

"There is a huge amount of research on effective parenting," he said. Redding conceded that evaluating a wide-ranging books on parenting could be difficult, but noted there have been many studies on such specific child-rearing topics as effective discipline practices, or how to deal with ADHD. It'd be relatively easy to assess the information in such volumes by comparing it to current thinking in the field, just as he and his colleagues did with depression an anxiety. "With a little modification," he said, "I think the rating scale we developed could be used in a variety of domains."

If others take him up on that challenge, it could mark the beginning of a new genre: self-help books for authors of self-help books. Early evidence suggests such work will find a receptive audience.

http://www.miller-mccune.com/article/help-for-confused-customers-of-self-help-books

How the city hurts your brain

...And what you can do about it

By Jonah Lehrer
January 2, 2009

THE CITY HAS always been an engine of intellectual life, from the 18th-century coffeehouses of London, where citizens gathered to discuss chemistry and radical politics, to the Left Bank bars of modern Paris, where Pablo Picasso held forth on modern art. Without the metropolis, we might not have had the great art of Shakespeare or James Joyce; even Einstein was inspired by commuter trains.

(Yuko Shimizu for the Boston Globe)

And yet, city life isn't easy. The same London cafes that stimulated Ben Franklin also helped spread cholera; Picasso eventually bought an estate in quiet Provence. While the modern city might be a haven for playwrights, poets, and physicists, it's also a deeply unnatural and overwhelming place.

Now scientists have begun to examine how the city affects the brain, and the results are chastening. Just being in an urban environment, they have found, impairs our basic mental processes. After spending a few minutes on a crowded city street, the brain is less able to hold things in memory, and suffers from reduced self-control. While it's long been recognized that city life is exhausting -- that's why Picasso left Paris -- this new research suggests that cities actually dull our thinking, sometimes dramatically so.

"The mind is a limited machine,"says Marc Berman, a psychologist at the University of Michigan and lead author of a new study that measured the cognitive deficits caused by a short urban walk. "And we're beginning to understand the different ways that a city can exceed those limitations."

One of the main forces at work is a stark lack of nature, which is surprisingly beneficial for the brain. Studies have demonstrated, for instance, that hospital patients recover more quickly when they can see trees from their windows, and that women living in public housing are better able to focus when their apartment overlooks a grassy courtyard. Even these fleeting glimpses of nature improve brain performance, it seems, because they provide a mental break from the urban roil.

This research arrives just as humans cross an important milestone: For the first time in history, the majority of people reside in cities. For a species that evolved to live in small, primate tribes on the African savannah, such a migration marks a dramatic shift. Instead of inhabiting wide-open spaces, we're crowded into concrete jungles, surrounded by taxis, traffic, and millions of strangers. In recent years, it's become clear that such unnatural surroundings have important implications for our mental and physical health, and can powerfully alter how we think.

This research is also leading some scientists to dabble in urban design, as they look for ways to make the metropolis less damaging to the brain. The good news is that even slight alterations, such as planting more trees in the inner city or creating urban parks with a greater variety of plants, can significantly reduce the negative side effects of city life. The mind needs nature, and even a little bit can be a big help.

Consider everything your brain has to keep track of as you walk down a busy thoroughfare like Newbury Street. There are the crowded sidewalks full of distracted pedestrians who have to be avoided; the hazardous crosswalks that require the brain to monitor the flow of traffic. (The brain is a wary machine, always looking out for potential threats.) There's the confusing urban grid, which forces people to think continually about where they're going and how to get there.

The reason such seemingly trivial mental tasks leave us depleted is that they exploit one of the crucial weak spots of the brain. A city is so overstuffed with stimuli that we need to constantly redirect our attention so that we aren't distracted by irrelevant things, like a flashing neon sign or the cellphone conversation of a nearby passenger on the bus. This sort of controlled perception -- we are telling the mind what to pay attention to -- takes energy and effort. The mind is like a powerful supercomputer, but the act of paying attention consumes much of its processing power.

Natural settings, in contrast, don't require the same amount of cognitive effort. This idea is known as attention restoration theory, or ART, and it was first developed by Stephen Kaplan, a psychologist at the University of Michigan. While it's long been known that human attention is a scarce resource -- focusing in the morning makes it harder to focus in the afternoon -- Kaplan hypothesized that immersion in nature might have a restorative effect.

Imagine a walk around Walden Pond, in Concord. The woods surrounding the pond are filled with pitch pine and hickory trees. Chickadees and red-tailed hawks nest in the branches; squirrels and rabbits skirmish in the berry bushes. Natural settings are full of objects that automatically capture our attention, yet without triggering a negative emotional response -- unlike, say, a backfiring car. The mental machinery that directs attention can relax deeply, replenishing itself.

"It's not an accident that Central Park is in the middle of Manhattan," says Berman. "They needed to put a park there."

In a study published last month, Berman outfitted undergraduates at the University of Michigan with GPS receivers. Some of the students took a stroll in an arboretum, while others walked around the busy streets of downtown Ann Arbor.

The subjects were then run through a battery of psychological tests. People who had walked through the city were in a worse mood and scored significantly lower on a test of attention and working memory, which involved repeating a series of numbers backwards. In fact, just glancing at a photograph of urban scenes led to measurable impairments, at least when compared with pictures of nature.

"We see the picture of the busy street, and we automatically imagine what it's like to be there," says Berman. "And that's when your ability to pay attention starts to suffer."

This also helps explain why, according to several studies, children with attention-deficit disorder have fewer symptoms in natural settings. When surrounded by trees and animals, they are less likely to have behavioral problems and are better able to focus on a particular task.

Studies have found that even a relatively paltry patch of nature can confer benefits. In the late 1990s, Frances Kuo, director of the Landscape and Human Health Laboratory at the University of Illinois, began interviewing female residents in the Robert Taylor Homes, a massive housing project on the South Side of Chicago.

Kuo and her colleagues compared women randomly assigned to various apartments. Some had a view of nothing but concrete sprawl, the blacktop of parking lots and basketball courts. Others looked out on grassy courtyards filled with trees and flowerbeds. Kuo then measured the two groups on a variety of tasks, from basic tests of attention to surveys that looked at how the women were handling major life challenges. She found that living in an apartment with a view of greenery led to significant improvements in every category.

"We've constructed a world that's always drawing down from the same mental account," Kuo says. "And then we're surprised when [after spending time in the city] we can't focus at home."

But the density of city life doesn't just make it harder to focus: It also interferes with our self-control. In that stroll down Newbury, the brain is also assaulted with temptations -- caramel lattes, iPods, discounted cashmere sweaters, and high-heeled shoes. Resisting these temptations requires us to flex the prefrontal cortex, a nub of brain just behind the eyes. Unfortunately, this is the same brain area that's responsible for directed attention, which means that it's already been depleted from walking around the city. As a result, it's less able to exert self-control, which means we're more likely to splurge on the latte and those shoes we don't really need. While the human brain possesses incredible computational powers, it's surprisingly easy to short-circuit: all it takes is a hectic city street.

"I think cities reveal how fragile some of our 'higher' mental functions actually are," Kuo says. "We take these talents for granted, but they really need to be protected."

Related research has demonstrated that increased "cognitive load" -- like the mental demands of being in a city -- makes people more likely to choose chocolate cake instead of fruit salad, or indulge in a unhealthy snack. This is the one-two punch of city life: It subverts our ability to resist temptation even as it surrounds us with it, from fast-food outlets to fancy clothing stores. The end result is too many calories and too much credit card debt.

City life can also lead to loss of emotional control. Kuo and her colleagues found less domestic violence in the apartments with views of greenery. These data build on earlier work that demonstrated how aspects of the urban environment, such as crowding and unpredictable noise, can also lead to increased levels of aggression. A tired brain, run down by the stimuli of city life, is more likely to lose its temper.

Long before scientists warned about depleted prefrontal cortices, philosophers and landscape architects were warning about the effects of the undiluted city, and looking for ways to integrate nature into modern life. Ralph Waldo Emerson advised people to "adopt the pace of nature," while the landscape architect Frederick Law Olmsted sought to create vibrant urban parks, such as Central Park in New York and the Emerald Necklace in Boston, that allowed the masses to escape the maelstrom of urban life.

Although Olmsted took pains to design parks with a variety of habitats and botanical settings, most urban greenspaces are much less diverse. This is due in part to the "savannah hypothesis," which argues that people prefer wide-open landscapes that resemble the African landscape in which we evolved. Over time, this hypothesis has led to a proliferation of expansive civic lawns, punctuated by a few trees and playing fields.

However, these savannah-like parks are actually the least beneficial for the brain. In a recent paper, Richard Fuller, an ecologist at the University of Queensland, demonstrated that the psychological benefits of green space are closely linked to the diversity of its plant life. When a city park has a larger variety of trees, subjects that spend time in the park score higher on various measures of psychological well-being, at least when compared with less biodiverse parks.

"We worry a lot about the effects of urbanization on other species," Fuller says. "But we're also affected by it. That's why it's so important to invest in the spaces that provide us with some relief."

When a park is properly designed, it can improve the function of the brain within minutes. As the Berman study demonstrates, just looking at a natural scene can lead to higher scores on tests of attention and memory. While people have searched high and low for ways to improve cognitive performance, from doping themselves with Red Bull to redesigning the layout of offices, it appears that few of these treatments are as effective as simply taking a walk in a natural place.

Given the myriad mental problems that are exacerbated by city life, from an inability to pay attention to a lack of self-control, the question remains: Why do cities continue to grow? And why, even in the electronic age, do they endure as wellsprings of intellectual life?

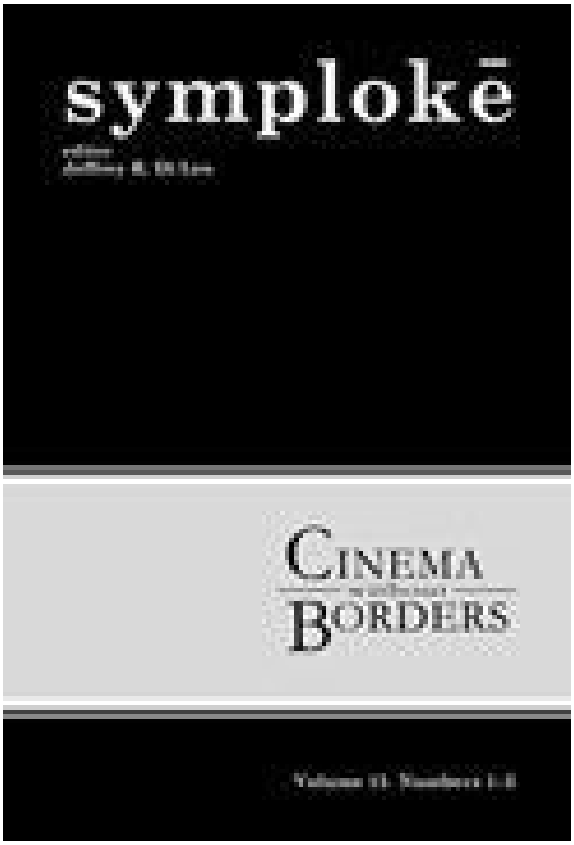
Recent research by scientists at the Santa Fe Institute used a set of complex mathematical algorithms to demonstrate that the very same urban features that trigger lapses in attention and memory -- the crowded streets, the crushing density of people -- also correlate with measures of innovation, as strangers interact with one another in unpredictable ways. It is the "concentration of social interactions" that is largely responsible for urban creativity, according to the scientists. The density of 18th-century London may have triggered outbreaks of disease, but it also led to intellectual breakthroughs, just as the density of Cambridge -- one of the densest cities in America -- contributes to its success as a creative center. One corollary of this research is that less dense urban areas, like Phoenix, may, over time, generate less innovation.

The key, then, is to find ways to mitigate the psychological damage of the metropolis while still preserving its unique benefits. Kuo, for instance, describes herself as "not a nature person," but has learned to seek out more natural settings: The woods have become a kind of medicine. As a result, she's better able to cope with the stresses of city life, while still enjoying its many pleasures and benefits. Because there always comes a time, as Lou Reed once sang, when a person wants to say: "I'm sick of the trees/take me to the city."

Jonah Lehrer is the author of the new book "How We Decide." His first book was "Proust Was a Neuroscientist." He is a regular contributor to Ideas.■

http://www.boston.com:80/bostonglobe/ideas/articles/2009/01/04/how_the_city_hurts_your_brain/

Unlikely Haven for Humanities Publishing



The University of Houston-Victoria is an unlikely hot spot for experimental fiction and the humanities. But this 3,200-student institution has, in just a few years, become host to a constellation of small but prestigious scholarly endeavors that needed new homes – including an independent press for "artistically adventurous, non-traditional fiction," and the 8,000-circulation *American Book Review*.

"Sometimes, I'm surprised as well," says Jeffrey R. Di Leo, dean of the School of Arts and Sciences at UH-V, which doesn't have Ph.D. programs and where most of the master's degrees are professionally-oriented. "I think this should all be at 'Well-Known University Y.' But it also becomes just another thing that the big university has — whereas here it really is one of the cornerstones of our identity. So…."

At Houston-Victoria, it started with *symploke*, a comparative literature and theory journal that UH-V happily inherited — Di Leo founded the journal as a graduate student and brought it with him to UH-V in fall 2002. Later on, says Di Leo, who holds a dual Ph.D. in philosophy and comparative literature, "The story came out that the *American Book Review* was in trouble and possibly could fold. I said if there's something I can do to help out, let me know; I really appreciate that publication. It always reviewed the kind of quirky books that didn't find a review voice elsewhere. One thing led to another and my name got floated to the publisher...."

With his president's support, Di Leo brought *American Book Review* from Illinois State University to Houston-Victoria, inaugurating an *American Book Review* Reading Series there and raising funds (about $375,000 so far) for a permanent, $1 million endowment to support the publication. *ABR*'s editorial operations came to Houston-Victoria in 2006, and layout and production in 2007. Di Leo serves as editor and publisher.

Overlapping literary and intellectual worlds are at work here, and Di Leo's name — and UH-V's — would be floated again. In 2008, the Society for Critical Exchange found an institutional home at Houston-Victoria, after being based at Case Western Reserve University for nearly 20 years. Di Leo is the society's new executive director. Also in 2008, the fiction press Fiction Collective 2 moved its day-to-day business operations to UH-V from Florida State University. (Other universities are also involved with FC2, with printing and distribution managed by the University of Alabama Press, for instance.)

And all of this has taken place during a period when many literary journals have been struggling financially — and found their host colleges and universities less than supportive about providing funds.

Houston-Victoria also has plans, pending approval from the Texas Higher Education Coordinating Board, to offer a M.S. in publishing degree starting this fall – "an academic program that, candidly, we would have no rational argument in favor of if it were not for the existence of the publishing enterprise that we now house here," says Tim Hudson, the university's president.

While humanities are under pressure elsewhere, he explains that this is "something that we want to run up the flagpole as a star program at UH-V. By program, I guess I mean the whole enterprise of bringing journals here, bringing the writers here, encouraging academic programs that feed off this synergy.

"Like in life we pay for what we value and this is something that we highly value and this is something we're going to support to the extent that we can."

Di Leo adds, however, that Houston-Victoria benefits from economies of scale now that there are several publishing ventures there. "It's sustainable because of the volume, not in spite of it," he says. He has focused on putting the scholarly activities and publications — so often hidden "in a dusty room in the back" — in front of the local community, involving the high schools, and hosting readings in potential donor homes.

"It's kind of amazing the local support Jeffrey has managed to generate for these projects," says R.M. Berry, chair of the English department at Florida State and formerly publisher of Fiction Collective 2. Berry visited Houston-Victoria for a reading, through the *American Book Review* series, in 2007.

"One night I was hosted at a small gathering with about 30 people from the community. They were all patrons of the arts and supporters of the university; we just had a wonderful time in a gorgeous home. The next day I gave a reading for a packed house. It must have been over 100 people, maybe 120. Very few were students. It was just amazing to me. He just drew all these people from the community and they all had read my work and wanted to discuss it with me" – so much so that they didn't even want him to read, just discuss, Berry recalls. He compares, too, a lengthy treatment of his writing in the Victoria newspaper favorably to "some of the readings it's gotten in the *New York Times*, for example."

So far, since fall 2006, 18 authors have come to Houston-Victoria through the *American Book Review* Reading Series. Marjorie Perloff, professor emerita at Stanford University, a former president of the Modern Language Association, and a well-known critic of contemporary poetry, comes next.

"I had never heard of Houston-Victoria till I heard that Jeff Di Leo had moved there and taken *ABR* with him and *symploke* too," she wrote in an e-mail (Perloff has involvement with both publications).

"I still don't quite know where Victoria is and am flying into Austin when I go."

— Elizabeth Redden

The original story and user comments can be viewed online at http://insidehighered.com/news/2009/01/08/victoria.

Outmoded Engineers?

It's not every day that faculty mourn the death of their own department at an Irish wake, but that's exactly what happened at Joe Burns's house recently.

Upon learning that Cornell University plans to merge its department of theoretical and applied mechanics with the mechanical and aerospace engineering program, professors like Burns immediately feared the worst. They wondered what the future held for their department, and by extension what the future holds for their entire field of research.

The theoretical and applied mechanics department at Cornell, formed in 1964 and commonly abbreviated as "TAM," is the latest in a series of such departments to be merged or eliminated from a marquis engineering college. Engineers in TAM departments have helped lay the theoretical framework for subjects as diverse as robotics, insect flight and the formation of the cosmos. Even so, these departments have been criticized as relics, focusing more on broad-based theoretical concepts than the hands-on laboratory work that many argue will be the key to future technological advances.

"I think our department suffers in the sense that we're a nontraditional engineering department," said Burns, a professor in TAM and astronomy. "If you look at things like department rankings in *U.S. News & World Report*, our field is not even ranked."

Cornell officials say TAM faculty will find a home in their new department, but a news release made clear that administrators don't view TAM departments as synonymous with excellence.

"Cornell is the last of the top-ranked colleges of engineering to maintain a TAM department," the release bluntly concluded.

While such mergers may seem like inside baseball to anyone outside of engineering, the decline of stand-alone TAM departments is indicative of a long-term shift in research priorities on college campuses, according to faculty at Cornell and other TAM programs. Cornell's TAM program was respected, but it was by no means a rainmaker for research dollars.

"The thing that hurts us is our research funding has been low," said Alan Zehnder, chair of TAM at Cornell. "That has become, I don't want to say the key metric, but there is always a chart on research dollars."

TAM has brought in about $2 million in annual sponsored research for the past five years, likely the lowest figure of any engineering department in the college, Zehnder said. But that's perhaps not too surprising, or even that damning, when one considers what TAM departments have traditionally done. With a strong basis in mathematical theory, TAM faculty don't typically need large, expensive laboratories – or even fat research grants – to explore the questions that interest them. As such, they have the luxury of doing research that many other engineering faculty couldn't or wouldn't pursue. There's a freedom to that model that stimulates creative work and benefits academe, Zehnder said.

"You and your students [in TAM] work on your own curiosity-driven research, rather than what's the latest thing in the [National Science Foundation]," he said.

TAM has historically carried a relatively heavy teaching load, and that provides the department with institutional funds for graduate assistants, further lessening the need to rely on grants.

Theorists on Defensive

The merging or closing of departments is often attributed to cost cutting, but that's not the primary driver at Cornell, according to Kent Fuchs, the former dean of engineering who took over as provost this month. Tough economic times have forced the college to slow hiring, but Fuchs said he would have wanted to "reinvent" TAM absent any financial pressures.

"The primary move is looking at what our priorities will be for the future," he said.

The college aims to invest in its mechanical and aerospace programs, in part by adding faculty slots to those areas when TAM faculty leave or retire over time, Fuchs said.

"It's not that we're moving out of the area of theory, and we're certainly not moving into just lab research," he said. "The new faculty we hire tend to do both."

Ishwar Puri, head of a department similar to Cornell's TAM at Virginia Tech, said it's appropriate for TAM faculty to evolve into hot areas like nanotechnology and biotechnology. That said, Puri argued that stand-alone TAM departments are essential because they provide the theoretical underpinnings that drive engineering advances. TAM's function cannot be simply "absorbed" into other departments, as many professors would suggest, Puri said."What I would admit is many people have misconceptions about these departments," said Puri, head of Virginia Tech's Department of Engineering Science and Mechanics. "And some of those misconceptions arise because those who are in administrative positions in engineering come from very classical [programs].

"When you fragment [TAM departments], I think some of the scholarship that emerges from these units is not as profound as it might have been otherwise," he added.Nonetheless, these mergers continue. Ohio State and Michigan State University have closed their TAM departments in recent years, and Puri said he feels "doubly threatened" every time a TAM program hits the chopping block. In order to avoid closure, leaders of the remaining TAM programs have to walk a tightrope, evolving in a way that keeps them vibrant without changing their core identities along the way, Puri said.

"Really, sometimes you get squeezed," he said. "You get squeezed between administrators who want something and squeezed between faculty who consider themselves the standard bearers of an age-old philosophy, and they think you're too quick to compromise."

Similar Concerns at Illinois

The concerns expressed by TAM faculty at Cornell have a familiar ring to Petros Sofronis, associate head for mechanics programs at the University of Illinois at Urbana-Champaign. Sofronis was a TAM faculty member at Illinois before the department merged into a newly created department now known as mechanical science and engineering."There was a group of faculty that had this viewpoint against the merger," Sofronis said. "I think they went overboard fighting the merger, and now we've been almost two years since and things didn't turn out the way faculty were worried [they might]. Mechanics did not die."

Faculty who opposed the merger at Illinois predicted that good professors would leave the department, and TAM would be given short shrift in the new department. While some faculty have left, the majority stayed to find that new opportunities and funding possibilities emerged, Sofronis said."I would reverse the argument [of critics]," he said. "I would say that when theorists collaborate with experimentalists, I think theorists can find more resources to carry out their theoretical work."

So what of the engineers who want to be pure theorists, and aren't interested in partnering up in the lab? Sofronis says they're yesterday's news. The theoretical framework has already been laid, and it's time to move on from there, he said."Those types of theories, mechanical theories that evolved in the fifties or even [centuries] before the fifties, we are done with those," Sofronis said. "We have all these theories. The purists that says 'I would like to do pure mechanics,' we have it [already]. We have the theories."

Expounding on his thoughts in an e-mail days later, Sofronis added "Now, the new challenge is to see how existing theorems, theories, and methodologies can be used to delve into new areas and increase our understanding of the issues involved ... The future is not mechanics by itself, but mechanics along with other disciplines."

— Jack Stripling

The original story and user comments can be viewed online at http://insidehighered.com/news/2009/01/08/cornell.

Hard drive destruction 'crucial'

The only way to stop fraudsters stealing information from old computer hard drives is by destroying them completely, a study has found.

Which? Computing magazine recovered 22,000 "deleted" files from eight computers purchased on eBay.

Freely available software can be used to recover files that users think they have permanently deleted.

While Which? recommends smashing hard drives with a hammer, experts say for most consumers that's a step too far.

Criminals source old computers from internet auction sites or in rubbish tips, to find users' valuable details, and a number of recent cases have shown the dangers in disposing of second-hand equipment.

A number of software solutions exist to more definitively erase files and information.

The most straightforward solution, according to Which?, is complete destruction - and it recommends using a hammer.

It must be done with caution because those smithereens contain environmentally harmful materials so they should be recycled - for instance at the vendor from whom a new hard drive is purchased.

Worth it?

However experts advise that even a treatment with a hammer may not be the end of your data.

Expensive and sophisticated techniques could be used to recover deleted data, even from a hard drive platter that has been physically damaged.

But for most people, the freely available deleting software or a simple hard drive formatting procedure should make the data sufficiently difficult to retrieve as to not be worth a criminal's time.

"You can get a credit card number on the internet for about ten pounds from credit card thieves," says Rupert Goodwins, editor of technology news website ZDNet.

"So nobody's going to spend more than ten pounds trying to nick your credit card number off your hard disk."

Mr Goodwins argues that the free software is as effective as the hammer - indeed, he argues it is as effective as the software that can be quite costly.

"Unless you're a spook or the kingpin of a criminal consortium, there's no need to go out and buy deleting software and no need to put a hammer through the damned thing," Mr Goodwins told the BBC.

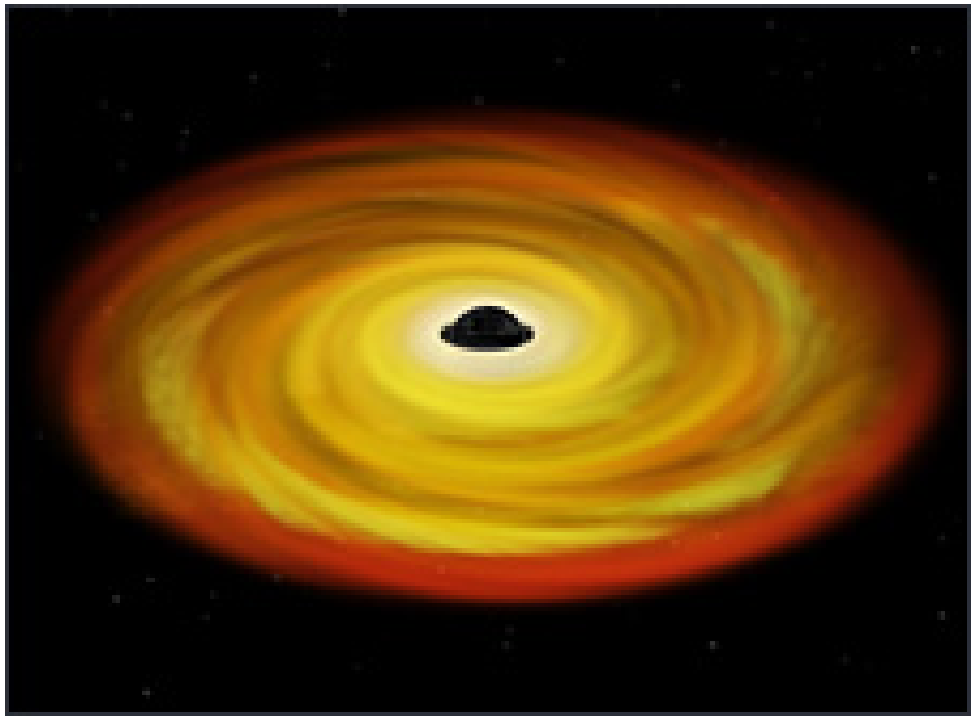
"If you're that worried, get rid of it properly: burn it or put it in acid."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/technology/7816446.stm

Published: 2009/01/08 14:11:32 GMT

Black holes 'preceded galaxies'

A cosmic chicken-and-egg question may have been solved by astronomers who now say black holes came before galaxies.



The findings were presented at a major astronomy meeting in California.

Most if not all galaxies, including our own Milky Way, are believed to have massive black holes at their cores.

It was unclear whether black holes came first, helping create galaxies by pulling matter towards them, or whether they arose in already formed galaxies.

"It looks like the black holes came first," said Dr Chris Carilli, from the US National Radio Astronomy Observatory in Socorro, New Mexico, who took part in the study. "The evidence is piling up."

The evidence was unveiled at the 213th American Astronomical Society meeting in Long Beach, California.

Earlier studies of nearby galaxies had revealed an intriguing link between the masses of black holes and the central "bulges" of stars and gas in galaxies.

Early Universe

Generally, the mass of a black hole was observed to be about 1,000th that of the mass of the surrounding galactic bulge.

This constant ratio indicated an "interactive relationship" between the black hole and the bulge, say the researchers. But it was not clear whether one grew before the other, or whether they grew together.

In the latest study, researchers used radio telescopes to peer back to near the beginning of the Universe, thought to be some 13.7 billion years ago, when the first galaxies were forming.

"We finally have been able to measure black-hole and bulge masses in several galaxies seen as they were in the first billion years after the Big Bang," said co-author Fabian Walter of the Max-Planck Institute for Radioastronomy (MPIfR) in Bonn, Germany.

"The evidence suggests that the constant ratio seen [in nearby galaxies] may not hold in the early Universe."

He added: "The implication is that the black holes started growing first."

The astronomers say the next challenge is to figure out how the black hole and the bulge affect each others' growth.

Dr Carilli said powerful new radio telescopes now under construction would help to unravel the mystery.

These include the Expanded Very Large Array (EVLA) in New Mexico and the Atacama Large Millimeter/submillimeter Array (ALMA) in Chile.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7815827.stm

Published: 2009/01/07 17:35:36 GMT

'Spookfish' has mirrors for eyes

By James Morgan
Science reporter, BBC News

A Pacific fish uses mirrors as well as lenses to help it see in the murky ocean depths, scientists have revealed.

The brownsnout spookfish has been known for 120 years, but no live specimen had ever been captured.

Last year, one was caught off Tonga, by scientists from Tuebingen University, Germany.

Tests confirmed the fish is the first vertebrate known to have developed mirrors to focus light into its eyes, the team reports in Current Biology.

"In nearly 500 million years of vertebrate evolution, and many thousands of vertebrate species living and dead, this is the only one known to have solved the fundamental optical problem faced by all eyes - how to make an image - using a mirror," said Professor Julian Partridge, of Bristol University, who conducted the tests.

Spookfish is a name often given to Barreleyes - a group of small, odd-looking deep-sea fish species, found in tropical-to-temperate waters of the Atlantic, Pacific, and Indian Oceans.

A rare live brownsnout spookfish, *Dolichopteryx longipes* , was caught last year between New Zealand and Samoa, by Professor Hans-Joachim Wagner, of Tuebingen University.

Deep see

While the animal appears to have four eyes, it technically has two, each of which is split into two connected parts.

The spookfish needs one half to point upwards, to capture faint glimmers of light from the sea surface 1,000m above.

The other half, which looks like a bump on the side of the fish's head, points downwards.

These "diverticular" eyes are unique among all vertebrates in that they use a mirror to make the image.

Prof Partridge said: "Very little light penetrates beneath about 1,000m of water and like many other deep-sea fish, the spookfish is adapted to make the most of what little light there is.

"At these depths it is flashes of bioluminescent light from other animals that the spookfish are largely looking for.

"The diverticular eyes image these flashes, warning the spookfish of other animals that are active, and otherwise unseen, below its vulnerable belly."

The mirror uses tiny plates, probably of guanine crystals, arranged into a multi-layer stack.

Prof Partridge made up a computer simulation showing that the precise orientation of the plates within the mirror's curved surface is perfect for focusing reflected light on to the fish's retina.

He added: "The use of a single mirror has a distinct advantage over a lens in its potential to produce bright, high-contrast images.

"That must give the fish a great advantage in the deep sea, where the ability to spot even the dimmest and briefest of lights can mean the difference between eating and being eaten."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7815540.stm

Published: 2009/01/07 16:03:03 GMT

Skin cancer 'ups new cancer risk'

Skin cancer patients have a higher chance of developing other forms of the disease, research suggests.

Experts found people treated for melanoma were more than twice as likely to develop other, unrelated cancers than the general population.

The risk was also elevated - although not as much - for patients with other forms of skin cancer.

The study, led by Queen's University Belfast, features in the British Journal of Cancer.

It echoes previous more general research suggesting that one type of cancer raises the risk of developing another.

The researchers analysed data from the Northern Ireland Cancer Registry, including 1,837 patients with melanoma, the most aggressive form of skin cancer, and 20,823 patients with less aggressive forms of the disease.

Patients with non-melanoma skin cancer were up to 57% more likely to develop another type of cancer than people in the general population.

They were almost twice as likely to go on to develop melanoma and had an increased risk of smoking-related cancers.

But the risk of subsequent cancers was even higher in the melanoma group - more than double that of the general population.

Possible factors

Researcher Professor Liam Murray said there were several possible explanations for the link.

He said: "Sun exposure is an important risk factor for all types of skin cancers so patients who have had one type of skin cancer may be more likely to develop other types as well.

"Alternatively a new skin cancer may be more likely to be detected in patients who are monitored following their first diagnosis of skin cancer.

"The increase in smoking-related cancers may be because smoking predisposes to skin cancer as well as other cancers or because people who smoke may be more likely to have generally unhealthy lifestyles including excessive sun exposure."

Sara Hiom, of the charity Cancer Research UK, said: "We know that lifestyle factors such as excessive UV exposure, smoking, being overweight and drinking too much alcohol can increase the risk of cancer.

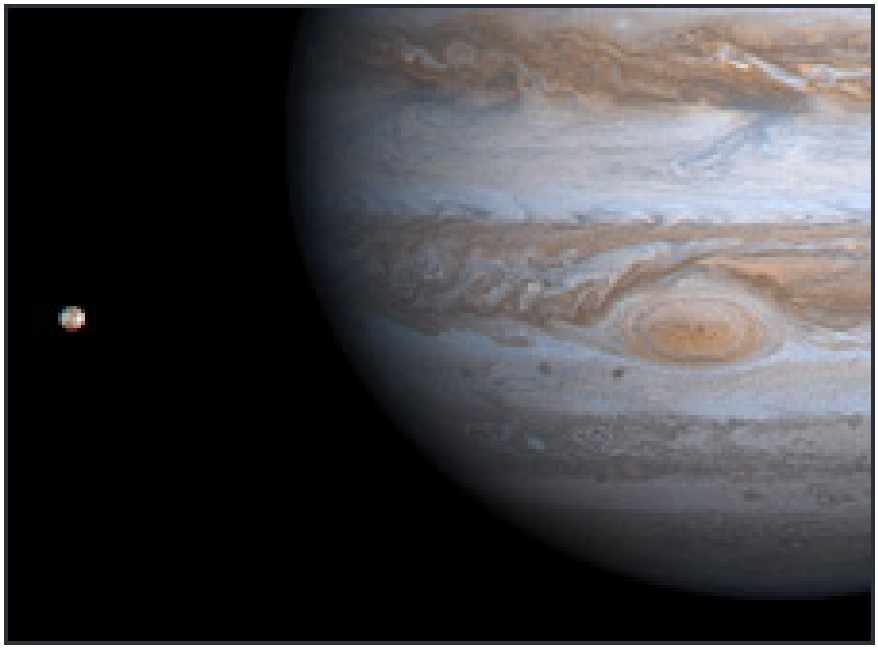
"These important findings could help doctors target health information more accurately to people who have been treated for skin cancer to help them reduce their risk of developing a second cancer."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7813719.stm

Published: 2009/01/07 10:28:43 GMT

Baby Jupiter's huge weight gain

The planet Jupiter must have gained mass fast during its infancy, according to astronomers.



It had to, because the material from which the planet formed disappeared in just a few million years.

After studying other stars, the US team came to the conclusion that gas giants like Jupiter must grow rapidly.

Details of the group's work were outlined at the 213th meeting of the American Astronomical Society (AAS), held in Long Beach, California.

Astronomers examined the five million-year-old star cluster NGC 2362 with Nasa's Spitzer Space Telescope.

Spitzer can detect the signatures of actively forming planets in infrared light.

The research team found that all stars with the mass of the Sun or greater have lost their "proto-planetary", or planet-forming, discs.

Only a few stars less massive than the Sun retain these discs of dust and gas, which provide the raw material for gas giants which are in the process of forming.

Therefore, the astronomers concluded, gas giants have to form in less than five million years or they probably will not form at all.

"Even though astronomers have detected hundreds of Jupiter-mass planets around other stars, our results suggest that such planets must form extremely fast," said the study's lead scientist Thayne Currie of the Harvard-Smithsonian Center for Astrophysics.

"Whatever process is responsible for forming 'Jupiters' has to be incredibly efficient."

Even though nearly all gas giant-forming discs in NGC 2362 have disappeared, several stars in the cluster retain their "debris disks".

This indicates that smaller rocky or icy bodies such as Earth, Mars, or Pluto may still be forming there.

"The Earth got going sooner, but Jupiter finished first, thanks to a big growth spurt," explained co-author Scott Kenyon, also from the Harvard-Smithsonian Center for Astrophysics.

Dr Kenyon added that while Earth took about 20 to 30 million years to reach its final mass, Jupiter was fully grown in only two to three million years.

Previous studies had indicated that proto-planetary discs disappear within 10 million years.

The new findings place even tighter constraints on the time available to create gas giant planets around stars of various masses.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7812170.stm

Published: 2009/01/06 17:31:52 GMT

US vows 'huge' marine protection

By Richard Black
Environment correspondent, BBC News website

The US is to establish what it calls "the largest area of protected sea in the world" around its Pacific islands.

Commercial fishing and mining will be banned in the protected zones which include the Marianas Trench, the deepest area of ocean on the planet.

The area totals 500,000 sq km (190,000 sq miles) of sea and sea floor.

While welcoming the protection package, environmental activists said that without curbing climate change, the other measures would be meaningless.

President George W Bush will formally announce the measure during an address on Tuesday evening in Washington.

Briefing journalists in advance, his environmental advisor James Connaughton said the move meant the US was "setting the mark for the world with respect to effective marine management".

"The conservation action is going to benefit the public and future generations through enhanced science, knowledge and awareness, and just good old-fashioned inspiration, because these places are exceptionally dynamic when it comes to the marine environment," said the chairman of the White House council on environmental quality.

The areas covered include some of the islands most remote from the world's large populations centres, which have not so far encountered the intense fishing present across much of the oceans.

They also encompass some of the most biologically diverse places on the planet, undersea volcanoes and hot seafloor vents, and submarine pools of sulphur thought to be unique on Earth.

War monuments

The measure involves establishing three new "national monuments" around different US territories in the Pacific.

Together they encompass the Marianas Trench and the long arc of volcanoes and undersea vents along the Mariana Islands chain, south of Japan and north of Papua New Guinea; coral reefs around the three northernmost islands of the Marianas; and eight more coral atolls and islands.

The Marianas group includes islands such as Saipan and Tinian which played significant roles in World War II, and Guam which is still a major US base.

One of the other places now receiving protection, Johnston Atoll, was formerly used to stockpile chemical weapons.

Mr Connaughton said the national monuments would be established in a way "that also fully respects our nation's national security needs by ensuring freedom of navigation for all vessels in accordance with international law and by ensuring that our military can stay ready and be globally mobile".

The Marianas Trench, which reaches depths of about 11km (about seven miles), and the string of volcanoes and vents will be protected from mineral exploration.

The coral areas will also see a complete ban on commercial fishing out to 50 nautical miles from shore.

"It's very significant both from an ecological and biological perspective as well as in its political symbolism," said Joshua Reichert, managing director of the Pew Environment Group.

"In the Marianas alone, the area that's been protected contains some of world's most exceptional geology. Rose Atoll has the highest proportion of live coral cover anywhere in the world."

Brendan Cummings, oceans programme director at the Center for Biological Diversity which has brought several court actions against the Bush administration on climate change, also welcomed the commercial fishing ban but said curbing greenhouse emissions was also vital for the long-term preservation of corals.

"Unless we deal with global warming, all other protective measures for coral reefs will be rendered meaningless," he said. "Ultimately, Bush's legacy as a climate criminal will far outweigh his ocean legacy, as any benefit coral reefs receive from this monument designation will be bleached away by warming seas."

As well as warming the oceans, rising carbon dioxide emissions are slowly reducing the alkalinity of seawater, which is also projected to have a detrimental effect on coral growth. President Bush's administration has come under fire in recent months from environmentalists angered by its reluctance to cut carbon emissions, by its moves to weaken endangered species legislation and by its support for naval use of sonar systems that can kill whales.

But, said Mr Reichert, the outgoing president has "protected more special places in the sea than any other person in history".

Richard.Black-INTERNET@bbc.co.uk

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7812786.stm

Published: 2009/01/06 03:10:33 GMT

Milky Way 'bigger than thought'

Our galaxy is much bigger than once thought, according to research presented at a major astronomy meeting this week.

The results suggest the Milky Way is roughly the same size as Andromeda, the largest galaxy in our local group.

What is more, it is moving 15% faster than earlier predictions.

The greater mass means that future collisions with nearby galaxies could happen sooner than thought, according to the researchers.

Mark Reid of the Harvard-Smithsonian Center for Astrophysics (CfA) in Cambridge, US, and his colleagues made use of the Very Long Baseline Array (VLBA) to deduce the Milky Way's size and speed.

Dr Reid was speaking at the 213th American Astronomical Society (AAS) meeting in Long Beach, California.

The VLBA is a system of 10 radio telescopes scattered across and around North America that together allow unprecedented resolution in astronomy measurements.

This resolution, according to the CfA, is equivalent to being able to read a newspaper in Cairo from an armchair in Edinburgh.

By using the VLBA to measure the apparent shift of far-flung star-forming regions when the Earth is on opposite sides of the Sun, the researchers were able to measure the distance to those regions using fewer assumptions than prior efforts.

"These measurements use the traditional surveyor's method of triangulation and do not depend on any assumptions based on other properties, such as brightness, unlike earlier studies," said team member Karl Menten of the Max Planck Institute for Radio Astronomy in Bonn, Germany.

The results show that the Milky Way is about 15% wider than previously thought.

Spinning around

Tiny shifts in the frequency of the radio emission that arise because the regions are moving gave the researchers an estimate of how quickly the Milky Way rotates around its centre.

They estimate this to be about 914,000km per hour, significantly higher than the widely accepted value of 792,000km per hour.

That speed, in turn, allowed the astronomers to calculate the total amount of dark matter in the Milky Way - the invisible component that makes up the majority of the galaxy's mass.

The researchers estimate that the Milky Way contains about 50% more mass than earlier predictions - putting it on a par with the Andromeda galaxy, previously thought to be our much bigger neighbour and the largest in our Local Group of galaxies.

"No longer will we think of the Milky Way as the little sister of the Andromeda Galaxy," Dr Reid said.

That higher mass makes for a higher gravitational pull, suggesting that collisions with Andromeda and other nearby galaxies may happen much sooner than thought - but still billions of years in the future.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7813635.stm

Published: 2009/01/06 13:51:16 GMT

The State of the Humanities

Between 1988 and 2004, the percentage of humanities faculty members feeling "very satisfied" with their jobs increased by 10 percentage points, to 45 percent. When adjusted for inflation, most humanities faculty members saw their salaries dip slightly in the early 1990s, and then saw increases for the next decade. The net increase from 1987 to 2003 was about 5 percent for assistant and associate professors and 3 percent for full professors. In 2003, college graduates who were 10 years out of their undergraduate institution were largely concentrated in two fields: education and business.

These are among the statistics being released today in the Humanities Indicators Prototype, a project of the American Academy of Arts and Sciences. The data come from a wide range of sources and cover graduate and undergraduate education, as well as elementary and secondary education, and indicators that relate broadly to American life.

The prototype edition released today is based on existing sources of data from government agencies and other organizations. Future editions are planned to include data collected by the academy as well as various scholarly groups that are also backing the project. The idea is that similar statistics gathered by federal agencies about science fields are available with greater frequency and are thus more current than much of the available information about the humanities. The approach to the data is straightforward — with descriptions of the numbers, trends, and the sources of information.

Analysis about why trend lines head in certain directions isn't generally provided. And while much of the data are about topics on which humanities professors have strong feelings, the project largely leaves to them the task of expressing those feelings. (There are five essays that accompany the project, on topics such as the humanities workforce and the state of humanities research funding.)

The importance of timely data — more timely than now exist — is evident in that many key figures are five or more years old. Humanities professors at many institutions — especially this year but in recent years as well — have reported tightening budgets, and the impact of such contraction isn't evident here. But that's why project organizers are pushing for more regular collection of data.

Other highlights from the indicators released today:

Colleges and universities reported a humanities research spending increase of 7 percent between the 2005 fiscal year and 2006 fiscal year, when expenditures reached $208 million.

Spending by colleges on humanities research represented 0.45 percent of all research spending (most of which goes to science and engineering) in 2006.

Between 2000 and 2005 in the publishing of humanities books, fine arts saw the greatest percentage increase: 64 percent. The numbers of religion, history, and performing arts titles also increased by substantial percentages.

Of humanities bachelor's degrees, the largest share (about one third) are awarded in English. The indicators note that while ethnic, cultural and gender studies have seen dramatic increases in scholarly interest in recent decades, that hasn't been matched by undergraduate majors, with less than 2 percent of degrees awarded in the humanities going to those fields.

While just over half of all bachelor's degrees in the humanities were awarded to women in 1966, with the share increased to 60 percent by 2004.

By 2004, the humanities had lost over 75 percent of the share of all master's degrees they were awarding in the late 1960s, while the share of doctoral degrees had decreased more than 45 percent from the peak levels of the mid-1970s.

In 1993, 38 percent of Americans agreed with the statement "High schools and colleges make students spend too much time reading 'classics' that have little relevance in today's world."

— Scott Jaschik

The original story and user comments can be viewed online at http://insidehighered.com/news/2009/01/07/humanities.

A Berliner's Portraits of People and Her Familiar, and Foreign, Home

By MICHAEL KIMMELMAN

BERLIN — Not all culture is global yet. Outside aging lefty circles in Greenwich Village or the Berkshires, the photographer Gisèle Freund mostly causes head-scratching in the United States. Among other reasons, she published unflattering pictures of Eva Perón in Life magazine in 1950, troubling the Argentine dictator and ruffling diplomatic relations, so the State Department officially declared her an "unwanted person."

America's loss.

She wasn't Robert Capa or even Margaret Bourke-White. She wasn't a great photojournalist, but she was a gifted pioneer. Starting in 1935, when André Malraux enlisted her to document the First International Congress of Writers for the Defense of Culture, she left behind memorable portraits of Louis Aragon and Vita Sackville-West, Boris Pasternak and Stefan Zweig, Virginia Woolf and James Joyce (the last two in color, when color film was still new).

More than half a century later, some of these portraits can look a little dated, but there's Joyce relaxing with his grandson in a park, cane slung across chest like a military sash; and Malraux, wind-swept in collar-up overcoat with runty cigarette between lips. (A French postage stamp was based on it, without, for politically correct reasons, the cigarette.) Freund actually read what her subjects wrote, she moved in their circles, and her best photographs convey both an intimacy and an insider's romance with a bygone world between the wars.

Her hometown is celebrating her now. She was born in Berlin in 1908, fled Germany in 1933, then had some shows and books published here during her later years that returned her to local attention. (She died in 2000.) Her portraits currently occupy the exhibition hall at the Willy Brandt Haus. The Ephraim-Palais has some of the lesser-known pictures she shot when she returned briefly to visit postwar Berlin in 1957 and 1962, as a kind of prodigal daughter, estranged but open-eyed. These are more interesting, in a way. Freund was hoping to find lost landmarks of her childhood. Instead, she discovered a place largely unfamiliar, and her photographs steer blessedly clear of melancholy and moralizing; they're cool, matter of fact, not art but honest and true.

True to an exile's experience. She and the writer Walter Benjamin became friends in Paris. Writing about his own Berlin childhood, Benjamin once recalled how living abroad had made it "clear to me that I would soon have to bid a long, perhaps lasting farewell to the city of my birth." He added, "Several times in my inner life I had already experienced the process of inoculation as something salutary." That's

roughly what Freund's photographs suggest too: her attempt to inoculate herself against the vicissitudes of time through the lens of a camera.

She wrote a letter on her return to Berlin, in slightly broken English peppered with German and French: "I came to the result that not only the Berliners have paid for whole Germany but also that only the innocent have suffered, because all those of my friends (otherwise they wouldn't have been my friends) who had fought Nazism, had been in KZs" (concentration camps). She added: "The few survivants of our generation, they are now the most 'anrüchige' " (disreputable) "crowd for the fact that they hadn't been Nazis and are therefore 'écarté' " (isolated) "by the Americans as not reliable." It was the same, she noted, in the Communist zone.

It took an outcast to know one. Her father, a wealthy Jewish textile manufacturer and art collector, gave Freund a Voigtlander 6 x 9 camera when she was 17 and a Leica in 1929, the year she graduated from a secondary school for working-class girls. She had decided to quit her upper-middle-class surroundings to attend the Waldschule Eichkamp, and she lived there with her teacher. After that, at Freiburg, then Frankfurt, during its heyday with Theodor Adorno, Karl Mannheim and Norbert Elias, she studied sociology and art history, protested against the Nazis, photographed the protests (her close-up pictures, attempting to go beyond just documents, convey urgency, above all); and, with the Nazis nearly at her door, she left for Paris, Leica in hand.

In Frankfurt she had researched the roots of photography, a subject not yet widely taken seriously but very dear to Benjamin. The two of them would retreat from the Bibliothèque Nationale in Paris to play chess and drink coffee. In her portraits he's always the bookish Jew, with soup-straining mustache, poring over a manuscript through wire-rim spectacles. Benjamin quotes Freund in his "Arcades Project." "We can only imagine what it must have meant to that epoch suddenly to see before it, in so lifelike a form, the celebrated figures of the stage, of the podium — in short, of public life," Freund wrote, and Benjamin repeated, about the earliest photographs.

That's how she described the effect of her own portraits as well. Red-faced, in red jacket and slicked hair, Joyce suddenly emerges from the thickets of his prose; Pasternak, at the writers' congress, is no longer the disillusioned Communist ("the weeping Bolshevik" was Nabokov's phrase) but a handsome, beaming poet. Later, during the '60s, Freund would make portraits of Le Corbusier looking unusually quizzical and Robert Lowell terse in a Paris cafe. She did her best work before the war but occasionally, as in these cases, produced a striking portrait after it.

But the postwar Berlin photographs, mostly from 1957, are a thing apart. They show Berlin before the wall went up. That city was as different to her as Berlin is now to those who remember the wall. She was measuring the distance between the old city of her childhood and the one she found in the mid-'50s, as we do today between the war-battered city before the wall and the sprawling, confusing capital that Berlin has become.

Her photographs document the construction sites, the bombed squares and the old tenements with clothes hanging from clotheslines, the classic Berlin scene made popular at the turn of the century by Heinrich Zille. She took a picture of a Jewish kindergarten and of a young woman in Capri pants eating ice cream outside a dress shop that could have been in Paris or New York. She was struck by a store with a sign in the window for American chickens (heads and feet removed, it said) and by fashionable young mothers pushing strollers in West Berlin. A group of young men in turtlenecks and V-neck sweaters caused her to note that the new German generation seemed both antimilitary and lost.

Then there's her photograph of the new Hansaviertel in the west, a postwar housing development that represented modern, capitalist Berlin. The picture has no clear vanishing point. It's almost incoherent at a glance. Its openness was a metaphor. Benjamin had written about how he hoped, through inoculation, that "the feeling of longing would no more gain mastery over my spirit than a vaccine does over a healthy body." He added, "I sought to limit its effect through insight into the irretrievability of the past."

Bygone Berlin was irretrievable. Its future was a stranger to the past. That's still largely the case. That was what the Hansaviertel represented. Freund's photographs spoke to this city and to Europe at midcentury, and to her own condition.

They're not really a thing apart. They're her self-portrait.

http://www.nytimes.com/2009/01/08/arts/design/08abroad.html

Hubble Views Galactic Core In Unprecedented New Detail

This composite color infrared image of the center of our Milky Way galaxy reveals a new population of massive stars and new details in complex structures in the hot ionized gas swirling around the central 300 light-years. This sweeping panorama is the sharpest infrared picture ever made of the Galactic core. It offers a nearby laboratory for how massive stars form and influence their environment in the often violent nuclear regions of other galaxies. (Credit: NASA, ESA, and Q.D. Wang (University of Massachusetts, Amherst) Credit for Spitzer image: NASA, Jet Propulsion Laboratory, and S. Stolovy (Spitzer Science Center/Caltech))

ScienceDaily (Jan. 7, 2009) — This composite color infrared image of the center of our Milky Way galaxy reveals a new population of massive stars and new details in complex structures in the hot ionized gas swirling around the central 300 light-years. This sweeping panorama is the sharpest infrared picture ever made of the Galactic core. It offers a nearby laboratory for how massive stars form and influence their environment in the often violent nuclear regions of other galaxies.

This view combines the sharp imaging of the Hubble Space Telescope's Near Infrared Camera and Multi-Object Spectrometer (NICMOS) with color imagery from a previous Spitzer Space Telescope survey done with its Infrared Astronomy Camera (IRAC). The Galactic core is obscured in visible light by intervening dust clouds, but infrared light penetrates the dust.

The spatial resolution of NICMOS corresponds to 0.025 light-years at the distance of the Galactic core of 26,000 light-years. Hubble reveals details in objects as small as 20 times the size of our own solar system.

The NICMOS mosaic image represents the largest piece of sky ever mapped for one NICMOS observing program. It was combined with a full-color Spitzer image to yield a color composite of the nuclear region. The picture measures 300 x 115 light-years. Outside the boundary of the NICMOS survey, the IRAC exposures (which are 1/10th as sharp) can be seen at wavelengths of 3.6 microns (shown as blue), 4.5 microns (shown as green), 5.8 microns (shown as orange), and 8.0 microns (shown as red).

The new NICMOS data show the glow from ionized hydrogen gas as well as a multitude of stars. Hubble reveals an important population of stars with strong stellar winds, signified by excess emission from ionized gas at one infrared wavelength (1.87 microns) compared to another slightly different wavelength (1.90 microns).

NICMOS shows a large number of these massive stars distributed throughout the region. A new finding is that astronomers now see that the massive stars are not confined to one of the three known clusters of massive stars in the Galactic Center, known as the Central cluster, the Arches cluster, and the Quintuplet cluster. These three clusters are easily seen as tight concentrations of bright, massive stars in the NICMOS image. The distributed stars may have formed in isolation, or they may have originated in clusters that have been disrupted by strong gravitational tidal forces.

The winds and radiation from these stars form the complex structures seen in the core, and in some cases, they may be triggering new generations of stars. At upper left, large arcs of ionized gas are resolved into arrays of intriguingly organized linear filaments indicating perhaps a critical role of the influence of locally strong magnetic fields.

The lower left region shows pillars of gas sculpted by winds from hot massive stars in the Quintuplet cluster. At the center of the image, ionized gas surrounding the supermassive black hole at the center of the galaxy is confined to a bright spiral embedded within a circum-nuclear dusty inner-tube-shaped torus.

The NICMOS mosaic required 144 Hubble orbits to make 2,304 science exposures. It was taken between February 22 and June 5, 2008.

Adapted from materials provided by Space Telescope Science Institute (STScI).

http://www.sciencedaily.com/releases/2009/01/090106135601.htm

Pneumococcal Vaccine Does Not Appear To Protect Against Pneumonia

ScienceDaily (Jan. 7, 2009) — Commonly used pneumococcal polysaccharide vaccines do not appear to be effective for preventing pneumonia, found a study by a team of researchers from Switzerland and the United Kingdom.

In many industrialized countries, polysaccharide pneumococcal vaccines (PPVs) are currently recommended to help prevent pneumococcal disease in people aged 65 and over and for younger people with increased risk due to conditions like HIV. Studies have shown conflicting results regarding the efficacy of PPV.

The study, a systematic review and meta-analysis, looked at 22 clinical trials, reviews and meta-analyses and more than 100,000 participants from countries in North America as well as India, Africa, Latin America and the Caribbean. Unlike other similar studies the authors examined the reasons why different clinical trials produced different results. They found that the quality of the studies substantially affected the results. When only high quality trials were included, there was no evidence that PPVs could prevent pneumonia. The study adds to the ongoing debate around effectiveness of the vaccine.

"Policy makers may therefore wish to reconsider their current recommendations for PPV, especially where routine pneumococcal conjugate immunization has been introduced," conclude Dr. Matthias Egger from the University of Bern, Switzerland and coauthors.

However, in a related commentary, Dr. Ross Andrews and coauthor from the Menzies School of Health Research, Darwin, Australia state that the researchers' conclusions exceed the evidence presented. They caution that there should be no change in vaccine policy in countries that recommend PPV to prevent invasive pneumococcal disease.

Journal reference:

1. Anke Huss PhD, Pippa Scott MSc, Andreas E. Stuck MD, Caroline Trotter PhD, Matthias Egger MD MSc. **Efficacy of pneumococcal vaccination inadults: a meta-analysis**. *Canadian Medical Association Journal*, (in press) [link]

Adapted from materials provided by Canadian Medical Association Journal, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2009/01/090105175313.htm

Reality Gets Hyperlinked

ScienceDaily (Jan. 7, 2009) — European researchers can now attach hyperlinks to pictures you take using your mobile phone. It offers the prospect of new ways to discover, engage and navigate your surroundings.

You wake up in a strange city with no recollection of how you got there and no information about where you are. Demonstrating nerves of steel, you calmly pick up your mobile phone and take a picture of the streetscape.

Quickly, the picture comes alive with hyperlinks, offering the names of the buildings, monuments and streetscape features that appear in the photograph. The hyperlinks lead to information about the history, services and context of all the features in the photograph. You have just hyperlinked your reality.

That scenario might be a little far-fetched, but the technology exists and is no figment of some fevered imagination. This is not a gee-whiz gadget invented by Q for the next James Bond movie; this is a working technology just developed by European researchers. It could be coming to a phone near you, and soon.

This, as the marketing types say, is a game changer. It develops a completely new interface paradigm that meshes web-technology with the real world. It is big and fresh like Apple's game-changing multi-touch interface for the iPhone. But it goes much further and has implications that are much more profound.

The MOBVIS platform completely rewrites the rules for navigation, exploration and interaction with your physical environment. It identifies the buildings from a photograph you take in an urban environment and then places icons on points of interest.

Technology that pays attention

Then you simply click on the icon, using a cursor or, more frequently, a touch-screen phone, and the MOBVIS system will provide information on the history, art, architecture or even the menu, if it is a restaurant, of the building in question.

MOBVIS stands for mobile attentive interfaces in urban scenarios and it is the brainchild of the EU-funded MOBVIS project, a team of engineers and scientists who have successfully demonstrated the technology working in a real environment, with real users unconnected to the project.

The project's work is all the more remarkable because image recognition technology has long been pregnant with promise, but seemed to suffer from an unending labour.

Now MOBVIS has not only developed image recognition; it has also developed compelling applications for the technology; and it has done so in the most striking and visible manner by adapting it to the world's most ubiquitous technology: the mobile phone.

How to hyperlink reality

The system begins with geo-referenced panoramas, photographs that populate a database to establish points of reference in the streetscape. These panoramas form the basis of a city database. It can match buildings, monuments, banners and even logos that appear in the panoramas. Information relating to individual buildings or monuments is then added to the database manually.

Once annotation is complete, it is ready to take queries from mobile users. A user simply takes a picture of the streetscape, MOBVIS compares the user's photograph to the reference panoramas and the relevant links are returned.

It is as if your picture becomes desktop background, with icons attached to each feature that you can click to navigate the history and culture of the location, or shopping opportunities in front of the user.

This is a lot trickier than it might first seem, because photos are taken in all kinds of light and weather, often at odd angles, and many buildings in Europe's most beautiful cities, like Graz, Austria, actually look quite similar. How can the system tell them apart, and how can it be sure it is the right building?

This is where the MOBVIS demonstrates its greatest strength and most impressive advance over previous image-recognition technologies. The matching system is cloaked in impressive, intimidating technical concepts, like local invariant feature detection, epipolar geometry and planarity constraints.

Never wrong

But the genius of the system boils down to a higher-dimension, feature-matching algorithm developed by the University of Ljubljana in Slovenia, one of the partners of the project. It can very accurately detect minute but telling differences between similar objects, such as buildings or monuments, both by the appearance of the buildings themselves and their context in the streetscape.

For example, if a building with a particular geometry is beside a bridge, but not neighbouring a department store, then it must be building X. That marks the spot for the relevant information stored in the database, which is rendered as an icon.

It sounds perhaps a little improbable. How could such a system produce reliable results?

In fact, it is remarkable just how accurate this technology turned out to be in real-life tests. Users were given a five-minute instruction by an outside contractor, and then sent around to explore the city of Graz with their mobile phones.

The system reliably detected the right building 80 percent of the time, a figure that Aleš Leonardis, head of the Ljubljana team is convinced can be improved.

"But that's not the most remarkable result of the prototype test," stresses Leonardis. "It was remarkable that there were no false positives. Sometimes the system couldn't identify a building, but it never put the incorrect link on a building."

The system wasn't always right, but it was never wrong, sometimes – about 20 percent of the time – it just did not know. This was its first live test. It is a notable achievement, and promises rapid deployment in commercial applications.

The MOBVIS project received funding from the Future Emerging Technologies FET Open strategic objective within the ICT strand of the Sixth Framework Programme for research.

Adapted from materials provided by ICT Results.

http://www.sciencedaily.com/releases/2009/01/090104164230.htm

Researchers Create Car Parts From Coconuts

Coconut husks. A team of Baylor University researchers who have identified a variety of low-cost products that can be manufactured from coconuts in poor coastal regions have now developed a way to use coconut husks in automotive interiors. (Credit: iStockphoto/Steven Kratochwill)

ScienceDaily (Jan. 7, 2009) — A team of Baylor University researchers who have identified a variety of low-cost products that can be manufactured from coconuts in poor coastal regions have now developed a way to use coconut husks in automotive interiors.

The Baylor researchers have developed a technology to use coconut fiber as a replacement for synthetic polyester fibers in compression molded composites. Specifically, their goal is to use the coconut fibers to make trunk liners, floorboards and interior door covers on cars, marking the first time coconut fibers have been used in these applications.

Since coconuts are an abundant, renewable resource in all countries near the equator, Baylor's team is working to create multiple products that could be manufactured from coconuts in those regions using simple and inexpensive technology. With an estimated 11 million coconut farmers in the world making an average annual income of $500, the Baylor researchers hope to triple the coconut farmer's annual income by increasing the market price for each coconut to 30 cents, which could have a substantial effect on the farmer's quality of life.

"What we hope to do is create a viable market for the poor coconut farmer," said Dr. Walter Bradley, Distinguished Professor of Engineering at Baylor, who is leading the project. "Our goal is to create millions of pounds of demand at a much better price."

The Baylor researchers said the mechanical properties of coconut fibers are just as good, if not better, than synthetic and polyester fibers when using them in automotive parts. Bradley said the coconut fibers are less expensive than other fibers and better for the environment because the coconut husks would have

otherwise been thrown away. Coconuts also do not burn very well or give off toxic fumes, which is crucial in passing tests required for actual application in commercial automotive parts.

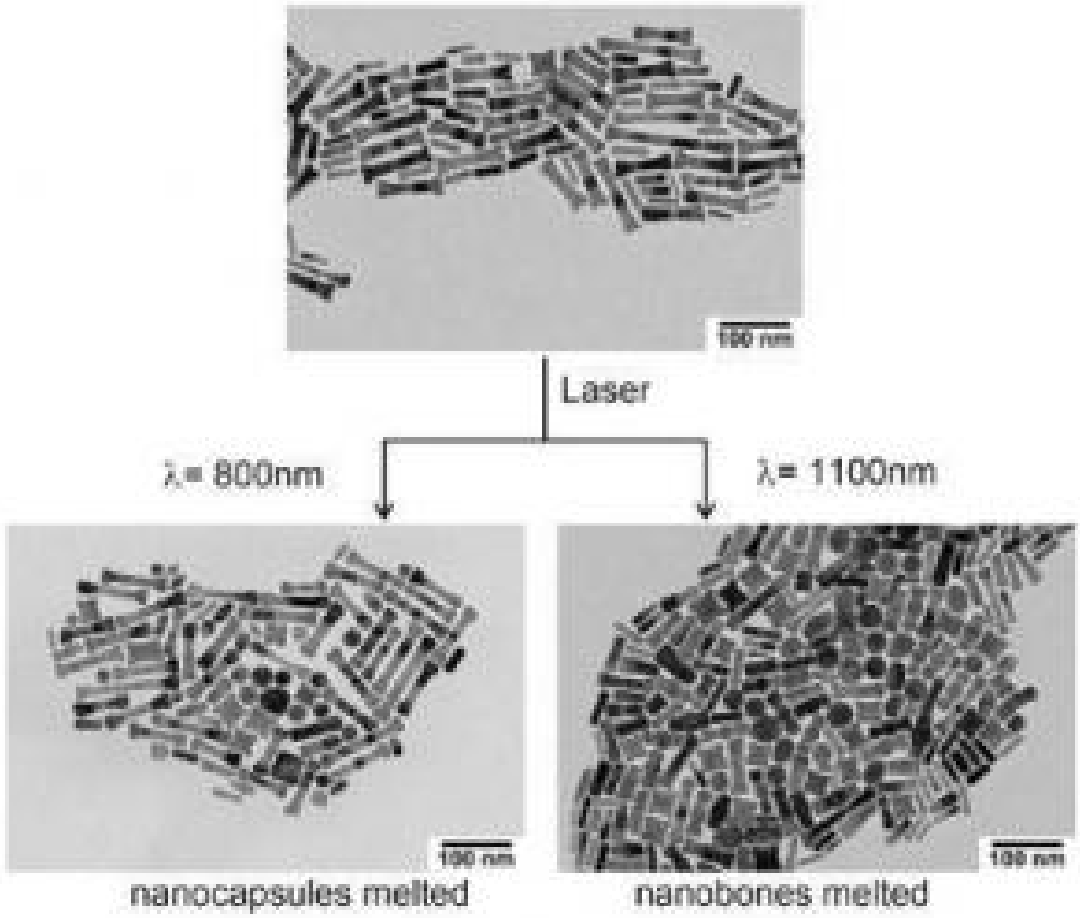
Bradley said they are working closely with a Texas-based fiber processing company that is a supplier of unwoven fiber mats to four major automotive companies.

The Baylor researchers are now putting the automotive parts that use coconut fiber through a series of certification tests to see if the fiber meets the necessary safety performance specifications.

Adapted from materials provided by Baylor University.

http://www.sciencedaily.com/releases/2009/01/090106113005.htm

Gold Nanoparticles For Controlled Drug Delivery



The top image shows a mixture of gold nanoparticles. The longer particles are called nanobones, and the smaller are nanocapsules. Bottom left: After the nanoparticles are hit with 800 nanometer wavelength infrared light, the nanocapsules melt and release their payload. Nanobones remain intact. Right: After the nanoparticles are hit with 1100 nanometer wavelength infrared light, the nanobones melt and release their payload. Nanocapsules remain intact. (Credit: Image / Andy Wijaya)

ScienceDaily (Jan. 6, 2009) — Using tiny gold particles and infrared light, MIT researchers have developed a drug-delivery system that allows multiple drugs to be released in a controlled fashion.

Such a system could one day be used to provide more control when battling diseases commonly treated with more than one drug, according to the researchers.

"With a lot of diseases, especially cancer and AIDS, you get a synergistic effect with more than one drug," said Kimberly Hamad-Schifferli, assistant professor of biological and mechanical engineering and senior author of a paper on the work that recently appeared in the journal ACS Nano.

Delivery devices already exist that can release two drugs, but the timing of the release must be built into the device -- it cannot be controlled from outside the body. The new system is controlled externally and theoretically could deliver up to three or four drugs.

The new technique takes advantage of the fact that when gold nanoparticles are exposed to infrared light, they melt and release drug payloads attached to their surfaces.

Nanoparticles of different shapes respond to different infrared wavelengths, so "just by controlling the infrared wavelength, we can choose the release time" for each drug, said Andy Wijaya, graduate student in chemical engineering and lead author of the paper.

The team built two different shapes of nanoparticles, which they call "nanobones" and "nanocapsules." Nanobones melt at light wavelengths of 1,100 nanometers, and nanocapsules at 800 nanometers.

In the ACS Nano study, the researchers tested the particles with a payload of DNA. Each nanoparticle can carry hundreds of strands of DNA, and could also be engineered to transport other types of drugs.

In theory, up to four different-shaped particles could be developed, each releasing its payload at different wavelengths.

Other authors of the paper are Stefan Schaffer and Ivan Pallares, who were National Science Foundation REU (Research Experiences for Undergraduates) summer students through the MIT Department of Biological Engineering in 2008.

Adapted from materials provided by Massachusetts Institute of Technology.

http://www.sciencedaily.com/releases/2008/12/081231005359.htm

Teens Girls Smoke Now, Pay Later With Larger Waistlines As Adults

ScienceDaily (Jan. 6, 2009) — Remember the cool girls, huddled together in high school restrooms, puffing their cigarettes? Well, here's consolation for the nerds in the crowd: Those teen smokers are more likely to experience obesity as adults, according to a new study from Finland.

Girls who smoke 10 cigarettes per day or more are at greatest risk, particularly for abdominal obesity. Their waist sizes are 1.34 inches larger than nonsmokers' waists are as young adults, according to the study in the February 2009 issue of the American Journal of Public Health.

But smoking in adolescence did not necessarily predict weight problems for men, according to the study.

Scientists know a correlation exists between women's weight and smoking, said lead study author Suoma Saarni, a researcher with the Department of Public Health in Helsinki.

However, she added, "We do not know why smoking did not affect men's weight, as we do not know why smoking affected women's weight."

The study followed twins born between 1975 and 1979 with questionnaires mailed shortly after their 16th birthdays. Researchers collected more data on the 2,278 women and 2,018 men when the twins were in their 20s.

Scientists looked at twins to take into account familial or genetic factors affecting smoking and weight gain, Saarni said. Half of the participants had never smoked, and 12 percent were former smokers in adolescence. About 15.5 percent of men and 9.4 percent of women smoked at least 10 cigarettes daily.

By the time participants reached their 20s, weight problems became evident. By age 24, roughly 24 percent of men and 11 percent of women were overweight. However, male smokers were not necessarily more prone to become overweight than nonsmokers.

The young women who smoked more than 10 cigarettes per day were 2.32 times more likely to become overweight than nonsmokers, according to the study.

The difference could be either biological or cultural, Saarni said. Biologically, it might be that tobacco and gender specific hormones interact differently in girls and boys in ways that affect appetite and fat distribution.

"My hunch is that women are more likely to smoke for weight control, especially in adolescence," said Sherry Pagoto, assistant professor in clinical psychology at the University of Massachusetts Medical School. "When people do quit smoking, one of the reasons they gain weight is that they increase their consumption of foods. They'll start snacking at the times they used to smoke."

Adapted from materials provided by Center For The Advancement Of Health.

http://www.sciencedaily.com/releases/2009/01/090102164513.htm

Amazon Deforestation Trend On The Increase

Deforestation in Brazil's Amazon forests has flipped from a decreasing to an increasing trend, according to new annual figures recently released by the country's space agency INPE. (Credit: iStockphoto)

ScienceDaily (Jan. 6, 2009) — Deforestation in Brazil's Amazon forests has flipped from a decreasing to an increasing trend, according to new annual figures recently released by the country's space agency INPE.

Commenting on the figures, Brazilian environment minister Carlos Minc confirmed that the government will on Monday announce forest related carbon emission reduction targets, which will link halting deforestation to the national climate change campaign.

From August 2007 to July 2008, Brazil deforested 11,968 square kilometers of forests in the area designated as the Legal Amazon, a 3.8 per cent increase over the previous year and an unwelcome surprise following declines of 18 per cent over the previous period.

From 2003-2004 to 2006-2007, annual deforestation totals from the agency fell from 27,423 km^2 to 11,532 km^2. There were fears that the current trend could have been worse but for new measures introduced part way through the year when it became apparent that annual deforestation was accelerating towards a possible 15,000 hectare level.

WWF-Brazil has praised in particular restraints on credit for properties not complying with environmental rules on deforestation licenses, legal reserve and permanent preservation areas, strengthened land ownership rules, increased patrolling activity and a sharing of responsibility for halting deforestation with states and municipalities.

“Credit restrain prevents effects linked to illegal land occupation and exploitation (“grilagem”), which is the main direct and specific cause for deforestation in the Amazon”, says WWF-Brazil’s CEO, Denise Hamú.

"Nevertheless, we are concerned with such a deforestation which is equivalent to almost 40% the size of Belgium or the size of Jamaica.

"WWF-Brazil favors that which was established in the Amazon Pact for Forest Value Acknowledgement and Deforestation Decrease, which proposes concrete actions and urges the government and society to endeavor all efforts to curb deforestation to zero level in seven years".

The Pact was an initiative by a group of NGOs and the proposed actions have an estimate cost of R$ 1 billion (1,000,000,000 reais) per year, which is relatively cheap as compared to the social costs (droughts, floods, deaths, economic difficulties and so forth) inflicted on everyone by deforestation.

WWF-Brazil's CEO says that it is necessary to adopt a wider conservation strategy. "We favor a definition of clear deforestation mitigation targets, besides economic and fiscal mechanisms to encourage conservation and the sustainable use of natural resources, as well as to discourage predatory practices", says Denise Hamú.WWF Brazil welcomed the forthcoming carbon emission reduction targets, noting that deforestation and forest fires together are responsible for 75% of Brazilian green house gas emissions. The targets add to a range of other new measures announced in October, following preliminary assessments that deforestation rates in August 2008 had reached triple those a year earlier.

"Negligence towards our forests causes Brazil to rank fourth among the larger contributors to the planet warming," Hamú said.

The decrease in the Amazon deforestation rate achieved in the last two years shows that it is viable for Brazil to adopt emission curb targets. The adoption of targets to decrease emissions from deforestation could place Brazil in a forefront position for the international climate negotiations due to start in a few days, in Poznan, Poland.

WWF-Brazil's Conservation Director, Carlos Alberto de Mattos Scaramuzza, explains that actions to fight deforestation must run on four tracks. The first one is the effective protection of forests through creation and implementation of protected areas. Secondly, there is the promotion of sustainable use of natural resources, through forest management capacity building in the Amazon states. Then there are patrolling actions to tackle illegal activity threats which are linked to land property and occupation ("grilagem"), to agribusiness and to large infrastructure works. Finally, we must have financial offset actions to reward those who protect the forest.

"We acknowledge some positive actions taken by the federal government, but we urge some improvements," Scaramuzza said. "In particular, we call for the continuation of the protected areas creation process, the strengthening of implementation efforts in the already created protected areas, the allocation of personnel and their management capacity building, plus the effective implementation of the new forest policy, including forest management capacity development in the Amazon states."

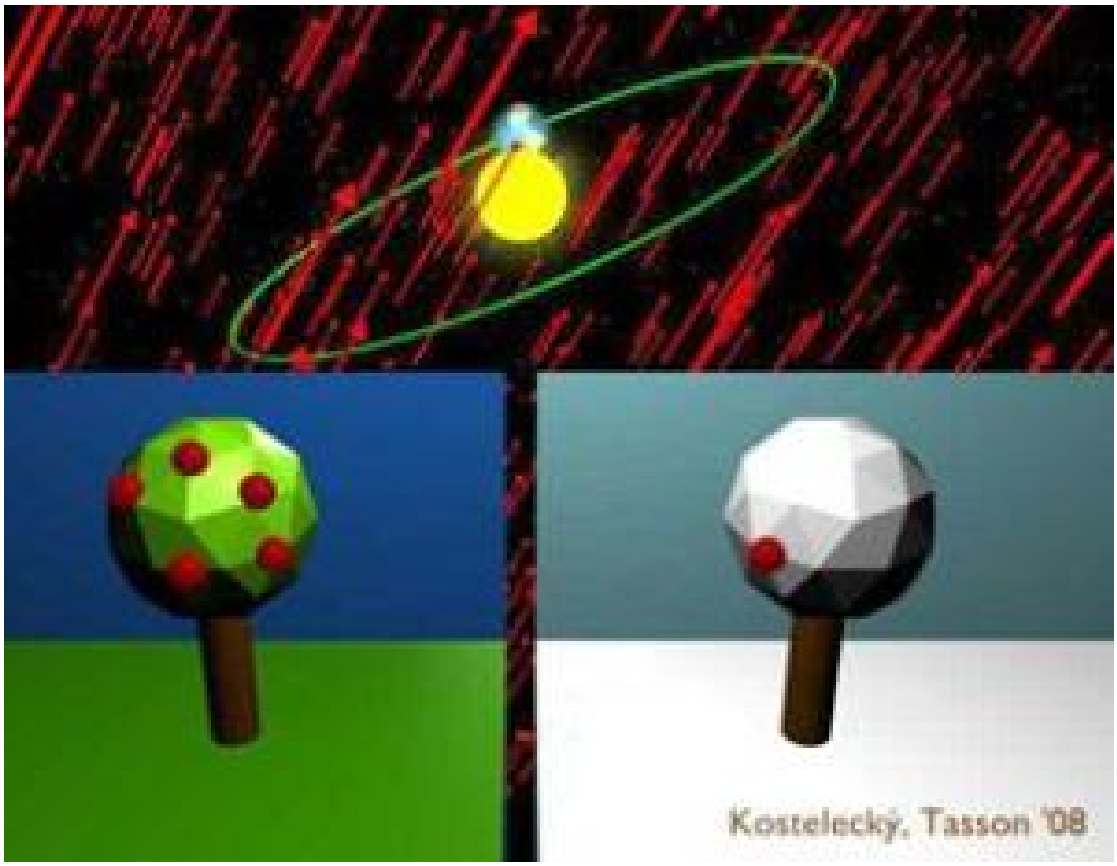
The Amazon Fund, created by the government in August 2008, is also an important policy to make financial offset viable for those who protect the forest. Nevertheless, WWF-Brazil claims that funds should be applied in the end of the chain.

"It is crucial that funds reach the field, direct to local communities, land owners and protected areas", Scaramuzza said. "We hope that the Amazon Fund implementation will encourage innovation, creativity, experimentation and the involvement of civil society; and that it will be complemented by public funds, instead of being used to fulfill the blanks and gaps in governmental programs".

Adapted from materials provided by World Wildlife Fund.

http://www.sciencedaily.com/releases/2009/01/090104093542.htm

Possible Abnormality In Fundamental Building Block Of Einstein's Theory Of Relativity



An image taken from an animation using Kostelecky's Standard Model Extenstion to predict how apples might fall differently. (Credit: Image courtesy of Indiana University)

ScienceDaily (Jan. 6, 2009) — Physicists at Indiana University have developed a promising new way to identify a possible abnormality in a fundamental building block of Einstein's theory of relativity known as "Lorentz invariance." If confirmed, the abnormality would disprove the basic tenet that the laws of physics remain the same for any two objects traveling at a constant speed or rotated relative to one another.

IU distinguished physics professor Alan Kostelecky and graduate student Jay Tasson take on the long-held notion of the exact symmetry promulgated in Einstein's 1905 theory and show in a paper to be published in Physical Review Letters that there may be unexpected violations of Lorentz invariance that can be detected in specialized experiments.

"It is surprising and delightful that comparatively large relativity violations could still be awaiting discovery despite a century of precision testing," said Kostelecky. "Discovering them would be like finding a camel in a haystack instead of a needle."

If the findings help reveal the first evidence of Lorentz violations, it would prove relativity is not exact. Space-time would not look the same in all directions and there would be measurable relativity violations, however minuscule.

The violations can be understood as preferred directions in empty space-time caused by a mesh-like vacuum of background fields. These would be separate from the entirety of known particles and forces, which are explained by a theory called the Standard Model that includes Einstein's theory of relativity.

The background fields are predicted by a generalization of this theory called the Standard Model Extension, developed by Kostelecky to describe all hypothetical relativity violations.

Hard to detect, each background field offers its own universal standard for determining whether or not an object is moving, or in which direction it is going. If a field interacts with certain particles, then the behavior of those particles changes and can reveal the relativity violations caused by the field. Gravity distorts the fields, and this produces particle behaviors that can reveal otherwise hidden violations.

The new violations change the gravitational properties of objects depending on their motion and composition. Objects on the Earth are always moving differently in different seasons because the Earth revolves around the Sun, so apples could fall faster in some seasons than others. Also, different objects like apples and oranges may fall differently.

"No dedicated experiment has yet sought a seasonal variation of the rate of an object's fall in the Earth's gravity," said Kostelecky. "Since Newton's time over 300 years ago, apples have been assumed to fall at the same rate in the summer and the winter."

Spotting these minute variances is another matter as the differences in rate of fall would be tiny because gravity is a weak force. The new paper catalogues possible experiments that could detect the effects. Among them are ones studying gravitational properties of matter on the Earth and in space.

The Standard Model Extension predicts that a particle and an antiparticle would interact differently with the background fields, which means matter and antimatter would feel gravity differently. So, an apple and an anti-apple could fall at different rates, too.

"The gravitational properties of antimatter remain largely unexplored," said Kostelecky. "If an apple and an anti-apple were dropped simultaneously from the leaning Tower of Pisa, nobody knows whether they would hit the ground at the same or different times."

The research was funded by the U.S. Department of Energy's Office of Science and the abstract and article can be viewed at: http://link.aps.org/abstract/PRL/v102/e010402.

Animation using Kostelecky's Standard Model Extenstion to predict how apples might fall differently can be viewed at http://www.physics.indiana.edu/~kostelec/movies/agrav3.avi.

Journal reference:

1. V. Alan Kostelecký and Jay D. Tasson. **Prospects for Large Relativity Violations in Matter-Gravity Couplings**. *Physical Review Letters*, January 9, 2009 DOI: 10.1103/PhysRevLett.102.010402

Adapted from materials provided by Indiana University.

http://www.sciencedaily.com/releases/2009/01/090105150837.htm

Organic Plant Waste Proves Effective Weed Control For Citrus Trees

These are Satsuma mandarins. (Credit: Photo by Allen Timothy Chang)

ScienceDaily (Jan. 6, 2009) — Interest in organic crop production is increasing around the world. Organics are healthy for consumers while adding environmental benefits and decreasing the amount of synthetic herbicides in foods, soil, and water. While organics gain popularity with consumers, organic farmers are faced with new production challenges, especially managing and reducing invasive weeds.

Synthetic mulches, manufactured from petroleum-based materials, have been used extensively for weed control. The downside: synthetic mulches cause increased runoff compared with "natural" mulches, disposal and landfill concerns, and are highly restricted in "certified organic" production. Interest in non-chemical weed control methods has increased in recent years with the spread of organic farming and environmental concerns over the adverse effects of herbicides. Economically and environmentally sustainable weed control alternatives, such as non-synthetic or natural mulch, can provide many benefits for growers. Natural mulches have been proven effective in weed suppression, moisture conservation, and improved water infiltration.

Egyptian citrus fruits, especially those grown organically, are exported to many countries. "Mandarins" include a diverse group of citrus fruits that are characterized by bright peel and pulp color, excellent flavor, easy-to-peel rind, and segments that separate easily. Mandarins are grown in sandy soil, presenting special challenges to growers. Weeds compete with citrus for nutrients and water, harbor pests and host pathogens, and impact the efficiency of orchard operations. Not surprisingly, use of chemicals for controlling weeds in citrus crops can affect physical and chemical properties and quality of fruits.

Researchers from the Botany Department at the National Research Center in Giza, Egypt recently published the results of a two-year study of 15-year-old mandarin trees. The study compared the effects of rice straw mulch, cattail mulch, black plastic mulch, hand-hoeing, cultivation, glyphosate, and unweeded control treatments on weed control, fruit yield, and fruit quality.

"The objective of this study was to investigate the effect of plant mulches with different depths compared with synthetic mulch, hand-hoeing, cultivation, and glyphosate on weed control efficacy and quantity and quality of mandarin fruits", remarked Dr. H.F. Abouziena, the project's lead researcher. Abouziena added, "In Egypt, rice straw is considered one of the most important plant waste problems, and cattail weed is a problem in all water canals. Waste materials such as rice straw, weeds, aquatic weeds, bark, and composted municipal green waste can provide effective weed control."

The research team also found that the greatest control (94% to 100%) of weeds occurred with the plastic mulch and three mulch layers of rice straw or cattail. Covering soil with two layers of cattail or rice straw mulch resulted in an 85% to 98% control of weeds. Plastic mulches, cattail mulch in two or three layers, and rice straw in two-layer treatments significantly increased the fruit yield without significant differences among these superior treatments. Soil mulching with three layers of rice straw, cultivation, glyphosate, and plastic mulch treatments caused a significant reduction in weed density and weed biomass, but gave lower yield than superior treatments. Total acidity and vitamin C were significantly lower in the unweeded control than most weeded treatments.

"These results demonstrate that two layers of cattail or rice straw mulch could be used effectively for controlling weeds in citrus groves. Their effectiveness in controlling weeds may increase their use in agriculture systems with a concomitant decrease in the need for synthetic herbicides. Further studies are needed to evaluate their side effects on beneficial organisms, diseases, and insects", observed Abouziena. The report included an important caveat for producers; because of a higher depth of natural mulches required to suppress weeds, transport costs can be high and prohibit their use, unless the material is produced on the farm.

Journal reference:

1. . **Comparison of Weed Suppression and Mandarin Fruit Yield and Quality Obtained with Organic Mulches, Synthetic Mulches, Cultivation, and Glyphosate**. *HortScience*, 43: 589-968 (2008) [link]

Adapted from materials provided by American Society for Horticultural Science.

http://www.sciencedaily.com/releases/2008/12/081229104658.htm

Astronomers To Gaze Back In Time And Map History Of Universe

Artist's view of Spitzer seen against the infrared sky. The band of light is the glowing dust emission from the Milky Way galaxy seen at 100 microns (as seen by the IRAS/COBE missions). (Credit: NASA/JPL-Caltech)

ScienceDaily (Jan. 5, 2009) — UK astronomers are set to expand our knowledge of the history of our Universe with a new project to map the inception and formation of galaxies.

Making use of an Infrared Array Camera on NASA's Spitzer Space Telescope, the Spitzer Extragalactic Representative Volume Survey (SERVS) will make a very large map of the sky, capable of detecting extremely faint galaxies. The primary aim is to chart the distribution of stars and black holes from when the Universe was less than a billion years old to the present day.

The survey is one of the largest ever awards of observing time on a space-based observatory - a total of 1400 hours.

The project leader, Dr Mark Lacy, currently at the Spitzer Science Center at Caltech, but soon to move to the University of Southampton, says "This mid-infrared survey fills a crucial gap in wavelength between the large near-infrared surveys being conducted by UK-based teams, and the far-infrared surveys to be conducted by Herschel and SCUBA-2. It will allow us to study the formation and evolution of massive galaxies like our own Milky Way in a truly representative volume of the Universe for the first time."

Dr Duncan Farrah at the University of Sussex, whose work is funded by the Science and Technology Facilities Council, says "This is likely to be the benchmark near-infrared survey for the next decade. The great depth of the SERVS data means we can detect moderately massive galaxies when the Universe was less than 8% of its current age. The combination of the SERVS data with data from the Herschel spacecraft (launch April 2009) also means we can see both relatively old, evolved stars, and young, dust-

shrouded bursts of star formation. We will thus obtain a complete picture of how galaxies are assembled in the early Universe."

The combination of sensitivity and area mapped by SERVS is unprecedented; the sensitivity means that galaxy formation can be studied from when the Universe was very young, while the wide area means that these formation processes can be studied in the context of the underlying distribution of `dark' matter. This power will be enhanced by a careful planned synergy with new observations from other facilities.

The sky regions were carefully chosen to coincide with those that will also have deep imaging from the Herschel Space Observatory, the SCUBA-2 camera on the James Clark Maxwell Telescope (JCMT) and from the VISTA Deep Extragalactic Origins VIDEO survey (see notes). Each of these facilities provides a different perspective on the processes of galaxy formation and each project has a strong level of UK leadership. The combination of data over a wide range in wavelength means we will obtain a complete picture of how these galaxies evolve; no part of the formation process will be 'hidden' due to the effects of dust obscuration.

Dr Seb Oliver at the University of Sussex says "it is fantastic to see major international astronomical facilities both on the ground and in space working in harmony to tackle the fundamental questions of galaxy formation and evolution".

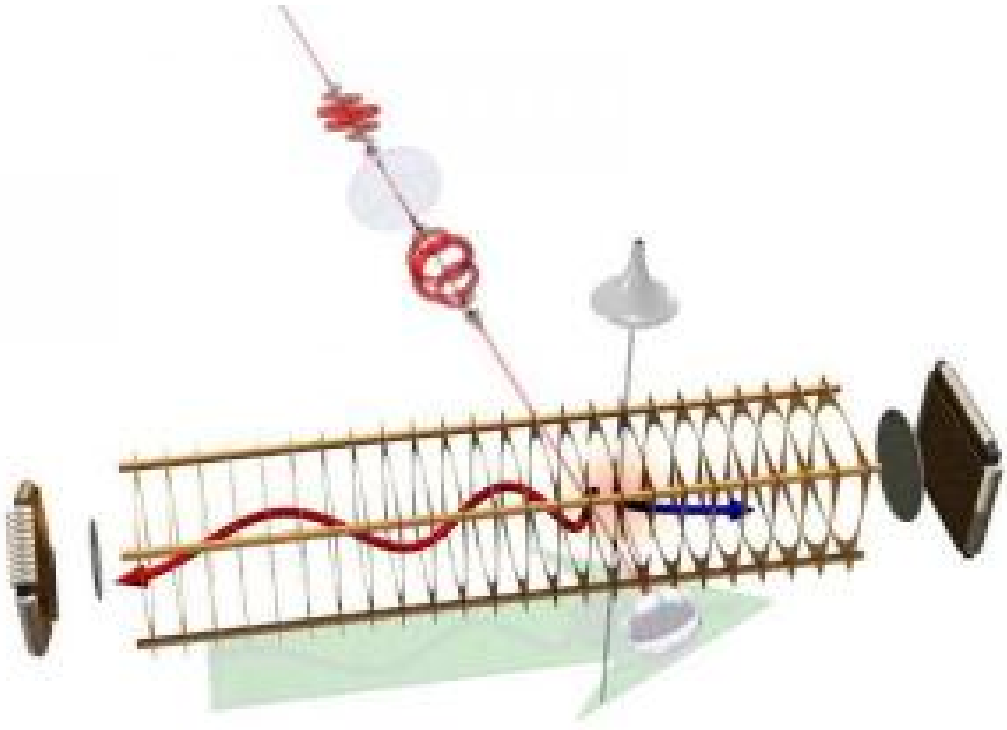
Dr Matt Jarvis at the University of Hertfordshire adds "The combination of SERVS and VIDEO will allow us to make the definitive study of how galaxies grow over the history of the Universe. However, the major improvement over past surveys is the combination of depth and area, allowing us to carry out these studies over both the densest and sparsest regions of the Universe. This will enable us to build up a picture of how galaxy formation and evolution is affected by the environment in which the galaxies reside."

Work on the survey is due to start in early 2009 which also sees the start of the International Year of Astronomy (IYA2009). With the participation of 140 countries worldwide, and with events taking place nationally, regionally and globally throughout the year, IYA2009 will not only allow people to observe first hand some of the amazing celestial bodies that make up our Universe, but will provide a wide variety of events and projects, from touring astronomy exhibitions to virtual blog interactions with practicing astronomers.

Adapted from materials provided by University of Hertfordshire, via AlphaGalileo.

http://www.sciencedaily.com/releases/2009/01/090105091528.htm

Quantum Electronics: Tunneling Effect In Strong Laser Field Interaction Under Attack



Ionization of a helium atom as a "proof of principle" of the attosecond clock: a circularly polarized laser beam inside an electromagnetic field strikes the atom, whose electron is split off (i.e. ionized) and is captured by a detector. (Credit: Image courtesy of ETH Zurich)

ScienceDaily (Jan. 5, 2009) — Physicists have worked on the quantum physics description of the tunnelling effect for 60 years. The group led by Ursula Keller has now for the first time succeeded in measuring time intervals that enable the direct measurement of the tunnelling time of electrons in laser-induced ionisation. No corresponding delay was measured in the experiment: something that astonished many physicists. An established but perhaps over-simplified explanatory model begins to look shaky.

When new technologies allow theoretical models to be tested experimentally, scientists must be prepared to say goodbye to accepted thought patterns. The current publication by Professor Ursula Keller and her team at the Institute of Quantum Electronics of ETH Zurich could bring about just such a break with accepted wisdom. The group succeeded for the first time ever in measuring experimentally the tunnelling delay times of electrons ionized in strong laser fields.

The tunnelling effect is responsible for the ability of bound electrons in atoms to pass through an energy barrier even though the barrier's energy is higher than the electron's binding energy. According to classical physics, overcoming this barrier is impossible, hence the assumption of a quantum-mechanical process.

A popular way of illustrating this is to imagine a ball that does not have enough momentum to surmount a hump, so simply "tunnels through" it instead. Keller says "Contrary to some accepted theories, our measurement has shown that this so-called tunnelling ionisation takes place with almost no delay. The results of her most recent experiments appear in a recent issue of the scientific journal "Science".

Calibration problems solved

Based on calculations by several theoreticians, it was assumed that an electron took between 500 and 600 attoseconds (10-18 sec.) to tunnel through a laser-induced tunnelling barrier. A time interval of this kind was not measurable until recently, even using the shortest laser pulses. However, Keller's team presented a method in "Nature Physics" last June that enables measurements down to 25 attoseconds by using femtosecond laser pulses (see the box and the ETH Life article A stopwatch for the tunnel effect). Keller's results at that time gave hope that the tunnelling time would soon be measured. However, calibration problems still stood in the way of this enterprise.

To make a measurement in the region of a few attoseconds it is essential to calibrate "time zero", i.e. the absolute zero point of the time measurement. In the end the calibration was easier than had been assumed last summer: if the original direction of the laser field used for the measurement is determined unequivocally, a clear reference point is obtained for the angle of the laser clock's "hour hand". Keller says, not without pride, "We now have a clock with an average accuracy of six attoseconds, or twelve if the error tolerance is included. This is, without doubt, the most precise clock in the world."

No tunnelling time in the classical sense

The team now set about using this instrument to check the tunnelling time in the laser-induced ionisation of helium atoms. Keller explains that "There are many theories about the tunnelling process, but the authors often use the expression "tunnelling time" to describe completely different things." Her group agreed on the term "tunnelling delay time", and, in their current publication, they refer to the tunnelling time according to Keldysh and the "Büttiker-Landauer traversal time for tunnelling".

Physicists have hitherto assumed that the delay resulting from "tunnelling through" the energy barrier is measurable by using an attosecond clock. However, Keller's group were unable to demonstrate any such "tunnelling time" in the experiment (with an upper limit of 12 attoseconds averaged over different laser field strengths and limited by the measurement accuracy). The measurement was recalculated by the quantum theorist Harm Geert Muller. He concluded that the results are in agreement with numerically solving the time-dependent Schrödinger equation, one of the fundamental laws of quantum mechanics. Nevertheless, Keller does not claim that the tunnelling times according to Keldysh are wrong, "but they do not describe a "real" tunnelling time according to our classical understanding, rather something different." The same is also true for the "Büttiker-Landauer traversal time for tunnelling", which is entirely self-consistent, as Markus Büttiker from the University of Geneva, one of the authors of this theory and a co-author of the current Science publication, was able to explain to the ETH Zurich group.

Room for new ideas and theories

Physicists – including Ursula Keller – are greatly astonished that the concept of "tunnelling through" in the laser-induced ionisation of atoms, which was accepted for many years, may now prove to be inadmissible. The physicist warns that, "Science benefits from such easily understandable pictures to reduce complexity, but they often have a limited scope of application and may even lead people astray and towards wrong ideas."

For Ursula Keller, such breaks with accepted ideas are precisely what makes quantum physics so fascinating. Keller hopes that, "Perhaps our results will provoke a whole series of quantum physicists to re-think their theories, thus making room for new ideas." She has been visiting universities for several weeks and has discussed her results with physicists at Columbia University in New York, Stanford in California, Southampton and Berlin. The physicist calls this "hawking" and uses it to underline her claim not only to publish scientific results but also to take an active part in their discussion throughout the world.

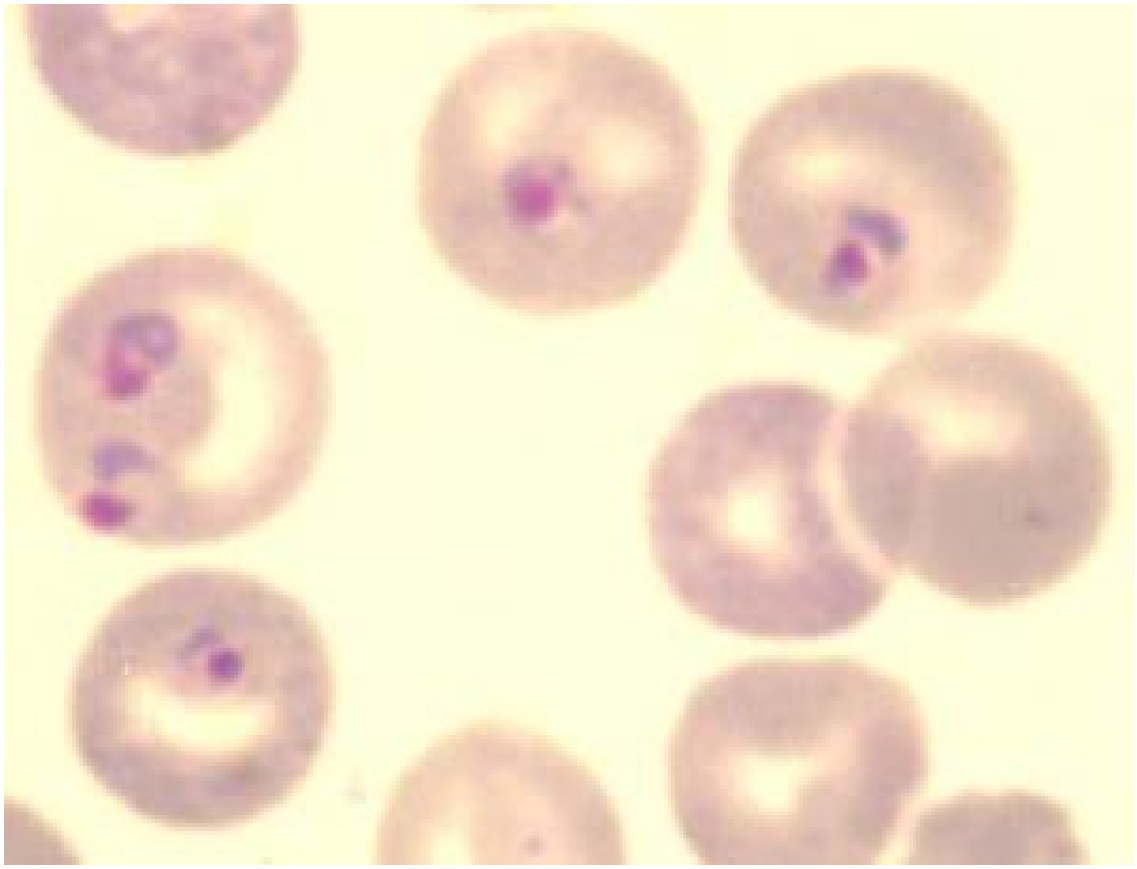
The attosecond clock

The “attoclock” attosecond clock, which occupies the space of two laboratories, is based on an almost circularly polarised infrared laser pulse and a “COLTRIMS” (Cold Target Recoil Ion Momentum Spectroscopy) detector. In this device, the laser pulses move in a circle in space rather than in the form of a wave as is normally the case with a light beam. The electrical field of the infrared light rotates once through 360° in space over 2.4 femtoseconds (fs). This creates a kind of clock face with an attosecond pointer instead of a second hand. The length of the infrared pulse is only about 5 fs, which means that the laser-induced tunnelling ionisation takes place in principle within one revolution of the pointer. Proof of the functioning of the clock with a helium atom was first published in July 2008. The “attoclock” was used to make the most precise measurements of time carried out so far in the atomic physics of strong fields.

Adapted from materials provided by ETH Zurich.

http://www.sciencedaily.com/releases/2008/12/081227215828.htm

African Thicket Rat Malaria Linked To Virulent Human Form



Pictured is the malarial parasite Plasmodium berghei, which is found in African thicket rats. (Credit: Copyright CJ Janse)

ScienceDaily (Jan. 5, 2009) — Even though the most deadly form of malaria for humans, Plasmodium falciparum, has been linked to malaria found in chimpanzees, this group has been fairly isolated on the malarial family tree—until now. A new phylogenetic analysis from the Sackler Institute for Comparative Genomics at the American Museum of Natural History reveals that malarial parasites found in tree-dwelling rats share a close evolutionary relationship with P. falciparum and Plasmodium reichenowi.

The analysis is based on amplification of entire mitochondrial genomes of malarial parasites that use humans, rodents, birds, and lizards as their hosts.

"This is the first time that a relationship has been found between human and rodent malaria," says Susan Perkins, Assistant Curator of Invertebrate Zoology at the Museum. "In all past studies, P. falciparum seemed to not be closely related to anything else but the chimpanzee parasite. But this study places it in a sister group of parasites from rodents."

The maternally inherited mitochondria of Plasmodium are among the smallest known in eukaryotes, containing only three protein-coding genes and a total of only about 6,000 nucleotides (the mitochondrial genomes of human and other animals are about 16,000 bases). The genome is also unusual because of its organization into linear, tandemly repeated DNA. These features allowed Perkins to take the unusual step of amplifying the entire genome in a single piece via polymerase chain reaction (PCR) and then sequence it to reconstruct the whole genome. The analysis that produced the phylogenetic tree was based on the sequences of the three protein-coding genes (a total of about 3,300 DNA characters).

The results place the malarial parasites found in African thicket rats, P. chabaudi, P. berghei,, and P. yoelii,, as a sister group of human and chimpanzee P. falciparum, and P. reichenowi,. This is interesting and surprising because the parasite found in African thicket rats—the only malarial parasite to be discovered first in mosquitoes and only later in a vertebrate host—is the most common laboratory model for human malarial research. The ,P. falciparum,-rodent group is most closely related to malarial parasites that infect humans and primates in Asia and other primates in Africa. The other clades defined by this new evolutionary tree follow previously determined evolutionary trees for malaria-causing parasites, published earlier this year by Perkins and colleagues at the University of Vermont. These other phylogenies were based on both mitochondrial and nuclear DNA.

"The link between human malaria and rodent malaria is exciting because, if they really are that closely related, our laboratory models might be more powerful for helping to study how to fight the disease," says Perkins. She also believes that this link may include more than these species: as-yet unpublished data collected earlier in her lab found a closely related form of ,Plasmodium, in bats from the same area, and it may be that the most virulent form of malaria jumped into humans from these other arboreal animals. "Like Ebola and SARS, this could be another example of bat-human linkage. Although the results of this study are unambiguous, they are nonetheless still based on just a very small portion of the parasite's entire DNA."

The new paper is published in the early online edition of Mitochondrial DNA, and the research was funded by the American Museum of Natural History with some computational work done at the Computational Biology Service Unit from Cornell University.

Adapted from materials provided by American Museum of Natural History, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/12/081222122607.htm

The Culture Of Medicine

ScienceDaily (Jan. 5, 2009) — Everybody is familiar with the stereotypes of medical education from the student perspective: grueling hours, little recognition, and even less glory. Now a novel Brandeis study published in Academic Medicine this month pulls back the curtain on the dominant environment of academic medicine from the perspective of faculty, the providers of medical education in medical schools.

The study raises questions about how the prevailing culture of academic medicine shapes the delivery of healthcare—from the quality of patient care and physician professionalism, to faculty burnout and leadership opportunities for women, minorities and primary care physicians. The article reports on how medical faculty experience the culture in which they work by examining their relationships to each other, to medical students, and to patients, as a reflection of the broader environment within academic medicine.

Brandeis University senior scientist Dr. Linda Pololi and her colleagues conducted in-depth one-on-one interviews with faculty members in a variety of specialty areas at five prominent medical schools across the country. While the study determined that positive relational aspects of the culture in academic medicine exist, it found that faculty often experienced disconnection, competitive individualism, undervaluing of humanistic qualities, deprecation, disrespect, and the erosion of trust.

"These negative experiences are undermining the central task of medical schools pointed out by the Pew-Fetzer Task Force in the 1990s, to help students, faculty, and medical practitioners to form caring, healing relationships with patients and their communities and with each other," said Pololi.

The study found that serious problems exist in the relational culture affecting medical faculty vitality, professionalism, and general productivity, and are linked to retention. "These aspects of the culture undermine the goals of medical institutions and are antithetical to fostering superior patient care, biomedical research, and educational excellence," explained Pololi. "It is highly laudable that the deans in our participating schools have taken this trail-blazing initiative to explore the extent and causes of this dissatisfaction and to do something about it."

The implications for healthcare are significant. "We have the most technologically advanced and most expensive medical system in the world, but we need compassionate healthcare as well," said Pololi. "We cannot teach compassion for patients without practicing it among ourselves; we cannot learn to be sensitive to cultural diversity in our patients without incorporating the perspectives of women and minority physicians who make up a larger portion of the medical workforce than ever before. We cannot be optimally successful in researching the causes of disease and finding new treatments without rewarding collaboration and openness, rather than competitive individualism."

The study, funded by the Macy Foundation, is part of an ongoing project, the National Initiative on Gender, Culture and Leadership in Medicine, known as C – Change.

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

http://www.sciencedaily.com/releases/2008/12/081231182014.htm

Rough Crossing

By LEAH HAGER COHEN

THE MERCY PAPERS

A Memoir of Three Weeks

By Robin Romm 213 pp. Scribner. $22

The foundational condition of being human is that we're going to die. Almost as basic a truth is that we seem incapable of believing it. The collision of these inconsonant facts is the spark that ignites Robin Romm's memoir, "The Mercy Papers," a furious blaze of a book. The title is inapt: there is little mercy in these pages. As Romm herself writes, "Maybe the problem is God, the lack of God, the lack of mercy, of grace."

In concrete terms, the problem is Romm's anguish over the impending death of her mother, Jackie Romm. Jackie, 56, has been living with breast cancer for nine years when her daughter is summoned home to see her for the last time. Subtitled "A Memoir of Three Weeks," the book chronicles not only the final weeks of her mother's life but also, in passages too seamlessly interwoven to be called flashbacks, the almost decade-long period in which cancer invaded the author as well — not physiologically but in every other imaginable way. Romm, who was 19 at the time of her mother's diagnosis, does not so much mourn as rail against her losses: the looming loss of her mother, yes, but also the loss of her own unburdened youth, of her "20s," as she puts it, again and again, at times wistfully ("I felt the most normal I'd felt in a month. I felt like a girl in my 20s"), at times bitterly ("I couldn't be around so many healthy people in their 20s, their eyes lit up with the frenzy of being young and lucky").

Full disclosure: I may have a little crush on Romm. Not because she's a good writer, although her prose (both here and in "The Mother Garden," her debut story collection, published in 2007) is so fresh and uncompromising it can feel practically impertinent. Nor because of her wit, although she can be startlingly funny (particularly on the subject of her nonagenarian grandfather). Not even because of her fearless, scathing honesty, like a gauntlet thrown down on page after page. It's ultimately her anger that is so magnetic — though like a real magnet, it holds power both to repel and to attract.

Hers is not a righteous, concentrated stream of anger directed at obvious targets: cancer, suffering, death. It's an intemperate spray of fury liable to hit anyone in her path: a store clerk, her boyfriend, her father, her mother, her mother's close friend, her mother's new kitten. The expression of her rage is frequently articulate, always physical. At one point she writes, "My hands feel angry." At another: "My eyes are wide and my nostrils all the way open. I am about to go flinging out of my skin." And later: "I begin to shake from the inside and I can't breathe all the way in." The anger doesn't build gradually over the course of the narrative; it's there in full glory on the very first page. Romm begins by savaging, but savaging, Barb, the hospice nurse. The hospice nurse! It makes one want to run for cover.

But "The Mercy Papers" is no blind rant. In Romm's hands, anger becomes an instrument for pursuing truth, an extremely effective crowbar with which to pry back nicety and expose "something unfettered, something darker." Often, it's from this unfettered darkness that the author delivers her best lines, the words strung together with a kind of plain-mouthed beauty. Right in the midst of eviscerating Barb, for example: "She's building a boat to sail my mother out. . . . Barb will build the boat of morphine and pillows and then I will have no mother and the days will be wordless and empty." This is just accurate and eloquent and hard.

The truths Romm pursues are not of the confessional variety. She offers no festering family secrets, no deathbed revelations. It's really only a single truth she grapples with, but it's that oldest and most unyielding, the inevitability of death. She never quite wrestles it to the ground: "I can't get my own brain to register the truth of it." Nor can she bring herself to surrender to it, not even when evidence of her mother's suffering becomes intolerable ("She's swollen everywhere and on her sternum you can actually see the skin puffed out where the tumors have grown, like a basketball rising from her chest"), not even when those around her implore Romm to "release" her mother, to assure her that she'll be O.K. when her mother dies. "I can't," Romm says. She makes no attempt to cast her refusal as an act of altruism, or an act of love. It's about her fear for herself, plain and simple. "I won't be O.K.," she tells her mother. "I can't imagine life without you."

There is valor in this, her toddler-like refusal to manage her grief or indicate acceptance. The literature on dying is rife with measured words, gallantry, sage advice. This is good. But we all harbor an inner 2-year-old: naturally stubborn and easily frightened, with no recourse in the face of unfathomable hurt but to stamp our feet and wail. Romm's book pays rightful tribute to that 2-year-old, and this is good, too, not least for being so rare.

Her mother, even as she lies dying, rises vividly off the page. It becomes evident that Jackie Romm has always been something of a force. As a civil rights lawyer, she "won arguments for a living, . . . found kidnapped children in foreign countries, . . . secured back pay for harassed women." At home, she could be equally formidable: "She used to storm out of rooms, fling herself around corners, slam stacks of paper against the battered kitchen tile." Robin Romm never explicitly links her own anger to her mother's. Instead, she puzzles over the fact that she keeps focusing on a particular childhood memory of her - mother's rage: "Why does this image come to mind when there are thousands and thousands of other images of my mother I could cultivate?" She wonders whether her mind, almost despite herself — despite her insistence on not letting go — is working to create distance between her mother and her. Thus the wrathful memories. In childhood, Romm says, when her mother became enraged, "she failed to be my mother," a rift that is, of course, about to be reproduced, finally and irrevocably.

In the end, it is the mother who releases the daughter. After a particularly horrific day of doing battle with the "boat builders" who are ushering her mother toward death, Romm goes to Jackie and confesses that she cannot bring herself, as the others have urged her, to say "it's O.K. to die." The confession is gorgeous for its admitted selfishness — which, in its candor and intimacy, is transformed into an act of generosity, a precious, unprettied gift. But the gift her mother gives in return is even greater. Her speech slurred through the oxygen mask, Jackie answers, "Sweetheart, I dun need your permission."

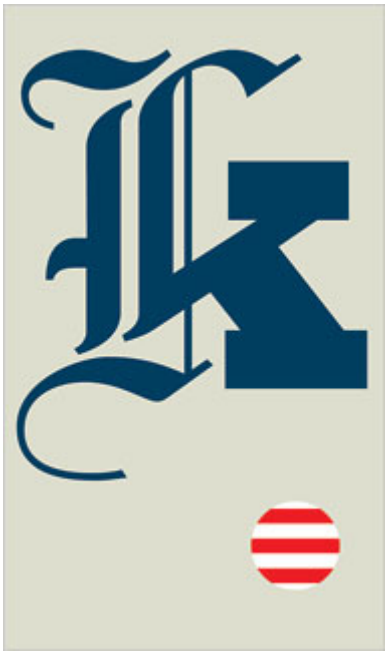
"This is what I wanted to hear," Romm realizes. With these words, the very thing that has tormented her — our powerlessness to stop death — becomes a form of solace.

Leah Hager Cohen, the author of three novels and four nonfiction books, is a frequent contributor to the Book Review.

http://www.nytimes.com/2009/01/04/books/review/Cohen-t.html?8bu&emc=bua1

America, 'Amerika'

By ADAM KIRSCH



Most writers take years to become themselves, to transform their preoccupations and inherited mannerisms into a personal style. For Franz Kafka, who was an exception to so many rules of life and literature, it took a single night. On Sunday, Sept. 22, 1912, the day after Yom Kippur, the 29-year-old Kafka sat down at his desk and wrote "The Judgment," his first masterpiece, in one all-night session. "Only in this way can writing be done," he exulted, "only with such coherence, with such a complete opening out of the body and the soul."

Everyone who reads Kafka reads "The Judgment" and the companion story he wrote less than two months later, "The Metamorphosis." In those stories, we already find the qualities the world would come to know as "Kafkaesque": the nonchalant intrusion of the bizarre and horrible into everyday life, the subjection of ordinary people to an inscrutable fate. But readers have never been quite as sure what to make of the third major work Kafka began writing in the fall of 1912 — the novel he referred to as "Der Verschollene," "The Missing Person," which was published in 1927, three years after his death, by his friend and executor Max Brod, under the title "Amerika."

The translator Michael Hofmann, whose English version of the book appeared in 1996, correctly called it "the least read, the least written about and the least 'Kafka' " of his three novels. Now Schocken Books, which has been the main publisher of Kafka's works since the 1930s, hopes to reintroduce his first novel to the world with a new translation, by Mark Harman. "If approached afresh," Harman promises in his introduction, "this book could bear out the early claim by . . . Brod that 'precisely this novel . . . will reveal a new way of understanding Kafka.' "

Harman offers a compromise between Kafka's intended title and Brod's more familiar one by calling his version Amerika: The Missing Person ($25). And he follows previous English editions by retaining the German spelling of America, with a "k." This lends the name, in American eyes, a more ominous and alien quality than it would have for the German reader. That "k" is hard to resist, however, and not just because readers have come to expect it. No writer has ever annexed a single letter the way Kafka did with "k." Between the two in his own last name, Joseph K. of "The Trial" and K. of "The Castle," the letter seems imbued with his own angular essence. Amerika is not America; it is a cipher for Kafka's dream of a country he never visited.

The difference becomes clear in the very first paragraph, when Karl Rossmann sails into New York Harbor and sees the Statue of Liberty: "The arm with the sword now reached aloft, and about her figure blew the free winds." The torch of liberty has metamorphosed into a punishing sword, an omen of the

many chastisements in store for Kafka's victim-hero. Indeed, America itself is a punishment for Karl, who was sent there by his parents after he got a servant girl pregnant back home. What Kafka actually writes, however, is that "a servant girl had seduced him," and when Karl remembers the fatal episode, it is clear he was more the victim than the aggressor: She "shook him, listened to his heart, offered him her breast so that he too could listen but could not induce Karl to do so, pressed her naked belly against his body, searched between his legs with her hand — in such a revolting manner that Karl shook his head and throat out from under the quilts — then pushed her belly up against him several times; it felt as if she were part of him; hence perhaps the terrible helplessness that overcame him."

Taking into account the fact that Karl is 17 and Johanna, the "girl," about 35, this sounds less like seduction than rape. And it is a template for the way everyone Karl encounters in "Amerika" will ignore his desires and overpower his will.

In the first chapter, Karl tries to intercede with the ship's captain on behalf of a stoker who has been mistreated, but his rich American uncle simply waves off his protests. Later, when Karl pays a visit to one of his uncle's friends, Mr. Pollunder, his uncle treats it as a terrible transgression and cuts him off — even though Karl made sure to get permission beforehand. (This arbitrary rewriting of the rules looks forward to the unwritten laws of "The Trial.")

While at Pollunder's house, Karl is nearly raped once again, this time by a teenage wrestler named Klara. ("I won't stop at one slap," she threatens, "but shall go on hitting you left and right until your cheeks start swelling.") When he escapes, he falls in with a couple of tramps, Delamarche and Robinson, who rob and bully him. He becomes an elevator boy at a luxury hotel but gets fired for crimes he didn't commit. So it goes, humiliation after humiliation, until Karl ends up a virtual slave to Delamarche's grotesquely obese mistress, the singer Brunelda.

It is enough to make the reader want to ask Karl what he demands of the stoker: "So why don't you speak out? . . . Why do you put up with everything?" "Amerika" never provides a good answer to this question: Karl is simply helpless, unable to make sense of the world or get along in it. Not until the last chapter, when he finds a job in the enigmatic Theater of Oklahama (Harman preserves Kafka's misspelling), does Karl seem to find a home in America — and even then, it's possible that Kafka would have had other torments in store for him, if he had completed the novel.

Karl's innocence is the main reason "Amerika" remains less persuasive a parable than "The Trial" and "The Castle." To be sure, in his first novel Kafka lighted instinctively on many of the techniques he would later use to such great effect. So similar are all three novels in structure and mood that they can be seen as the successively widening turns of a spiral; each time, Kafka surveys the same spiritual territory, but from a more commanding height.

But the crucial innovation of the later novels, which makes their dream-worlds so convincingly uncanny, is the way Kafka's avatars always seem to be colluding in their own punishment. In the first chapter of "The Trial," when the officers come to arrest Joseph K., he thinks, "If he were to open the door of the next room or even the door leading to the hall, perhaps the two of them would not dare to hinder him." But he doesn't make a move to escape, just as, later on, he freely obeys the summons of the court and finally submits to his execution. It is his own sense of guilt, especially sexual guilt, that makes Joseph K. accept his trial.

Karl Rossmann, however, refuses to accept responsibility for his desires, and it is a mark of Kafka's own immaturity that he allows Karl to be constantly seduced and abused, never to act as seducer or abuser. Compare Karl's childlike description of sex with K.'s wholly knowing, wholly mutual encounter with Frieda, in "The Castle": "She sought something and he sought something, in a fury, grimacing, they sought with their heads boring into each other's breasts; . . . like dogs desperately pawing at the earth they pawed at each other's bodies."

Klaus Mann, introducing an edition of "Amerika" in 1946, wrote that Kafka "deeply and simply loves his innocent creature, his favorite dream, his heir," Karl Rossmann. But it was not until Kafka accepted the guilt of his "creature" and "heir," and confiscated all but the first letter of Karl's name as punishment, that he could become the poet of the inexpungible guilt in all of us.

Adam Kirsch is a senior editor at The New Republic and the author of "Benjamin Disraeli."

http://www.nytimes.com/2009/01/04/books/review/Kirsch-t.html?8bu&emc=bub1

The Reader

By JACOB HEILBRUNN

HITLER'S PRIVATE LIBRARY

The Books That Shaped His Life

By Timothy W. Ryback

Illustrated. 278 pp. Alfred A. Knopf. $25.95

In November 1915 a German corporal in the 16th Bavarian Reserve Infantry Regiment left his billet in a two-story farmhouse near Fournes, two miles behind the front lines in northern France, and walked into town. Instead of enjoying the traditional soldiers' comforts of visiting a brothel or purchasing cigarettes and schnapps, he spent four marks to buy a slender book about Berlin's cultural treasures. Referred to as "the artist" by his fellow message runners, he was something of a figure of amusement to them, partly because it was easy to get a rise out of him by declaring that the war was lost, and partly because he spent hours in the trenches hunched over newspapers and books during lulls in his duties. This withdrawn infantryman had denounced the Christmas Truce of December 1914, when British and German soldiers fraternized for a day. The only living being he reserved his affection for was a white terrier that strayed across enemy lines and obeyed him unconditionally.

Nor did his habits ever really change. Decades later he would abandon his companions late in the evening to retire to the solitude of his study, where reading glasses, a book and a steaming pot of tea awaited him. When his girlfriend was once so indelicate as to intrude upon his reveries, she met with a tirade that sent her running red-faced down the hallway. A sign hanging outside, after all, adjured "Absolute Silence!" By the end of his life, when he had been abandoned by most of his retinue and staged his own Götterdämmerung, the only personal effects the invading Soviet soldiers found in his Berlin bunker were several dozen books.

Adolf Hitler may be better known to posterity for burning rather than cherishing books, but as Timothy W. Ryback observes in "Hitler's Private Library," he owned more than 16,000 volumes at his residences in Berlin and Munich, and at his alpine retreat on the Obersalzberg. Ryback, the author of "The Last Survivor," a study of the town of Dachau, has immersed himself in the remnants of Hitler's collection, which are mostly housed at the Library of Congress. In poring over Hitler's markings and marginalia, Ryback seeks to reconstruct the steps by which he created his mental map of the world. The result is a remarkably absorbing if not wholly persuasive book.

Hitler may never have completed any formal education, but as his friend from his early days in Vienna, August Kubizek, recalled, books "were his world." As Ryback shows, in the early 1920s, Hitler not only plowed through hundreds of historical and racist books to shore up his ideological bona fides as the leader of the fledgling Nazi Party, but also went to great lengths to construct a canon for it. He furnished a list of recommended readings stamped on party membership cards that stated in boldface, "Books that every National Socialist must know" (weakly translated by Ryback as "should read"). It included such gems as

Henry Ford's "International Jew" and Alfred Rosenberg's "Zionism as an Enemy of the State."
Confirmation of Hitler's bibliophilic inclinations also appears in the form of a rare photograph of his small apartment in Munich showing "Hitler posed in a dark suit before one of his two bookcases" — a handsome piece of furniture with scalloped molding — "his arms crossed in an assertively proprietary gesture."
After Hitler's failed 1923 beer hall putsch in Munich, a sympathetic court sentenced him to the minimum five years for high treason, with likely early clemency, a slap on the wrist administered, fittingly enough, on April Fools' Day. At Landsberg prison, where he was cosseted by his jailers, Hitler wrote his first book, "Mein Kampf." According to Ryback, "the one book among Hitler's extant prison readings that left a noticeable intellectual footprint in 'Mein Kampf' is a well-thumbed copy of 'Racial Typology of the German People,' by Hans F. K. Günther, known as 'Racial Günther' for his fanatical views on racial purity." Though Ryback does not mention it, Hitler also received weekly tutorials in Landsberg from Karl Haushofer, a University of Munich professor of politics and a proponent of Lebensraum.
Ryback singles out the Munich publisher Julius Friedrich Lehmann as possessing "the dubious double claim to being both the single most generous contributor to Hitler's private book collection and the public architect for the Nazi pseudoscience of biological racism." Ryback continues, "With this cache of Lehmann books we are in possession of a core collection within the Hitler library and the primary building blocks not only for Hitler's intellectual world but for the ideological foundations of his Third Reich."
But are we? Hitler was tapped in 1919 by Capt. Karl Mayr to attend propaganda sessions at the University of Munich and to lecture to soldiers about the Bolshevik peril. As early as September of that year, in response to a soldier's written inquiry about the "Jewish Question," Hitler declared that rational anti-Semitism's "final aim must unshakably be the removal of the Jews altogether." As the historian Ian Kershaw has observed in his biography of Hitler, this response indicates that he adhered unswervingly, from the end of World War I until his final days in the Berlin bunker, to nationalism and radical anti-Semitism. In short, Hitler's brooding over texts seems far more likely to have confirmed rather than created his virulent hatreds.
What's more, Ryback overlooks the importance of the city where Hitler first imbibed anti-Semitism. Hitler's Vienna, to borrow the title of a book by the Austrian scholar Brigitte Hamann, was a cauldron of Jew hatred. Hitler admired the city's anti-Semitic mayor Karl Lueger and steeped himself in racist newspapers and pamphlets. He also fell under the spell of German Romanticism, in the form of Wagner's operas, which nourished the illusion that he was a new Rienzi, with a mission to resurrect the old German Reich.
For Ryback, the essence of Hitler is "a dime-store theory cobbled together from cheap, tendentious paperbacks and esoteric hardcovers, which provided the justification for a thin, calculating, bullying mendacity." But there was more to it than that. While Hitler had no original thoughts, he wasn't a primitive carnival barker. On the contrary, he championed notions that had percolated in Wilhelmine Germany and had been steadily gaining credence in intellectual and bourgeois circles. Hitler's genius was to fuse German cultural nationalism with politics, allowing him to exert an aesthetic fascination on his contemporaries. As Thomas Mann unflinchingly and keenly recorded in his 1938 essay "Brother Hitler," the Führer might have been "unpleasant and shameful," but he was not someone whose kinship Mann could simply wish away.
Still, Ryback has provided a tantalizing glimpse into Hitler's creepy little self-improvement program. While being a bookworm may not be a precondition for becoming a mass murderer, it's certainly no impediment. Stalin, too, was an avid reader, boasting a library of 20,000 volumes. "If you want to know the people around you," Stalin said, "find out what they read." When Ryback began exploring Hitler's collection, he discovered that a copy of the writings of the Prussian general Carl von Clausewitz was nestled beside a French vegetarian cookbook inscribed to "Monsieur Hitler végétarien."
Jacob Heilbrunn is a senior editor at The National Interest. His book, "They Knew They Were Right: The Rise of the Neocons," has just come out in paperback.

http://www.nytimes.com/2009/01/04/books/review/Heilbrunn-t.html?8bu&emc=bua2

Don't Start the Revolution Without Me

By PANKAJ MISHRA

GRAHAM GREENE

A Life in Letters

By Edited by Richard Greene

Illustrated. 446 pp. W. W. Norton & Company. $35

Soon after completing "The Quiet American," Graham Greene confessed to Evelyn Waugh, his fellow Roman Catholic novelist,that "it'll be a relief not to write about God for a change." "Oh, I wouldn't drop God if I were you," Waugh retorted. "Not at this stage anyway. It would be like P. G. Wodehouse dropping Jeeves halfway through the Wooster series."

Waugh had a point. Born in 1904, Greene belonged to a lost British generation that had been too young either to fight in World War I or to reflect soberly on its calamitous effects. Until his conversion to Catholicism in 1926 (in order to marry a believer), Greene had known only the private neurosis of a privileged English youth. As a preternaturally bored schoolboy, he is said to have played Russian roulette; it could be argued that he never recovered from the ennui of the 1920s and the following even lower (and more dishonest) decade.

Discontented with modern civilization, Greene became, along with Waugh, Peter Fleming and Robert Byron, a travel writer specializing in the pre-modern world. He went to Liberia in 1935, drawn there by a map of the region boldly marked "cannibals." Mexico in 1938 seems to have refined his taste for seediness and misery. Soon afterward, German bombs made the streets of London appear as thrillingly full of the dangers Greene had sought in the African bush and the Mexican plains. "The whole war," he writes in one of the few revealing letters collected in "Graham Greene: A Life in Letters," "is good for someone like me who has always suffered from an anxiety neurosis." "The prospect of peace now," he worries in 1943 from Sierra Leone, "would fill me with utter gloom."

In "Ways of Escape," an otherwise reticent autobiography, Greene discloses that he went to the insurgencies, revolutions and coups of the decolonizing world "not to seek material for novels but to regain the sense of insecurity which I had enjoyed in the three blitzes on London." Indeed, much of the interest to be found in Greene's correspondence, which is mostly businesslike and dull, lies in his resolve to use political catastrophes as a personal setting for Russian roulette.

In August 1947, a few months into an affair with Catherine Walston, the American wife of a Labor M.P., Greene planned a trip with her to India, which was then in the midst of a bloodbath set off by the British decision to divide the country along religious lines. "If we get to India," he wrote to Walston, with whom he had recently taken a more sedate holiday in Ireland, "it will be odd — the exciting thing in exciting company. I have a feeling that even being in a massacre in the Punjab (I enclose a good account of one) won't really be as exciting as sitting on a cliff watching for salmon."

This assignation in the midst of mass murder didn't come off. Richard Greene (no relation), the editor of this volume, gives no explanation. In any case, salmon-spotting was not Greene's thing. "Nature doesn't really interest me," he writes from Malaya in 1950, "except in so far as it may contain an ambush — that

is, something human." As Browning wrote in a poem Greene cited as the epigraph he would choose for all his novels, "Our interest's on the dangerous edge of things."

Nevertheless, Greene was usually well protected while flirting with extreme peril. Unlike most Londoners, he had three homes, including an apartment belonging to an illicit lover, in which to get his frissons during the blitz. It was as an MI6 agent that he noted the squalor of Sierra Leone; in Malaya, he stuck close to the British as they pursued a violent and successful counterinsurgency against local Communists. He assumed that he and his lover would remain unscathed if they ventured to India, and he was right.

The British Army had been instructed to intervene in the civil war between Hindus and Muslims if the lives of white men and women were at stake.This dereliction of duty in one of Britain's oldest and most cherished possessions provoked Paul Scott, the chronicler of imperial exhaustion and disillusion, to declare that India in 1947 was where the empire's high idea of itself collapsed and "the British came to the end of themselves as they were." Released from the white man's burden, members of the British establishment were free to be adventurers and voyeurs. Greene found a post-imperial role for himself even before Britain lost its empire: a piece of luck just as good as the one that led him, through an expedient conversion to Catholicism, to the discovery of "sin" and the writing of novels that depend for their effect on the assumption — baffling, at least, to this heathen reader — that sex without religion, as Luis Buñuel once put it, is like cooking an egg without salt.

Places like Sierra Leone seem to have contained in satisfying measure what Scobie in "The Heart of the Matter" calls "the injustices, the cruelties, the meanness that elsewhere people so cleverly hushed up." In the decades after the war, Greene took his distrust of such deceptions to some of the dingiest corners of Asia, Africa and Latin America. Though apparently weary of civilization, he sought no Rimbaud-style derangement of the senses. Neither the Orient's supposed voluptuousness nor its spirituality beckoned. Stints at opium dens, brothels and blue movies seem to have been followed rather quickly by gin and tonics at the local British consulate.

Greene was not much interested in the arduous and often self-defeating postcolonial struggles for dignity and equality. He had "no sympathy for either side" in the war in Algeria. He irrationally disliked Arabs, hero-worshipping Moshe Dayan. Richard Greene cautiously argues that he "never admired Islamic culture," but there is no evidence he knew much about it. His principal objections to British imperialism seem to have been aesthetic rather than moral. Writing from British-ruled Sierra Leone, he complains of "little plump men in shorts with hairless legs, and drab women, and the atmosphere of Balham going gay."

Drawn mothlike to war and revolution (the Congo, Kenya, Indochina, Malaya, Israel, Haiti, Cuba, Argentina, Panama and Nicaragua), Greene occasionally arrived, as in Vietnam, ahead of most journalists. "The Quiet American" is driven by an old posh British disdain for America combined with a new resentment of the inheritors of European empires. It is not his best novel: implausibly virginal and earnest, the American Pyle resembles, as A. J. Liebling shrewdly observed, a French author's idea of an Englishman. As it turned out, the blunders of the best and the brightest in the 1960s helped give Greene a reputation for geopolitical prescience and obscured the fact that he was mostly wrong about the urgent issues (decolonization, Communism, the political potential of Catholicism) of his time.

"When we are young," Fowler says in "The Quiet American," "we are a jungle of complications. We simplify as we get older." This was certainly true of Greene, whose letters in later life show him becoming a first-class tourist to revolutions: "Now I'm off to Nicaragua (as the guest of the Sandinista government) to light a small fire under the fool Reagan." Though covering a vast period of personal and public turmoil, "Graham Greene: A Life in Letters" traces, quite astonishingly, no refining of sensibility and intelligence. The increasingly exotic settings merely underscore how the mind of this most famous of Englishmen abroad was fundamentally never really broadened — and may have been narrowed — by travel.

Pankaj Mishra's most recent book is "Temptations of the West: How to Be Modern in India, Pakistan, Tibet, and Beyond."

http://www.nytimes.com/2009/01/04/books/review/Mishra-t.html?8bu&emc=bua2

The Monstrous Anger of the Guns

By MAX BOOT

THE SOMME

The Darkest Hour on the Western Front

By Peter Hart

Illustrated. 589 pp. Pegasus Books. $35

Anyone who has ever visited the tiny village of Thiepval (population 98) in northern France can appreciate the enormity of the Battle of the Somme. Thiepval is the site of a towering triangular memorial commemorating more than 73,000 British and Commonwealth soldiers who fell in the area, most of them during the Allied offensive between July 1916 and November 1916, and who have no known grave.Gazing at all those names makes for a sobering experience, especially when you realize they represent just a fraction of the overall losses in the battle. British forces suffered 131,000 dead and 288,654 wounded. Of those, 19,240 were killed in the first 24 hours. The French suffered an additional 204,253 casualties, while on the other side the Germans had between 450,000 and 600,000.
No wonder, then, that the Somme has occupied a hallowed place in British memory — comparable to Gallipoli for Australians or Gettysburg for Americans, but on a much bigger scale. This was the costliest battle that the British Army has ever fought.
For most of us today, the bloodlettings of World War I are refracted through the despairing work of Robert Graves, Wilfred Owen, Siegfried Sassoon and other soldier-writers. As Peter Hart notes, the contemporary view of the Somme "can be brutally summarized in just five words: 'the pity of it all.' Politicians are portrayed as Machiavellian, but simultaneously weak, generals are stupid, soldiers are brave helpless victims and war poets — war poets are the latter-day saints made flesh."
Hart, the oral historian at the Imperial War Museum in London, offers a different perspective in "The Somme." While not flinching from the horrors of trench warfare, he argues that the carnage was hardly senseless. In his view, attempts by Winston Churchill and other strategists to find a shortcut to winning the war were fundamentally flawed. The soldiers dispatched to Gallipoli, Salonika and Mesopotamia would have been better employed, he believes, in battering German defenses on the Western Front — the only place where the kaiser could have been defeated.
Even more daringly, he comes to the defense of Douglas Haig, the commander of the British Expeditionary Force, who has usually been depicted as an unimaginative, uncaring idiot who sent the flower of British youth to an early grave for no good reason. Hart argues that even though Haig made plenty of tactical mistakes, "the broad thrust of Haig's strategy in 1916 was probably correct. . . . Haig's way was excruciatingly painful, but it was the only realistic way at the time." As for all those soldiers who suffered so much, Hart contends it is "inane to adopt the morbid sentimentality of portraying the men who took part as helpless victims. . . . On the contrary, many were actively looking forward to the moment when they could finally prove themselves as fully-fledged 'warriors.' "
That moment arrived at 7:30 a.m. on July 1, 1916, when tens of thousands of British infantrymen emerged from their trenches to move through dense smoke across "no man's land." The ground assault

had been preceded by seven days of shelling from 1,537 guns and howitzers. Many, perhaps most, of the attackers anticipated, as Lt. William Colyer of the Royal Dublin Fusiliers put it, that there would be "no great difficulty . . . in the successful accomplishment of these operations." "Surely," he reasoned, "no human opposition could withstand that terrible avalanche of shell fire." But it turned out that the British bombardment, impressive as it appeared, was grossly inadequate.

The Germans had constructed three sophisticated lines of trenches with dugouts extending deep underground,bolstered by numerous fortified strong points. Moreover, the impact of the British guns was dissipated by Haig's absurdly optimistic timetable, which called for the seizure of both the first and second lines on the first day. This meant that the artillerymen had to spread their shells over a wide area and could not achieve critical mass in most sectors.

The bulk of German artillery, located behind the front lines, was largely spared in the initial softening up, and most of the German trenches and fortifications also survived intact. Hence the terrible slaughter that ensued once the bombardment lifted. The well-trained German soldiers crawled out of their dugouts and let loose with rifle, machine gun and artillery fire against the vulnerable Tommies advancing toward them. "They were just mown down like corn," said Pvt. Reginald Glenn of the York and Lancaster Regiment. Pvt. Harry Baumber of the Lincolnshire Regiment pithily summed it up as "an absolute bloody desolate shambles."

Only in the southern part of the front, around the intersection between the French and British zones, were significant gains made on that first day. Here attacking troops managed to smash through the front-line German trenches, although the second and third lines remained intact. This relatively modest success encouraged Haig to keep going, convinced that one final push could lead to a war-winning breakthrough. He had seen the First Battle of Ypres in 1914 and had realized how close the Germans had been to victory before suspending their offensive, and he did not want to make the same mistake.

But not even the arrival, in September 1916, of newfangled tanks — which one terrified German soldier thought were crocodiles "crawling into our lines" — could smash German resistance. The Germans simply built new trenches to replace the ones they had lost and sent in fresh manpower to replace their casualties. Haig's efforts to exhaust the enemy finally had to be suspended in November when heavy rains turned the battlefield into a "sucking ooze" where movement was nearly impossible.

Hart superbly depicts these months of brutal combat in all their complexity. As promised, he does not focus only on victims. He also features heroes like Lt. Albert Jacka of Australia, who had already won a Victoria Cross at Gallipoli and was wounded on the Somme. Even after being hit multiple times he managed single-handedly to kill at least five "Huns." Admittedly four of them had already tossed down their rifles and put up their hands, but such episodes were all too common in this inglorious conflict. Nor does Hart slight the relatively unheralded but vitally important contributions of artillerymen, logisticians and medics.

If there is one fault with his account, it is its relentlessly Anglocentric focus. There is almost nothing here on the French and, even more surprisingly, not much more on the Germans, who after all had an awful lot to do with the outcome.

Such one-sidedness takes nothing away from the force of Hart's narrative, but it does suggest the need for a companion volume devoted to the other side. That may seem like, well, overkill, but the Somme, like Gettysburg, Gallipoli and other battles stretching back to Thermopylae, will continue to be commemorated as long as fortitude under fire continues to be admired.

Max Boot is the Jeane J. Kirkpatrick senior fellow for national security studies at the Council on Foreign Relations and the author, most recently, of "War Made New: Technology, Warfare, and the Course of History, 1500 to Today."

http://www.nytimes.com/2009/01/04/books/review/Boot-t.html?8bu&emc=bua2

Inside the mind of an autistic savant

*Autistic savant **Daniel Tammet** shot to fame when he set a European record for the number of digits of pi he recited from memory (22,514). For afters, he learned Icelandic in a week. But unlike many savants, he's able to tell us how he does it. We could all unleash extraordinary mental abilities by getting inside the savant mind, he tells **Celeste Biever***

Do you think savants have been misunderstood - and perhaps dehumanised - in the past?

Very often the analogy has been that a savant is like a computer, but what I do is about as far from what a computer does as you can imagine. This distinction hasn't been made before, because savants haven't been able to articulate how their minds work. I am lucky that the autism I have is mild, and that I was born into a large family and had to learn social skills, so I am able to speak up.

When did you first realise you had special talents?

At the age of 8 or 9. I was being taught maths at school and realised I could do the sums quickly, intuitively and in my own way - not using the techniques we were taught. I got so far ahead of the other children that I ran out of textbooks. I was aware already that I was different, because of my autism, but at that point I realised that the relationship I had with numbers was different.

To most people, the things you can do with your memory seem like magic. How do you do it?

The response that people often have to what I can do is one of "gee whiz", but I want to push back against that. One of the purposes of the book I've just written, *Embracing the Wide Sky*, is to demystify this, to show the hidden processes behind my number skills.

I have a relationship with numbers that is similar to the relationship that most people have with language. When people think of words, they don't think of them as separate items, atomised in their head, they understand them intuitively and subconsciously as belonging to an interconnected web of other words.

Can you give an example?

You wouldn't use a word like "giraffe" without understanding what the words "neck" or "tall" or "animal" mean. Words only make sense when they are in this web of interconnected meaning and I have the same thing with numbers. Numbers belong to a web. When somebody gives me a number, I immediately visualise it and how it relates to other numbers. I also see the patterns those relationships produce and manipulate them in my head to arrive at a solution, if it's a sum, or to identify if there is a prime.

But how do you visualise a number? In the same way that I visualise a giraffe?

Every number has a texture. If it is a "lumpy" number, then immediately my mind will relate it to other numbers which are lumpy - the lumpiness will tell me there is a relationship, there is a common divisor, or a pattern between the digits.

Can you give an example of a "lumpy" number?

For me, the ideal lumpy number is 37. It's like porridge. So 111, a very pretty number, which is 3 times 37, is lumpy but it is also round. It takes on the properties of both 37 and 3, which is round. It's an intuitive and visual way of doing maths and thinking about numbers.

For me, the ideal lumpy number is 37. It's like porridge
Why do you think you treat numbers this way?

When I was growing up, because of my autism, I didn't make friends. Numbers filled that gap. The numbers came alive. My mind was able to pick out patterns and to make sense of them. It was similar to how a child would acquire his first language.

Do you make mistakes?

Absolutely. All the time, because of my intuitive approach. In the book I give an example of how another autistic savant thought that 10,511 was a prime number. That's the kind of mistake I could make, because it looks prime. However, it is divisible by 23 and 457. It's a forgivable error and not a rookie mistake.

What can we learn from the way your mind works?

The differences between savant and non-savant ability have been exaggerated. Savants are not freaks, cut off from the rest of humanity. The thinking of savants is an extreme form of the kind that everyone has. The aim of my book is to show that minds that function differently, such as mine, are not so strange, and that anyone can learn from them. I also hope to clear up some misconceptions about savant abilities and what it means to be intelligent or gifted.

There is immense potential, and instincts for language and numbers, in everyone. We could train these intuitions - especially at an early age, but also at any age - and learn how to break down preconceptions about how numbers should be thought about or how language works. Then, though people might not necessarily be able to do all the things I can do, they will be more comfortable with language and mathematics, and learning and education in general.

You also excel at learning languages. How do you pick them up so quickly?

I have synaesthesia, which helps. When there is an overlap between how I visualise a word and its meaning, that helps me remember it. For example, if a word that means "fire" in a new language happens to appear orange to me, that will help me remember it. But more significant is my memory and ability to spot patterns and find relationships between words. Fundamentally, languages are clusters of meaning - that is what grammar is about. This is also why languages interest me so much. My mind is interested in breaking things down and understanding complex relationships.

You have created your own language. Why?

My language - called Mänti - is about my love of words. If you have that relationship with words, you will always want to express yourself but not be able to find the word in your native language. I speak many languages and I still can't always find the right sentence in any language. Mänti is about having that freedom to play with language, to see what would happen if I had a word for this or that.

What can you say in Mänti that you can't say in any other language?

I like the word "kellokult", which means "clock debt". It's a way of emphasising that when you are late for something, it incurs a debt, you owe someone that time. There is also "rupuaigu", which means "bread time". It's a period of time, roughly an hour, that is the time it would take for bread to bake in an oven. What I like is that it is the same for everyone in the world. It's a more intuitive way of thinking about an hour.

Do you have a bone to pick with the neurologist Oliver Sacks, who wrote about autistic savants?

Oliver Sacks wrote a famous account of autistic savant twins who counted 111 matches in an instant, as they spilled to the floor. Because he is famous, this has gained a lot of traction. People have devised theories to explain how savants might do this. But the likeliest explanation is that savants don't instantly discern large quantities of objects at all. This ability has never been demonstrated scientifically, nor has it ever been reported in another savant. I think Sacks's account - which has been so influential - is totally wrong.

Why is it so important to get this right?

The abilities of savants have been pigeon-holed as somehow supernatural, almost inexplicable and certainly not as part of the natural continuum of human talent. This has deformed how the public and, crucially, scientists, view the brain and human potential. It is insulting and potentially dehumanising. The future is an immensely scary place, full of all kinds of challenges. We will need every kind of mind, so why not bring along every kind of intelligence?

Profile

Daniel Tammet is 29 and grew up in London as the eldest of nine children. He has Asperger's syndrome, synaesthesia and had epilepsy as a child. He has taught himself French, Finnish, German, Spanish, Lithuanian, Romanian, Welsh, Estonian, Icelandic and Esperanto. He works as a writer and linguist, and runs online language courses. In 2004 he set a European record for memorising the digits of pi (22,514 digits in 5 hours and 9 minutes). His new book *Embracing the Wide Sky: A tour across the horizons of the human mind* is out this month by Hodder & Stoughton (UK)/Free Press (US)

http://www.newscientist.com:80/article/mg20126881.800-inside-the-mind-of-an-autistic-savant.html?full=true

Boxed In

By SUSANN COKAL

THE SKY BELOW

By Stacey D'Erasmo

271 pp. Houghton Mifflin Harcourt. $24

The box, the simple box, may be the art form of the 21st century. With or without its sixth wall, it promises a mystery; when its contents (or lack thereof) are displayed, some deeper mystery often remains. Past masters like Joseph Cornell and Marcel Duchamp have inspired new generations of artists to fill rectangular solids with an assortment of found objects. Depending on your taste and perspective, this is either a form of sculpture or a short step up from the elementary-school diorama. The box is thus the darling of both the Tate Modern and the community amateur show: the bricolage celebrates vision rather than craft, suggesting to some that art is effortless, to others that it's inscrutable. Meaning seems either elusive or all too obvious.

Gabriel Collins, the narrator of Stacey D'Erasmo's new novel, "The Sky Below," imagines his life as a series of such containers. He begins with the boxes and wrapping paper from which his mother builds elaborate mini-cities during his New England childhood; graduates in adolescence to shoeboxes full of pilfered knickknacks, "the kinds of things that would never be missed, that were treasure only to me"; and later embarks on a career as an artist. The objects he thinks of pasting into his works are varied and often grotesque: shreds of balloons, a belt buckle, teeth, hair, watch gears, a bottle of his own mucus, "pop-up line drawings" of male organs and sketches of 9/11.

Such assemblages of oddments have, of course, a long history. Beginning in the late 16th century, collectors demonstrated their command over the natural and artistic worlds in the cabinet of curiosities — a room, a set of shelves or even (yes) a box displaying whatever caught the collector's fancy. Such are the roots of the modern museum. But as museums began to compartmentalize, then specialize, that sense of dizzying abundance was lost, and with it some of the pleasures of the unexpected discovery, the incongruous grouping or juxtaposition that might open up a new dimension of thought or experience.

D'Erasmo recovers that pleasure in narrative form, presenting Gabriel's life as if it were a series of cabinets of curiosities — of moments distilled into sets of objects that highlight but don't define them.

From the outset, Gabriel insists on calling himself an average man: "I look familiar, though you can't quite place me — I look like a lot of people you know, or used to know." He takes a determined pride in his ordinariness, claiming that the tattooed bird on his hand is more memorable than his face. But

literature, like art, displays unsuspected facets of the everyday, revealing how extraordinary it can turn out to be.

Sometimes it's quite pretty, as when young Gabriel's mother tents his bed with raspberry red silk and reads him stories from Ovid. He thinks she wants to change into a swan and take him and his sister away with her. He also imagines himself as Tereus, a man who changed into a bird, and remains fascinated all his life with feathered creatures. Hence the tattoo and some of his stranger moments, including days spent high in a sacred tree with members of a Mexican commune. At times, Gabriel even believes he's turning into a bird. What he doesn't admit (not even, apparently, to himself) is that Tereus is a terrible figure who raped his wife's sister and cut out her tongue, then tried to murder both women. The avian metamorphosis was a punishment from the gods, not a reward.

It's Gabriel's father who leaves the nest first. After he drives off and doesn't come back, Gabriel develops a taste for the forbidden. When his mother moves the family to Florida, the boy comforts himself by listening to his father's old, staticky radio and sneaking into people's houses to "try them on, haunt them a little" — always hoping to return to a version of his first childhood home. He develops into a blithe drug dealer, a high school ladies' man and eventually a men's room rent boy, giving the strangers who kneel before him "something special that they would take back, secretly, into their everyday lives." He finds his artistic métier while attending a tiny college in Arizona, then moves to New York, where he acquires a significantly older lover ("Do I love him? Or is it just a daddy thing?") and a stultifying job writing obituaries for a fading newspaper. He also ghostwrites for an aged novelist while regularly stealing valuable knickknacks from her. Yet when he falls in love, it's with a house. Trying to finance a purchase, he blackmails a benefactor and buys himself some time by infesting the place with termites

In short, Gabriel isn't easy to like. He repudiates his best friend when she decides to marry. He doesn't even make a sympathetic invalid. When, at 38, he gets what his doctor calls a "lazy cancer" of the blood, he walks out on the family and friends who have gathered to help him and heads south of the border.

LL the same, it's hard not to be seduced by this willfully selfish man, D'Erasmo's most complex and accomplished character to date. (She is also the author of two previous novels, "Tea" and "A Seahorse Year.") Gabriel may not be a great person, but in his hunger for expression, for a father, for a home, he embodies the deep yearnings and sense of entrapment that can make anyone act badly. After taking the subway to Brooklyn to see the house he wants, he gazes back at Lower Manhattan, where he works: "The river turned entirely gold, solidified. I could barely see the building now, it had dissolved into the last blaze of light, but I could feel the taut stretching, the hollow in my chest that pulled me toward it." Later, the house pulls him in the other direction, promising the transformation he craves: "It was on its way, moving toward me, already lifting me. . . . I rowed as hard as I could toward that light."

In moments like these, Gabriel's voice is irresistible. He's probably not much of an artist — he certainly meets with no worldly success — but he's a brilliant narrator. Vibrant and precise, his storytelling is memorable not so much for its individual phrases (though plenty are exquisite) as for its overall sense of immersion into a distinctive world.

In Florida, Gabriel imagines himself inside an alligator: "It might be beautiful, too, gorgeous strong tendons and a translucent, cool, jade-green alligator heart. In case you ever got swallowed by one, you could look around in the jade-green light and see what was in there. Pieces of garden hose. Baby rattles. The bottom curve of the cool jade-green heart, like a sun hanging on the horizon of another planet."

Given such a description, who wouldn't want to be eaten alive? And who wouldn't long for wings after reading about Gabriel's time in that Mexican tree: "I remember my wings. My wings! How they arched above my head. Their weight on my shoulder blades. Their conductivity: heat, cold, wind. Like getting a seventh sense." But they also make his shoulders ache.

As in the best books (more rectangular solids), the meaning of these images seems to evolve as they repeat, bumping up against one another, altering slightly, until new combinations and minute adjustments lay bare the complex emotions within.

Susann Cokal, a frequent contributor to the Book Review, is the author of the novels "Mirabilis" and "Breath and Bones."

http://www.nytimes.com/2009/01/11/books/review/Cokal-t.html?_r=1&8bu&emc=bua1

Children of the Left, Unite!

By CALEB CRAIN

Financial behemoths have been nationalized. The government is promising to spend liberally to combat recession. There are even rumors of universal health care. Socialism is on the march! As we leave capitalism behind, the traditionalists among you may be wondering: Will they come for our children?

Too late. As Julia L. Mickenberg and Philip Nel document in Tales for Little Rebels: A Collection of Radical Children's Literature (New York University, $32.95), Marxist principles have been dripping steadily into the minds of American youth for more than a century. This isn't altogether surprising. After all, most parents want their children to be far left in their early years — to share toys, to eschew the torture of siblings, to leave a clean environment behind them, to refrain from causing the extinction of the dog, to rise above coveting and hoarding, and to view the blandishments of corporate America through a lens of harsh skepticism. But fewer parents wish for their children to carry all these virtues into adulthood. It is one thing to convince your child that no individual owns the sandbox and that it is better for all children that it is so. It is another to hope that when he grows up he will donate the family home to a workers' collective.

Mickenberg, an associate professor of American studies at the University of Texas, Austin, and Nel, a professor of English at Kansas State University, have nonetheless found 44 texts that attempt to attach children to social justice permanently. As they note in an introduction, the tentacles of the left reach deep. Crockett Johnson, creator of the innocuous-seeming "Harold and the Purple Crayon," was an editor at The New Masses, a Communist weekly. Syd Hoff, known for "Danny and the Dinosaur," wrote for The Daily Worker. Environmentalism is more or less explicit in such crowd pleasers as "The Lorax" by Dr. Seuss. In fact, so permeated is children's literature by progressive ideals that Mickenberg and Nel were forced to narrow their scope by focusing on texts that have fallen out of print. They group their rediscoveries according to such themes as economics, unionization and respect for individual difference. A less ideological reader might be tempted to divvy them up into the categories Charming, Insufferable and Inappropriate. Let's get Charming out of the way first. In 1939, under the pseudonym "A. Redfield," Hoff wrote and illustrated "Mr. His," a book about a portly capitalist with a top hat, a tuxedo and a droopy mustache — like the Monopoly man but more personable. Though elsewhere Mickenberg and Nel warn against trafficking in "the stereotype of the fat capitalist," they're lenient with Hoff, perhaps because the rotundity of Mr. His is so charismatic. Mr. His owns a whole town, Histown, where he lives in luxury and the workers in squalor. He gets away with it because "there were no strikes in Histown — and no picket lines and no unions. The newspapers, which Mr. His owned too, said that these things were wicked." Since this is a children's story, the workers manage to defy Mr. His despite the false consciousness foisted on them by his mass media, whereupon he temporizes by trying to foment race hatred: "Wuxtry!" he exclaims, hawking issues of his newspaper in person. "Blondes — your real enemy is brunettes!" Unable to resist a villain who shouts "Wuxtry!" I wandered off to the Internet to try to buy a copy of "Mr. His" for my niece. None were for sale. By their reprinting, Mickenberg and Nel have rescued Mr. His from near-complete oblivion.

It is not their only success. In "The Story of Your Coat" (1946), Clara Hollos elaborates an idea from "Das Kapital" by tracing a coat from its origins on the backs of Australian sheep through a unionized textile mill and into a department store. The writing is simple but not simplified; it reminds me of the

casual but illuminating way V. S. Pritchett explains the leather trade in his memoir "A Cab at the Door." In Yehoshua Kaminski's tale "A Little Hen Goes to Brownsville" (1937), translated from the Yiddish, a chicken sets out to use her near-superhero-caliber egg-laying skills to help the Brooklyn neighborhood's babies, which she hears are "small and pale, thin and weak." So unstoppable is her nutritional charity that she lays an egg in Times Square, gets arrested, pays her fine with another egg, and then pays her bus fare with yet another. The moral, Mickenberg and Nel infer, is that "justice is best served by a system that is not defined by the strict and inflexible administration of a legal code." Also, that children should not go hungry.

It's harder to say exactly what's politically radical about Lydia Gibson's "Teacup Whale" (1934), in which a boy finds in a puddle a tiny whale, which his mother persistently mistakes for a polliwog, and which in time must be carted to the wharf in a truck. Does the whale represent the proletariat? Is the boy the opposite of Captain Ahab? The story is, in any case, pleasant to read, and the illustrations are lovely. As much cannot be said of the Insufferable. I hasten to say there are a lot of stinkers in children's literature, and I suspect capitalism is responsible for more of them than socialism is. The real culprit isn't political economics; it's morality. There seems to be a slightly higher propensity for self-consciously virtuous books to be written by people whose personalities have been paved over by their superegos. In Oscar Saul and Lou Lantz's insipid "Revolt of the Beavers" (1936), for example, a rebel beaver explains his campaign to a couple of 9-year-olds thusly: "All the beavers were very sad . . . and me too, so I said why don't you make a club for sad beavers to become glad. So all the beavers say Yayy!" Language so insipid risks turning a sensitive 9-year-old to a life of orthodoxy if not reaction. When I was a child, I felt guilty that I was never able to read more than a few pages of a beautiful edition of Carl Sandburg's "Rootabaga Stories" (1922), given to my sister and me by our parents. But Mickenberg and Nel reprint a story from the book's 1923 sequel, and I am at last set free. I didn't read the stories because no child could — they are stomach-churningly, almost incomprehensibly saccharine. Here, for example, is how Sandburg describes the cost of an episode of militarism: "And the thousand golden ice tongs the sooners gave the boomers, and the thousand silver wheelbarrows the boomers gave the sooners, both with hearts and hands carved on the handles, they were long ago broken up in one of the early wars deciding pigs must be painted both pink and green with both checks and stripes."

Last but not least among Mickenberg and Nel's selections are the Inappropriate. For all their caution about the fatness of capitalists, no warning is given that Julius Lester's "High John the Conqueror" (1969), a retelling of several African-American folk tales, deploys the N-word with gusto. Another stumper is a 1954 retelling and reillustration by Walt Kelly, of "Pogo" fame, of an episode from Lewis Carroll's novel "Alice's Adventures in Wonderland." The King of Hearts is drawn as a burly, sinister cat with the face of Senator Joseph McCarthy. To show that the McCarthy cat is evil, Kelly gives its eyes no pupils. It has a 5 o'clock shadow, and there's hair — fur? — on the backs of its hands. The effect is grotesque, of a feline Tony Soprano brutalizing and carnalizing Carroll's delicate surrealism. I imagine it would give children nightmares. As might the verses of Ned Donn's 1934 "Pioneer Mother Goose": "This bloated Pig masters Wall Street, / This little Pig owns your home; / This war-crazed Pig had your brother killed. . . ."

But you can't make an omelet without laying a few eggs, as any hen can tell you. And in the next few years, as America backs cautiously away from its laissez-faire disasters and reluctantly into an unfamiliar, communal style of politics, some of us may find ourselves wishing we had been scared with such rhymes in kindergarten instead of having had to live through them as adults.

Caleb Crain has written for n+1, The New Yorker and The London Review of Books.

http://www.nytimes.com/2009/01/11/books/review/Crain-t.html?8bu&emc=bub1

The Mogul at Play

By JACK ROSENTHAL

THE UNCROWNED KING

The Sensational Rise of William Randolph Hearst

By Kenneth Whyte

Illustrated. 546 pp. Counterpoint. $30

For decades, the name "Hearst" meant megamedia — an empire of dozens of opinionated newspapers, magazines, broadcast properties, a movie studio and expansive real estate holdings as well as a great art collection. Even now, the company that William Randolph Hearst left behind at his death in 1951 owns 16 daily newspapers, 16 magazines, and television and radio outlets that reach 18 percent of American households.

The creator of this empire has attracted repeated biographers eager to understand his legendary life. In this newest addition to the literature, Kenneth Whyte, a Canadian editor and publisher, sets out to de-demonize Hearst in his dramatic early years.

Whyte largely succeeds, showing that the young Hearst did not get ahead merely by throwing family money around, did not corrupt investigative journalism and did not incite the Spanish-American War. He was not at all Citizen Kane, the indelible caricature that Orson Welles put on film. The young Hearst was a restless entrepreneur and an obsessively hard worker, respected by his staff. He came to New York in the mid-1890s at age 31 to take on Joseph Pulitzer and transform the newspaper world.

This is not a new portrait. In "The Chief," his masterly biography of Hearst's whole life, published in 2000, David Nasaw drew similar conclusions that challenged the historical Hearst mythology. Whyte nevertheless presents another, arresting portrait — of the emerging power of the press at the end of the 19th century.

In this present moment of media history, newspaper lovers ponder the uncertain autumn of the print press. The comedian Stephen Colbert has called the Newseum in Washington the "Newsoleum." Thus there's poignancy in Whyte's account of print's riotous spring, a different transformative time for newspapers.

The 1890s brought waves of turbulent change to New York. With heavy immigration and the consolidation of the five boroughs, the population more than doubled in a decade, to 3.4 million. Suddenly, bicycles were everywhere. Literacy soared. And people felt the tightening grip of industrial and corporate forces like the trusts that controlled railroads, electricity and even water.

Hearst arrived in New York from San Francisco, where he had turned his father's failing Examiner into a successful big-city daily. Now he was challenging himself to do the same in America's biggest city, then home to 48 daily papers.

Pulitzer had already responded to the growing market for a working-class newspaper. He had come from St. Louis in 1883, bought The New York World and increased its circulation to 250,000 from 11,000 by 1895. Undeterred, Hearst bought The Journal and its German-language cousin, with a combined circulation of about 110,000. Competing fiercely with Pulitzer, he gave the paper "every ounce of his care

and concentration and prodigious energy from the start," Whyte writes, and on the day after the 1896 election, sold more than 1.5 million copies.

Hearst and Pulitzer reached new heights with their ceaseless innovation, transforming dull gray walls of type through bold headlines, halftone photographs, thick Sunday editions and the introduction of rival cartoon characters, colored yellow and known as the Yellow Kids — hence the epithet yellow journalism. "Far from being shady, squalid or trivial," Whyte writes, "the yellows were big, rich businesses run out of towering buildings with elevators, telephones and electric lights. . . . Their dazzling color presses could spit out a million copies a day for delivery over thousands of square miles. They could generate a fresh edition with the latest news from a conflict halfway around the globe in a matter of minutes. . . . They spoke to the nation with a frankness and familiarity that politicians could only envy."

True, The Journal, like The World, traded heavily in sensationalism, what David Nasaw called "fully illustrated stories of exotic murders . . . and scandals involving men of wealth in tuxedos and chorus girls in underwear." Then, long before he turned to the right — even to what critics called the fascist right — Hearst had loftier ambitions. These were reflected in one cartoon caption: "The Press to the Rescue! 'Government by Newspapers vs. Boss Rule.' " Whyte writes: "Hearst hammered away frenetically, day after day, week after week, at privately held trusts in ice, water, gas, sugar, rubber, coal and railways. . . . As an activist and community servant, Hearst was operating with a vigor, scope and conviction unprecedented in American newspapers." A British editor said he might be the "uncrowned king of an educated democracy."

This "journalism of action" characterized Hearst's early embrace of the Cuban rebels fighting their Spanish colonial masters. He was motivated not just by a coarse desire to sell papers but also by a determination to denounce Spain's brutal repression, which included reconcentrados, squalid concentration camps for hundreds of thousands that brought endless misery and often death. Parenthetically, Whyte cites Samantha Power, who, in her book " 'A Problem From Hell' " says America has "never in its history intervened to stop genocide." In this case, he writes, even though that word was not yet in use, "the American people, with leadership from their newspapers, did . . . 'muster the imagination needed to reckon with evil.' "

Like other biographers, Whyte focuses on what he calls one of the most remarkable anecdotes in American journalism. In January 1897, Hearst dispatched Frederic Remington, the noted sculptor and illustrator, to Cuba to send back drawings of the atrocities. Remington reportedly wired that there would be no war. Hearst is said to have wired back, in what, true or false, may be his most famous utterance: "You furnish the pictures, and I'll furnish the war."

Neither telegram has ever been found, and Whyte concludes that the only account of this exchange is certainly wrong. Remington was hired for one month and was impatient to return home. America didn't declare war until 15 months later.

The larger point is that the American public was gradually, inevitably headed for war with Spain. Hearst may have been an enthusiastic, even reckless war lover, but, Whyte writes, he did not and could not have caused armed intervention in Cuba. That's what Nasaw concluded in his own biography: "Even had William Randolph Hearst never gone into publishing, the United States would nonetheless have declared war on Spain in April of 1898. That Hearst has received so large a measure of credit or blame for that 'glorious war' is a tribute to his genius as a self-promoter."

Whyte, in his research, obviously pored over hundreds of old newspapers, including the trade press. Occasionally, he falls into a "gotcha" mode, triumphantly correcting assertions by prior biographers that seem less than consequential. At times, he seems infected by 1890s-style prose: "His manners were a tad artificial but nonetheless exquisite."

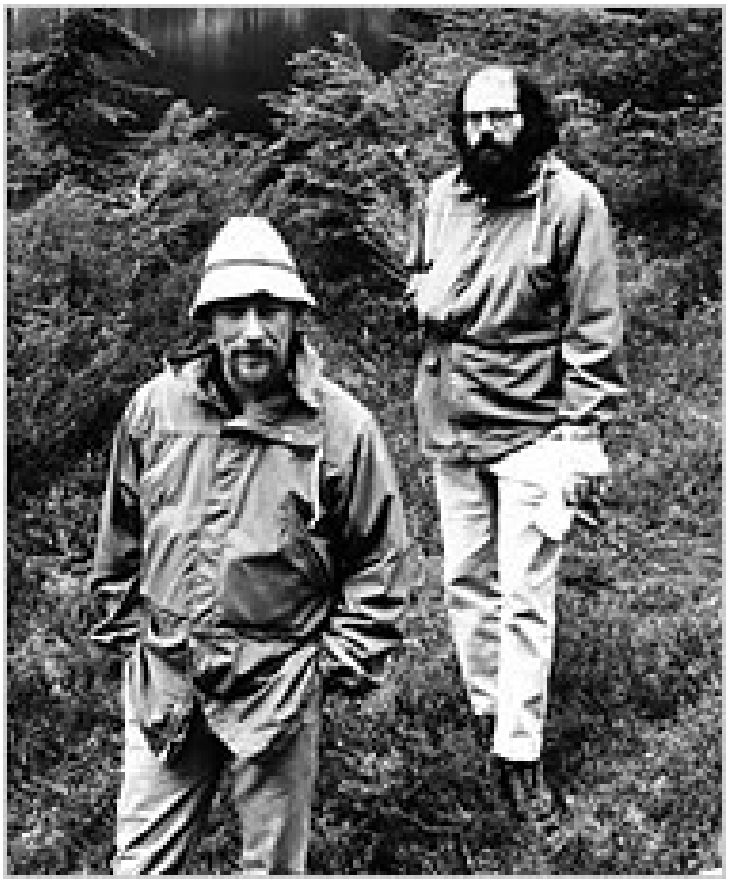
Still, Whyte accomplishes his mission, achieving the same conclusion that Hearst himself also reached: those were the days. The early years — long before he ran for Congress and president, long before he created his media empire, long before he made that empire a megaphone for the far right — the early years were Hearst's best.

Jack Rosenthal, a former editorial page editor of The Times, is president of The New York Times Company Foundation.

http://www.nytimes.com/2009/01/11/books/review/Rosenthal-t.html?8bu&emc=bua2

Howls

By JAMES CAMPBELL



THE LETTERS OF ALLEN GINSBERG

Edited by Bill Morgan

468 pp. Da Capo Press. $30

THE SELECTED LETTERS OF ALLEN GINSBERG AND GARY SNYDER

Edited by Bill Morgan

Illustrated. 321 pp. Counterpoint. $28

In June 1958, Allen Ginsberg wrote to Jack Kerouac about a series of catastrophes that had befallen members of their circle on the West Coast. Neal Cassady was in the San Bruno county jail, awaiting trial for having offered marijuana to a pair of undercover policemen. A woman friend — "little doomed Connie" — had fallen in with "some evil teaheads or something" and been strangled, according to an outside source, "Tuesday AM by a . . . seaman who confessed that PM." Al Sublette, who features in Kerouac's novel "Big Sur" under the name Mal Damlette, was also in prison — "I heard for a burglary." All the news from out West, much of it conveyed by Cassady's "haggard" wife Carolyn, with whom Ginsberg had been on unfriendly terms since she disturbed him in bed with Neal, "sounds evil . . . except letters from Gary." In a note to Cassady himself two weeks later, Ginsberg admitted being at a loss to

offer practical help. “I wrote Gary Snyder, he’s the only one with a strong sense . . . to . . . find what need be done.”

The graph of Ginsberg’s emotional life rose and fell alarmingly over the years (he died in 1997, at 70). The early correspondence in “The Letters of Allen Ginsberg” reflects a multifaceted distress: at his mother’s “severe nervous breakdowns,” related fears for his own mental health, and a comprehensive sexual anxiety. In 1949, having fallen in with some petty criminals, he was arrested for harboring stolen goods and subsequently committed to the New York State Psychiatric Institute, where he met the future dedicatee of “Howl,” Carl Solomon.

Within a quarter-century, however, Ginsberg had become America’s most famous living poet, attracting a congregation in which common readers mingled with political activists, students of oriental philosophy and a variety of social casualties. Wordsworth’s famous pronouncement — “We poets in our youth begin in gladness; / But thereof comes in the end despondency and madness” — appears to have been put into reverse by Ginsberg. The open homosexual and Blake-inspired visionary took every opportunity to demonstrate that candor triumphed over shame — by taking off his clothes at a poetry reading, for example. Madness to gladness was his determined course. If the world seemed reluctant to follow, the solution was obvious: change the world.

Yet letters written in the late 1980s to his longtime partner, Peter Orlovsky, and to his friend and fellow poet, Gregory Corso, suggest that Ginsberg, a man of great geniality and natural generosity, trailed the old discontents behind him. They turned up in the form of other people’s drug and alcohol addictions, pathological self-centeredness and occasional violence. In June 1987, he issued an ultimatum to Orlovsky, who had socked the psychiatrist R. D. Laing on the mouth during a get-together in Colorado, leaving Laing with “a big blue swollen lip.” Orlovsky’s recollection of the event was dim, therefore Ginsberg felt obliged to remind him:

“You poured milk and apple juice over the harmonium as well as R. D. Laing. . . . A teapot lid was broken, tiny fragments, no vacuum cleaner yet and I was too injured to get thing straight till now. One cigarette burn on rug, one on hallway linoleum. My shin got kicked when you overturned the coffee table while I was sitting on the couch watching you and Laing go at it.

“The violence had escalated so high after you bit Laing on the mouth that, after knocking you down in anger myself, and you throwing a chair at me . . . I finally called the police.”

In a letter to Corso the following year, Ginsberg complained that it was impossible to conduct a conversation with others in his own apartment, while Corso demanded “complete separate attention, like unhappy tantrum child. . . . I think you’re trying to trouble me. . . . Finally I resolve not to take it, ‘Gregory I’ll only see you when you’re sober.’ ” He adds that while “drunk or on crack” the previous evening, Orlovsky had threatened to kill him. Detained for the night, Orlovsky was released the next morning. “God knows where this will end.” Another poet and friend, Anne Waldman, blamed Ginsberg for “enabling” Orlovsky, and continually reactivating a mutual dependency.

Throughout the story unfolded by Bill Morgan, Ginsberg’s biographer and archivist, who has chosen 165 letters from more than 3,700 that are known to exist, Ginsberg trains his gaze on the elusive equilibrium. In 1968, he bought a farm in Cherry Valley, N.Y., which held out the promise of rural tranquility. In a letter to Snyder, he described the setup: “We have three goats (I now milk goats), 1 cow 1 horse (chestnut mare for pleasure) 15 chickens 3 ducks 2 geese. . . . More kibbutz than commune.” Corso and Orlovsky were also present, however, as well as Orlovsky’s difficult brother Julius. Signing off, Ginsberg told Snyder, “I keep straying on mental anger warpaths, then come back to milking goats.”

“The Selected Letters of Allen Ginsberg and Gary Snyder,” also edited by Morgan, is much taken up with discussions of meditation and Oriental studies, on which Snyder appears as the master, Ginsberg the willing disciple. The two men met in Berkeley in 1955 and took part in the famous Six Gallery poetry reading at which Ginsberg gave the first notable reading of “Howl.” After the event, which served as an informal coming-out reception for the Beat Generation in San Francisco, he published “Howl and Other Poems,” which became the subject of an obscenity prosecution, then moved to Europe to join forces with William Burroughs. Meanwhile, Snyder entered a Japanese Zen monastery, embarking on a course of study that would last until his return to the United States permanently in 1969.

Their separate paths are marked throughout the correspondence. In July 1967, Ginsberg writes, “Been in London — arrested for reading ‘Who Be Kind To’ in Spoleto. . . . Evening with Paul McCartney.” Early in the new year, back in the United States, he reports that he has been in court for taking part in a sit-in and is experiencing “the sense of a real authoritarian threat from government already established, and lack of any alternatives but black power urban violence or withdrawal to Neolithic countries.” Snyder, writing

from Japan, recommends a newspaper which contains “my brief account of the Banyan Ashram of last summer. I still think you would find it a restful and creative thing to do this year — come over here and join us farming and fishing — no newspapermen, no literature.”

As the Cherry Valley experiment sank under the weight of indiscipline — “The farm never became the escape from addictions that Ginsberg had hoped,” Morgan writes in one of the helpful notes that run throughout “The Letters of Allen Ginsberg” but are absent from the companion volume — Ginsberg attached himself to Snyder in a material sense, by building a small house on the 100-acre estate Snyder had purchased together with like-minded settlers in the foothills of the Sierra Nevada, where he still lives. The plans for the cabin, the harnessing of expertise for its construction — “Dear Gary: Fine build 10’ x 11’ hut, sounds ideal” — and the subsequent arrangements for use when Ginsberg was absent (most of the time) form the ground of the “Selected Letters.” Snyder is revealed as a man of practical as much as mystical wisdom, with a knack for good accounting. Mutual respect is the dominant note.

Readers hoping for exchanges of constructive literary criticism are likely to be disappointed, which is a pity since, when they do occur, they are to the point. Making a selection of Snyder’s poetry for a teaching course in 1976, Ginsberg writes: “I went thru last book” — “Turtle Island” — “looking for examples of hard-line riprap solidity and noticed you were getting as bad as me into psychopolitical generalization which violated ‘no ideas but in things’ rule.” Some years later, having read Snyder’s collection “Axe Handles,” Ginsberg pinpoints a strength that his friend was apt to neglect: “I liked best the poems where you have a definite narrative structure.”

The artists Ginsberg looks up to most, on this evidence, are not poets but singers. Visiting Pound in 1967, he brings records by “Beatles and Dylan and Donovan” as gifts. Pound “sat thru fl hour of loud rock smiling” but remained otherwise silent. When he calls on John Lennon in 1976, the former Beatle admits to difficulties with the written word but tells Ginsberg he heard “Howl” on the radio one night, and “suddenly realized what I was doing and dug it.” To his future biographer Barry Miles, Ginsberg writes: “It sure was nice hearing Lennon close that gap, complete that circle and treat me like a fellow artist as he walked me to the door goodbye.”

There is a vast quantity of documentary material available on Ginsberg: journals, interviews, biographies, a variorum edition of “Howl” edited by Miles (perhaps the best book to read about Ginsberg’s poetry), and now these volumes of letters edited with devotion by Bill Morgan. Yet the reader retains the sense that, for all his explorations of sexual possibility, inner space, Zen “mind,” and the world’s continents, Ginsberg, who repeatedly (and apparently seriously) ranked Corso with Keats, was willing to cover but a small patch of contemporary literary geography. A letter to Thom Gunn, author of an illuminating essay on Ginsberg’s poetry, shows how appreciative he was of criticism that reached beyond accustomed cultish adoration: “I was moved — almost to tears — by your sympathetic perceptions.” Gunn took special delight in poetry of the 16th century but knew how to read Ginsberg with pleasure; if Ginsberg ever returned the compliment, to Gunn or to other writers outside the Beat and Black Mountain circles, there is no sign of it here.

James Campbell is the author of “This Is the Beat Generation.” A collection of his essays,” Syncopations,” was published in 2008.

http://www.nytimes.com/2009/01/11/books/review/Campbell-t.html?8bu&emc=bua2

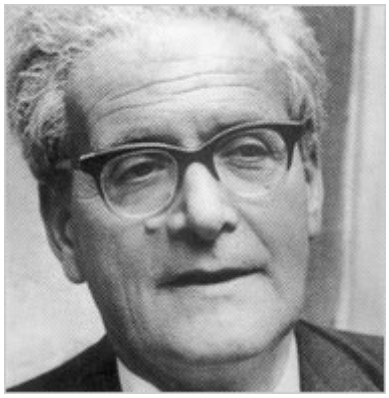
Displaced Minds

By RICHARD LOURIE

THE JOURNEY

By H. G. Adler. Translated by Peter Filkins

292 pp. Random House. $26



I've read a lot of books, but nothing quite like this one. An attempt to use the instruments of 20th-century literature to depict the dislocations of spirit and consciousness caused by the genocide against the Jews, its style could be called Holocaust modernism, an improbable formulation if ever there was one.

H. G. Adler's fate was as unusual as his art. Born in Prague in 1910, he failed to flee before the Nazi takeover and ended up in Theresienstadt, where, as he later wrote in a monograph about the "showcase" camp, "illusion flourished wildly, and hope, only mildly dampened by anxiety, would eclipse everything that was hidden under an impenetrable haze." Adler spent two and a half years there with his family. Later, in Auschwitz, his wife decided to accompany her mother to the gas chambers so she wouldn't have to die alone. In all, Adler lost 18 members of his family, including his own mother and father.

By luck, he was saved. Witnessing the Soviet takeover of Prague and wishing to take no further chances, he fled to London, where he married a childhood sweetheart, fathered a son and produced 26 books. "The Journey," which was written in the early 1950s, is the first of his six novels to be translated into English. Though Adler had his admirers — Elias Canetti called "The Journey" a "masterpiece" — he achieved little renown in Europe before his death in 1988. Part of Adler's problem was the prevailing post-war view, formulated by the philosopher Theodor Adorno, that after Auschwitz literature was impossible. Adler corresponded with Adorno, clashing passionately with this view and arguing that literature was now more necessary than ever. Not, he conceded, that the Holocaust could ever be understood. But as the character in "The Journey" who, like the author, survives everything says: "You don't have to understand. There's nothing to understand. You only have to know it because it's simply what happened. We were no longer allowed to exist, and now my dearest ones are dead!"

The novel follows the members of a family, the Lustigs, something like Adler's, as they journey through the Holocaust to a place something like Theresienstadt. It ends with a lone survivor wandering in the immediate postwar landscape of rubble and displaced persons. But the book's real subject is the displacement of minds thrust into the ultimate meaninglessness.

Adler's prose seeks to catch the whispers and chirpings of insanity rather than the lamentations of suffering. To this end, the narrative voice changes continually, and so seamlessly and logically that at first the reader can even fail to notice it. Adler will shift from a description of the Nazis, usually referred to with deadpan irony as "heroes," to the Nazis' own voices speaking to their victims: "Like little children, everything has to be done for you, though you arrive at the dinner table without uttering the slightest thank you."

The mundane and the surreal collide in a bizarre sort of logic. “But you don’t take along coffins on a journey,” people are told when they start dying en route to the camps. “It’s much too costly and the freight is not worth the trouble.” Adler is perfectly capable of minting sentences that could be placed in an anthology of aphorisms — “Sorrow is slight when vanity is not allowed to adorn it” — but the true purpose of such sentences is only to heighten the dimension of insanity, to further convey the “impenetrable haze.”

The novel’s streaming consciousness and verbal play invite comparison with Joyce, the individual-dwarfing scale of law and prohibition brings Kafka to mind, and there is something in the hypnotic pulse of the prose that is reminiscent of Gertrude Stein. But the book falters when it fails to maintain the fine line between trance and tedium, especially in the longer abstract passages. The reader is required at all times to pay complete attention, otherwise the thread of the narrative may be lost, along with a sense of who is speaking (registered through the tone of voice, which is often light and mocking). Though generally strong, Peter Filkins’s translation from the German sometimes breaks the hypnotic spell by introducing anachronistic Americanisms — “critters”; “no pain, no gain”; “just go with the flow.”

But it ultimately doesn’t matter whether the attention wanders because of shortcomings in the text, the translation or the reader. In the end, you are always pulled back into Adler’s flickering black-and-white landscape of rubbish and rubble, where a person is only “a bit of madness who happens to have a name.” Yet despite its grim setting, this is not a book of hopelessness and meaninglessness. “The truth is merciless, . . . always victorious,” Adler informs us, pointing the way to a means of surviving the worst that history can throw at people: “One must have a center, an unshakable quiet space that one clings to vigorously, even when one is in the middle of the journey, the unavoidable journey.”

Richard Lourie’s most recent novel, “A Hatred for Tulips,” has been issued in paperback as “Joop: A Novel of Anne Frank.”

http://www.nytimes.com/2009/01/11/books/review/Lourie-t.html?8bu&emc=bua2

Numbers, Big and Small

By JIM HOLT

ONE BOY

Written and illustrated by Laura Vaccaro Seeger

Unpaged. A Neal Porter Book/Roaring Brook Press. $14.95. (Ages 2 to 6)

THE REAL PRINCESS

A Mathemagical Tale

By Brenda Williams. Illustrated by Sophie Fatus

Unpaged. Barefoot Books. $16.99. (Ages 6 to 9)

GREATER ESTIMATIONS

Written and illustrated by Bruce Goldstone

31 pp. Henry Holt & Company. $16.95. (Ages 7 to 10)

What makes a child come to love numbers? When I was little, my mother used to play me a recording of the song "Inchworm." "Inchworm, inchworm, / Measuring the marigolds, / You and your arithmetic, / You'll probably go far," sang Danny Kaye to a haunting melody, while children's voices plaintively intoned the chorus: "Two and two are four. / Four and four are eight. / Eight and eight are 16. / Sixteen and 16 are 32." This song left me with a lifelong love of numbers, especially base two. Decades later, I sometimes find myself practicing my multiplication tables during the slow movements at Mostly Mozart concerts.

I can imagine Laura Vaccaro Seeger's "One Boy" having the same effect. This picture book acquaints a child with the numbers from one to 10. Each number is introduced with a simple but charming trick: a rectangular cutout in the page reveals a bit of what lies overleaf, inviting the reader to make a guess at the

surprise to come with the turn of the page. “Five mice.” Five mice what? Turn the page. . . . “Skate on ice.” It’s not just about counting; it’s about realizing that the word “ice” is contained in “mice.” Seeger’s palette is bold and rich — and those who experience numbers coloristically (in my case, four is blue, seven is green and eight is orange) know how important this can be in making friends with them. Yet the ending of “One Boy” is somewhat dark. (Spoiler alert: it involves a quantity of ants in the boy’s pants.)
For the slightly older child, “The Real Princess: A Mathemagical Tale” ought to prove a beguiling mix of number lore and fairy tale. The plot elements will be familiar: three princes looking for brides, a king with three bags of gold and a queen with nine magic peas. But running through Brenda Williams’s story is a riot of numerical coincidences, some turning on the curious fact that if you take various multiples of nine (18, 27, 36, 45 etc.) and add up the digits (1+8, 2+7, 3+6, 4+5), you always get nine back again. This is the kind of hidden pattern that children delight in discovering. And if some of the artsier parents fail to get it, they’ll at least smile at Sophie Fatus’s illustrations, which have a little of Marc Chagall in them, and a little of Joan Miró.
We’re all born with a genetically wired “number sense,” so brain scientists tell us. Even a baby can immediately distinguish two rubber duckies from three (an ability called “subitizing”). But what if it’s a matter of thousands of rubber duckies floating toward you? To take a less ludicrous case, how can one make a reasonable guess about the number of protesters at a political rally, or of seeds on a dandelion? Don’t count, says Bruce Goldstone — estimate! And in “Greater Estimations” (a sequel to his “Great Estimations,” which makes the author guilty of serial Dickens abuse) he reveals all the tricks for doing this swiftly and accurately: eye training, clump counting and so on. Is that cool? I don’t know. But it’s empowering — dare I say fun? — to have an instinctive grasp of really big numbers. And, when you grow up, you can get a job with the N.Y.P.D. estimating the size of the crowd when Simon and Garfunkel sing in Central Park.
This fall, yet another study made headlines bemoaning our failure to develop the math skills of American children, especially girls. “We’re living in a culture . . . that’s telling everybody that only Asians and nerds do math,” the study’s lead author said. Only Asians and nerds? That is so not true! In France, unlike the United States, mathematics has immense cultural prestige and is regarded as the key to meritocratic success. We must get the message out. Children can’t resist that French chic.
Jim Holtis the author of “Stop Me if You’ve Heard This: A History and Philosophy of Jokes.”

http://www.nytimes.com/2009/01/11/books/review/Holt-t.html?8bu&emc=bua3

The White House Was Her Playground
By SHERIE POSESORSKI

WHAT TO DO ABOUT ALICE?

How Alice Roosevelt Broke the Rules, Charmed the World, and Drove Her Father Teddy Crazy!

By Barbara Kerley

Illustrated by Edwin Fotheringham

Unpaged. Scholastic Press. $16.99. (Ages 4 to 8)

Alice Roosevelt was always determined that attention, and lots of it, be paid to her — starting first and foremost with her father, the 26th president of the United States.
So devastated was Teddy Roosevelt by the death of his young wife, Alice Lee, two days after the birth of his daughter, he left Baby Lee, as he referred to Alice, to the care of his eldest sister, unwilling to say or even write his wife's name the rest of his life. Several years later he remarried, and Alice rejoined him, having to compete for his affection with his new wife, Edith, and eventually five half-siblings, in a family that she said she never felt at home in.
But Alice had inherited her father's adventurous spirit, intellectual curiosity and passion for politics. Over the decades she became such an integral part of the political scene that she was nicknamed "the other Washington Monument."
In her award-winning picture book biographies of Walt Whitman and Waterhouse Hawkins, Barbara Kerley has shown an affinity for iconoclasts, as she does once again in "What to Do About Alice?" Kerley reveals the essence of Alice in an upbeat account of her life, dramatizing Alice's love of "eating up the world," as she put it.
Kerley's text plays straight man to the punch line of Edwin Fotheringham's mischievous artwork. The first spread slyly sums up the relationship between Alice and her father, showing Roosevelt from the waist down, tapping his foot with exasperation, Alice already out of reach, only one foot in the frame. Fotheringham gives us a whirling dervish: Alice as a young girl tumbling downstairs, galloping through parks, bike-riding and let loose in her father's library after refusing to attend private school. Five figures of Alice depict her snatching books off the shelves, as hungry for education as she was for experience.
When the 17-year-old Alice moved into the White House after her father became president in 1901, she reveled in the high-voltage spotlight. She greeted visitors accompanied by her pet snake, Emily Spinach. She sped about the streets of Washington in her car, danced all night and bet on horse races. The press covered the antics of the eminently quotable Alice "as if it were she who had just become president," according to her biographer, Carol Felsenthal.
"I give a good show," Alice proclaimed. That she did, as Kerley and Fotheringham demonstrate with verve.
Sherie Posesorski's young adult novel "Shadow Boxing" is scheduled to be published this spring.

http://www.nytimes.com/2009/01/11/books/review/Posesorski-t.html?8bu&emc=bua3

Venomous mammal caught on camera

By Rebecca Morelle
Science reporter, BBC News

Rare footage of one of the world's most strange and elusive mammals has been captured by scientists.

Large, and with a long, thin snout, the Hispaniolan solenodon resembles an overgrown shrew; it can inject passing prey with a venom-loaded bite.

Little is known about the creature, which is found in the Caribbean, but it is under threat from deforestation, hunting and introduced species.

Researchers say conservation efforts are now needed.

The mammal was filmed in the summer of 2008 during a month-long expedition to the Dominican Republic - one of only two countries where this nocturnal, insect-eating animal *(Solenodon paradoxus)* can be found (the other is Haiti).

The researchers from the Durrell Wildlife Conservation Trust and the Ornithological Society of Hispaniola were able to take measurements and DNA from the creature before it was released.

Dr Richard Young, from Durrell Wildlife Conservation Trust, said: "My colleagues were excited and thrilled when they found it in the trap.

"But despite a month's worth of trapping effort, they only ever caught a single individual."

Specialised teeth

The Hispaniolan solenodon is one of the creatures highlighted by the Zoological Society of London's (ZSL) Edge of Existence programme, which focuses its efforts on conservation plans for animals that are both endangered and evolutionarily distinctive.

Dr Sam Turvey, a ZSL researcher involved with the programme, told BBC News: "It is an amazing creature - it is one of the most evolutionary distinct mammals in the world.

"Along with the other species of solenodon, which is found in Cuba (*Solenodon cubanus*), it is the only living mammal that can actually inject venom into their prey through specialised teeth.

"The fossil record shows that some other now-extinct mammal groups also had so-called dental venom delivery systems. So this might have been a more general ancient mammalian characteristic that has been lost in most modern mammals, and is only retained in a couple of very ancient lineages."

Dr Turvey and other scientists working for the Edge programme recently discovered a population of solenodons living in a remote corner of Haiti.

The researcher said that the team was surprised to find them; previously it had been feared that the creatures had become extinct in this country because of extensive deforestation, recently introduced mongoose and dogs, and hunting by humans for food.

He said: "They are still incredibly vulnerable and fragile. So it is really important to get back out there to work how how these animals are surviving."

Conservation efforts are now needed in both Haiti and the Dominican Republic, the teams believe, but the first step would be to find out more about the animal.

Dr Young said: "We know little about its ecology, its behaviour, its population status, its genetics - and without that knowledge base it is really difficult to design effective conservation."

The research will be undertaken by ZSL's Edge programme, Durrell, the Ornithological Society of Hispaniola, the Audubon Society of Haiti, and the Dominican Republic's National Zoological Park and Agency for Protected Areas and Biodiversity.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7791989.stm

Published: 2009/01/09 06:22:48 GMT

Body repair 'could be ramped up'

A combination of drugs could trick the body into sending its repair mechanisms into overdrive, say scientists.

The technique could be used to speed the healing of heart or bone damage, they claim.

The bone marrow of treated mice released 100 times as many stem cells - which help to regenerate tissue.

Imperial College London scientists reported their work in the journal Cell Stem Cell, but said human trials were some years away.

The release of stem cells by the bone marrow is a natural part of the repair process - different types are sent to replenish tissue depending on the nature of the injury.

However, in some cases, for example the damage caused by heart disease, the repair is not entirely successful, and loss of function persists.

The theory behind the Imperial College research is to boost the quantity of stem cells released, which will hopefully mean a swifter and more complete recovery.

Techniques already exist to increase the numbers of blood cell producing stem cells from the bone marrow, but the study focuses on two other types - endothelial, which produce the cells which make up our blood vessels, and mesenchymal, which can become bone or cartilage cells.

The mice were given firstly a "growth factor" drug - substances that already occur naturally in the bone marrow, then a new drug called Mozobil.

Both endothelial and mesenchymal cells were released at a much greater rate.

Arthritis hope

Dr Sara Rankin, one of the researchers, said: "The body repairs itself all the time, However, when the damage is severe, there are limits to what it can do of its own accord.

"We hope that by releasing extra stem cells, as we were able to do in mice in our study, we could potentially call up extra numbers of whichever stem cells the body needs, in order to boost its ability to mend itself and accelerate the repair process."

There are also hopes that the technique could help damp down autoimmune diseases such as rheumatoid arthritis, where the body's immune system attacks its own tissues.

Mesenchymal stem cells are known to have the ability to damp down the immune system.

The next stage of the research is to see if the extra stem cells circulating in the mice can have a practical benefit - repairing more quickly or more thoroughly the damage caused by a heart attack, for example.

Their hope is that clinical trials in humans may be possible within the next 10 years.

Professor Peter Weissberg, Medical Director at the British Heart Foundation, said: "It has long been known that the bone marrow contains cells that can replace lost or aged blood cells.

"It now seems increasingly likely that the bone marrow also contains cells that have the capacity to repair damaged internal organs, such as the heart and blood vessels, but that too few of them are released to be effective.

"This research has identified some important molecular pathways involved in mobilising these cells.

"It may be possible to develop a drug that interacts with these pathways to encourage the right number and type of stem cells to enter the circulation and repair damage to the heart."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7815449.stm

Published: 2009/01/09 07:47:35 GMT

Behaviour link to lifelong health

People who behaved badly at school are more likely to suffer mental health and social difficulties as adults, a 40-year-study of Britons suggests.

Canadian researchers writing in the British Medical Journal examined data from 3,500 people from the age of 13 until they reached their 40s or 50s.

Those who had school behaviour problems were more likely to be depressed, divorced or have financial problems.

But a psychologist questioned whether the same would apply in other eras.

In the late 1950s and the start of the 1960s, teachers across Britain were asked to rate the behaviour of a nationally representative sample of children, all of them born in 1946, as they entered their early teenage years.

A quarter of the children were described by the teachers as having some sort of mild or more severe behavioural problem.

The participants were then reinterviewed between the ages of 36 and 53, asked about their mental health, and social and economic status.

Those who had been described as having behavioural problems by their teachers decades earlier were more likely to have left school with no qualifications, and to suffer a number of problems in adulthood.

These included depression and anxiety, failed relationships, teenage pregnancy, and financial difficulties.

Even when the results were adjusted to take account of other factors, such as sex, the social class of parents, depression in adolescence and IQ, the link to behaviour held true.

Discipline change

The researchers, from the University of Alberta, wrote: "Given the long-term costs to society, and the distressing impact on the adolescents themselves, our results might have considerable implications for public health policy."

However, Linda Blair, a clinical psychologist who works with families, said that she believed that in general the children born in the 1940s faced a completely different school and home environment to those born today.

Harsh criticisms and discipline for bad behaviour would have contributed to a "vicious cycle" of low self-confidence and poor achievement, she said.

She said: "You can't imagine anyone back then asking a child how they felt about something.

"I'd like to think that things are much different today, and that today's children would not have these problems later in life.

"The key thing is how you respond to behavioural problems in schools - hopefully we now handle them in a way that will increase self-esteem, not reduce it."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7818636.stm

Published: 2009/01/09 01:27:21 GMT

Volcanoes Cool The Tropics, But Global Warming May Have Helped Override Some Recent Eruptions

This is Mount Bromo, an active volcano in East Java, Indonesia. (Credit: Paul Krusic, Lamont-Doherty Earth Observatory)

ScienceDaily (Jan. 9, 2009) — Climate researchers have shown that big volcanic eruptions over the past 450 years have temporarily cooled weather in the tropics—but suggest that such effects may have been masked in the 20th century by rising global temperatures. Their paper, which shows that higher latitudes can be even more sensitive to volcanism, appears in the current issue of Nature Geoscience.

Scientists already agree that large eruptions have lowered temperatures at higher latitudes in recent centuries, because volcanic particles reflect sunlight back into space. For instance, 1816, the year following the massive Tambora eruption in Indonesia, became known as "The Year Without a Summer," after low temperatures caused crop failures in northern Europe and eastern North America. More extensive evidence comes in part from tree rings, which tend to grow thinner in years when temperatures go down.

This is one of the first such studies to show how the tropics have responded, said lead author Rosanne D'Arrigo, a scientist at the Tree Ring Lab at Columbia University's Lamont-Doherty Earth Observatory. "This is significant because it gives us more information about how tropical climate responds to forces that alter the effects solar radiation," said D'Arrigo. The other authors were Rob Wilson of Lamont and the University of St. Andrews, Scotland; and Alexander Tudhope of the University of Edinburgh, Scotland.

Along with tree rings, the researchers analyzed ice cores from alpine glaciers, and corals, taken from a wide area of the tropics. When things cool, not only do trees tend to grow less, but isotopes of oxygen in corals and glacial ice may shift. All showed that low-latitude temperatures declined for several years after major tropical eruptions. The samples, spanning 1546 to 1998, were taken from Nepal down through Indonesia and across the Indian and Pacific oceans; the ice cores came from the Peruvian Andes. The researchers used materials they collected themselves, as well as samples from the archives of other scientists.

The data show that the most sustained cooling followed two events: an 1809 eruption that probably took place in the tropics, but whose exact location remains unknown; and the 1815 Tambora eruption, one of the most powerful recorded in human history. Following Tambora, between 1815 and 1818, tropical temperatures dropped as much as 0.84 degrees C (1.5 degrees F) below the mean. A slightly bigger one-year drop came in 1731--0.90 degrees C (1.6 degrees F). The researchers say this may be connected to eruptions at the Canary Islands' Lanzarote volcano, and Ecuador's Sangay around this time.

D'Arrigo says that the study shows also that higher latitudes may generally be even more sensitive than the tropics. Some corresponding drops in northern regions following volcanism were up to three times greater. D'Arrigo said higher latitudes' greater sensitivity appears to come from complex feedback mechanisms that make them vulnerable to temperature shifts. This goes along with growing evidence from other researchers that, as the globe warms, the most dramatic effects are being seen with rapid melting of glaciers, sea ice and tundra at high latitudes. The authors say that, overall, eruptions in the 20th century have exerted fewer obvious effects in the tropics. They said this could be because there were fewer major events in that century--but they noted it could also be "because of the damping effect of large-scale 20th-century warming."

"Particularly warm decades may have partially overridden the cooling effect of some volcanic events," said D'Arrigo. Noting that few reliable instrumental records exist from before this time, she said, "This study provides some of the first comprehensive information about how the tropical climate system responded to volcanism prior to the instrumental period."

Journal reference:

1. Rosanne D'Arrigo, Rob Wilson & Alexander Tudhope. **The impact of volcanic forcing on tropical temperatures during the last four centuries**. *Nature Geoscience*, [link]

Adapted from materials provided by The Earth Institute at Columbia University, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2009/01/090105175356.htm

Aquaculture's Growth Seen As Continuing

Fish farm in a fjord. (Credit: iStockphoto/Sieto Verver)

ScienceDaily (Jan. 9, 2009) — Aquaculture production of seafood will probably remain the most rapidly increasing food production system worldwide through 2025, according to an assessment published in the January 2009 issue of BioScience.The assessment, by James S. Diana of the University of Michigan at Ann Arbor, notes that despite well-publicized concerns about some harmful effects of aquaculture, the technique may, when practiced well, be no more damaging to biodiversity than other food production systems. Moreover, it may be the only way to supply growing demand for seafood as the human population increases.

Diana notes that total production from capture fisheries has remained approximately constant for the past 20 years and may decline. Aquaculture, in contrast, has increased by 8.8 percent per year since 1985 and now accounts for about one-third of all aquatic harvest by weight. Finfish, mollusks, and crustaceans dominate aquaculture production; seafood exports generate more money for developing countries than meat, coffee, tea, bananas, and rice combined.Among the most potentially harmful effects of aquaculture, according to Diana, are the escape of farmed species that then become invasive, pollution of local waters by effluent, especially from freshwater systems, and land-use change associated with shrimp aquaculture in particular. Increased demand for fish products for use in feed and transmission of disease from captive to wild stocks are also hazards.

Nonetheless, when carefully implemented, aquaculture can reduce pressure on overexploited wild stocks, enhance depleted stocks, and boost natural production of fishes as well as species diversity, according to Diana. Some harmful effects have diminished as management techniques have improved, and aquaculture has the potential to provide much-needed employment in developing countries. Diana points to the need for thorough life-cycle analyses to compare aquaculture with other food production systems. Such analyses are, however, only now being undertaken, and more comprehensive information is needed to guide the growth of this technique in sustainable ways.

Adapted from materials provided by American Institute of Biological Sciences, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2009/01/090102082248.htm

Deaths From Lung Cancer Could Be Reduced By Better Policies To Control Indoor Radon, Experts Urge

ScienceDaily (Jan. 9, 2009) — About 1100 people each year die in the UK from lung cancer related to indoor radon, but current government protection policies focus mainly on the small number of homes with high radon levels and neglect the 95% of radon related deaths caused by lower levels of radon, according to a study published on the British Medical Journal website.The authors argue that installing basic and cheap measures to prevent radon in all new homes would be more cost-effective and have greater potential for reducing lung cancer deaths caused by radon, and UK Building Regulations should be amended to enforce this.

Radon in the home is a natural air pollutant produced by the decay of uranium in the ground. Radon gas seeps into buildings through cracks and holes in the foundations and when it decays it produces particles that can enter the lungs and expose them to damaging radiation.At present, government policies in the UK concentrate on searching for homes with high levels of radon and encouraging homeowners to take remedial action at their own expense.

Professor Alastair Gray, Professor Sarah Darby and other colleagues from the University of Oxford, assessed the contribution of indoor radon to lung cancer deaths in the UK, and examined the cost-effectiveness of policies to control radon exposure. They used recent evidence on the risk of lung cancer from indoor radon, based on data from 7,000 people with lung cancer and more than 21,000 people without lung cancer across Europe. They then calculated the lifetime risk of lung cancer death before and after various interventions to control radon, and the costs involved.The authors estimate that 1100 deaths a year in the UK are related to radon, about 3.3% of all deaths from lung cancer, but less than 5% of radon related deaths occur from exposure above the current action level. In addition, they report that many homeowners refuse to have their home tested or to spend money reducing radon levels. As a result these policies are costly and have a minimal impact on radon related deaths.

In contrast, the authors found that installing simple preventive measures in new homes is highly cost-effective, but at present is only being done in selected areas of the country. This should be rolled out across the whole UK, say the authors, and should be backed up by changes to the Building Regulations. A gas-resistant membrane in the foundations would reduce radon by about 50% and would cost only about £100.Importantly, the study also found that six out of seven radon related lung cancers occur in people who smoke or who have smoked in the past. The best way for current smokers to reduce risk is to stop smoking. Current and former smokers can also reduce their risk by taking radon control measures seriously, say the authors.

The authors suggest that their findings are relevant to many other countries, most of which have higher concentrations of radon than the UK. The average radon concentration in UK homes is 21 bequerels per cubic metre, but in the European Union the average is 55, suggesting that about 8% of deaths from lung cancer, or 18,000 deaths each year, are caused by radon across the EU.This is the most extensive and detailed evaluation to date of the policies to counter radon-induced and deaths from lung cancer, say Professor Anssi Auvinen from the University of Tampere in Finland and Professor Göran Pershagen from the Institute of Environmental Medicine in Sweden, in an accompanying editorial.

The findings suggest that:"Radon policies need to be scrutinised [and particularly in populations with low average levels], the priority should be to apply basic measures universally rather than to take action only when high radon levels have been identified by measurement."

Adapted from materials provided by BMJ-British Medical Journal, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2009/01/090106230722.htm

Computer Game 'Tetris' May Help Reduce Flashbacks To Traumatic Events

An example of a Tetris game. (Credit: Image courtesy of University of Oxford)

ScienceDaily (Jan. 9, 2009) — Playing 'Tetris' after traumatic events could reduce the flashbacks experienced in post-traumatic stress disorder (PTSD), preliminary research by Oxford University psychologists suggests.

If this early-stage work continues to show promise, it could inform new clinical interventions for use immediately after trauma to prevent or lessen the flashbacks that are the hallmark symptom of PTSD. Existing treatments can only be provided once PTSD has become established.

The researchers report in PLoS ONE that for healthy volunteers, playing 'Tetris' soon after viewing traumatic material in the laboratory can reduce the number of flashbacks to those scenes in the following week. They believe that the computer game may disrupt the memories that are retained of the sights and sounds witnessed at the time, and which are later re-experienced through involuntary, distressing flashbacks of that moment.

'This is only a first step in showing that this might be a viable approach to preventing PTSD,' says Dr Emily Holmes of the Department of Psychiatry at Oxford University, who led the work. 'This was a pure science experiment about how the mind works from which we can try to understand the bigger picture. There is a lot to be done to translate this experimental science result into a potential treatment.'

The approach relies on three elements. First, the mind is considered to have two separate channels of thought: one is sensory and deals with our direct perceptual experience of the world, the other is conceptual and draws meaning and narrative from our experiences to give them context. For example, we would use one channel to see and hear someone talk and the other to comprehend the meaning of what they were saying.

Second, there appear to be limits to our abilities in each stream: it is difficult to hold a conversation while doing maths problems, for example.

And third, there is a short time after an event in which it is possible to interfere with the way our memories are retained in the brain.

The Oxford team reasoned that recognising the shapes and moving the coloured building blocks around in 'Tetris' soon after seeing traumatic events should compete with the visions of trauma to be retained in the sensory part of the brain. The narrative and meaning of the events should be unaffected.

'We know there is a period of up to six hours in which it is possible to affect certain types of memories that are laid down in the human mind,' says Dr Catherine Deeprose. 'We have shown that in healthy volunteers, playing 'Tetris' in this time window can reduce flashback-type memories without wiping out the ability to make sense of the event.'

The Oxford team showed a film to 40 healthy volunteers that included traumatic images of injury from a variety of sources, including adverts highlighting the dangers of drink driving. This is a recognised way to study the effects of trauma in the laboratory. After waiting for 30 minutes, 20 of the volunteers played 'Tetris' for 10 minutes while the other half did nothing. Those who had played the computer game experienced significantly fewer flashbacks to the film over the next week.

'We wanted to find a way to dampen down flashbacks – that is, the raw sensory images of trauma that are over-represented in the memories of those with PTSD,' says Dr Holmes. 'Tetris may work by competing for the brain's resources for sensory information. We suggest it specifically interferes with the way sensory memories are laid down in the period after trauma and thus reduces the number of flashbacks that are experienced afterwards.'

The group is now hoping to develop this approach further as a potential intervention to reduce the flashbacks experienced in PTSD, but they are keen to emphasise that these are only preliminary results. Dr Holmes also stresses that no conclusions can be drawn more generally for computer gaming and its effects.

The research was funded by the Royal Society through a Dorothy Hodgkin Fellowship awarded to Dr Emily Holmes.

Adapted from materials provided by University of Oxford.

http://www.sciencedaily.com/releases/2009/01/090108151700.htm

Inflammatory Factors And Diabetic Macular Edema

ScienceDaily (Jan. 9, 2009) — With a new study from the Centers for Disease Control and Prevention predicting that diabetic retinopathy will triple from 5.5 million in 2005 to 16 million in 2050, improved treatments are urgently needed for this leading cause of blindness in working-age people. The CDC study is the latest indicator of a world-wide diabetes epidemic that is motivating ophthalmic research around the globe.

Hideharu Funatsu, MD, and colleagues at the Tokyo Women's Medical University, Japan, focused on diabetic macular edema (DME) a serious complication of retinopathy. Their findings on inflammatory factors associated with DME are presented in this month's Ophthalmology, the journal of the American Academy of Ophthalmology.

Retinopathy typically develops gradually over many years in people who have diabetes. It impacts the retina, the area at the back of the eye that focuses images for transmission to the brain. Advanced complications include the growth of abnormal blood vessels on the retina and optic nerve, and DME, swelling of the macula at the center of the retina as fluid leaks from permeable blood vessels. Precisely how DME develops is unclear, but the condition is similar to chronic inflammation that can occur in other areas of the body. When inflammation occurs, the body's immune system releases chemical messengers into the blood or affected tissues in an attempt to rid the body of a perceived infection, irritant, or injury. Some of the chemicals cause leakage of fluid into the tissues, resulting in swelling.

Dr. Funatsu's group measured levels of four inflammatory factors and one anti-inflammatory factor in the vitreous gel, which fills the eye between the lens and the retina, in 53 patients with DME, 15 patients with nondiabetic ocular disease, and 8 diabetic patients without retinopathy. Vascular endothelial growth factor (VEGF), intercellular adhesion molecule (ICAM)-1, interleukin (IL)-6, monocyte chemotactic protein (MCP)-1 and the anti-inflammatory pigment epithelium-derived factor (PEDF) were selected because earlier research had linked them to the development or exacerbation of DME.

All four inflammatory factors were significantly higher and PEDF significantly lower in the vitreous of in patients with DME compared with the two other patient groups. VEGF and ICAM-1 had a stronger influence on the severity of DME than the other factors. VEGF is a strong vascular permeability factor that is overproduced in response to reduced oxygen levels in the retinas of people with retinopathy, and Dr. Funatsu's research suggests that VEFG is the key to the inflammatory response in DME. Building on earlier, similar findings, the study also indicates that PEDF may block the expression and actions of the key inflammatory factors.

Although this study suggests that intravitreal injection of steroids such as triamcinolone acetonide may be useful in treating DME, further clinical trials are required to confirm this finding.

"Triamcinolone acetonide down-regulates VEGF and ICAM-1, inhibits inflammatory cells, stabilizes cell membranes, and increases PEDF levels. It appears to control more of the cytokine messengers that contribute to abnormal blood vessel permeability," said Dr. Funatsu. He adds that further focus on VEGF and ICAM-1 may further illuminate the mechanisms of blood vessel breakdown in DME and lead to new treatments.

Adapted from materials provided by American Academy of Ophthalmology, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2009/01/090105090833.htm

Low-carb Diets Prove Better At Controlling Type 2 Diabetes

ScienceDaily (Jan. 8, 2009) — In a six-month comparison of low-carb diets, one that encourages eating carbohydrates with the lowest-possible rating on the glycemic index leads to greater improvement in blood sugar control, according to Duke University Medical Center researchers.

Patients who followed the no-glycemic diet experienced more frequent reductions, and in some cases elimination, of their need for medication to control type 2 diabetes, according to lead author Eric Westman, MD, director of Duke's Lifestyle Medicine Program.

"Low glycemic diets are good, but our work shows a no-glycemic diet is even better at improving blood sugar control," he says. "We found you can get a three-fold improvement in type 2 diabetes as evidenced by a standard test of the amount of sugar in the blood. That's an important distinction because as a physician who is faced with the choice of drugs or diet, I want a strong diet that's shown to improve type 2 diabetes and minimize medication use."

Eight-four volunteers with obesity and type 2 diabetes were randomized to either a low-carbohydrate ketogenic diet (less than 20 grams of carbs/day) or a low-glycemic, reduced calorie diet (500 calories/day). Both groups attended group meetings, had nutritional supplementation and an exercise regimen.

After 24 weeks, their glycemic control was determined by a blood test that measured hemoglobin A1C, a standard test used to determine blood sugar control in patients with diabetes. Of those who completed the study, the volunteers in the low-carbohydrate diet group had greater improvements in hemoglobin A1C. Diabetes medications were reduced or eliminated in 95 percent of the low-carbohydrate volunteers, compared to 62 percent in the low-glycemic group. The low-carbohydrate diet also resulted in a greater reduction in weight.

"It's simple," says Westman. "If you cut out the carbohydrates, your blood sugar goes down, and you lose weight which lowers your blood sugar even further. It's a one-two punch."

The diet is not easy for everybody. "This is a therapeutic diet for people who are sick," says Westman. "These lifestyle approaches all have an intensive behavioral component. In our program, people come in every two weeks to get reinforcements and reminders. We've treated hundreds of patients this way now at Duke and what we see clinically and in our research shows that it works."

The findings are published online in Nutrition and Metabolism.

This research is funded by the Robert C. Atkins Foundation.

Adapted from materials provided by Duke University Medical Center.

http://www.sciencedaily.com/releases/2009/01/090105175326.htm

Tilting At Wind Farms

ScienceDaily (Jan. 8, 2009) — A way to make wind power smoother and more efficient that exploits the inertia of a wind turbine rotor could help solve the problem of wind speed variation, according to research published in the International Journal of Power Electronics.

Wind power is being touted as a clean and inexhaustible energy source across the globe, but the wind is intermittent and so the power output of wind farms can be variable. Proposed measures to smooth these power fluctuations usually involve the installation of units of batteries or capacitors to store electricity on good days and release their energy on still days or at times when wind speeds are too high for system stability. Technology to smooth the power supply and prevent blackouts due to the tripping of safety switches when electricity frequency deviates wildly is also essential.

Despites its deficiencies, a report from the US Department of Energy suggests that installed wind energy capacity could reach 300 gigawatts by 2030 to meet a fifth of the US electricity demand.

Now, Asghar Abedini, Goran Mandic and Adel Nasiri at the Department of Electrical Engineering and Computer Science, Power Electronics and Motor Drives Laboratory, University of Wisconsin-Milwaukee, have devised a solution to the electricity grid susceptibility to changes in wind speed.

The researchers have devised a novel control method that can mitigate power fluctuations using the inertia of the wind turbine's rotor as an energy storage component. Simply put, they have created a braking control algorithm that adjusts the rotor speed so that when incoming wind power is greater than the average power, the rotor is allowed to speed up so that it can store the excess energy as kinetic energy rather than generating electricity. This energy is then released when the wind power falls below average.

This approach, the team explains, precludes the need for external energy storage facilities such as capacitors and the additional infrastructure and engineering they entail. Their method also captures wind energy more effectively and so improves the overall efficiency of wind farming potentially reducing the number of turbines required at any given site.

Journal reference:

1. Abedini et al. **Wind power smoothing using rotor inertia aimed at reducing grid susceptibility**. *International Journal of Power Electronics*, 2008; 1 (2): 227 DOI: 10.1504/IJPELEC.2008.022352

Adapted from materials provided by Inderscience Publishers, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2009/01/090107092724.htm

Obesity Starts In The Head? Six Newly Discovered Genes For Obesity Have A Neural Effect

ScienceDaily (Jan. 8, 2009) — Obesity is known to increase the risk of chronic disorders, such as diabetes (type 2). An international team of scientists with German participation through the Helmholtz Zentrum München identified six new obesity genes. Gene expression analyses have shown that all six genes are active in brain cells.

The international GIANT (Genetic Investigation of Anthropometric Parameters) consortium works on the discovery of obesity genes. So far, the scientists have analyzed two million DNA variations in 15 genome-wide association studies with a total of more than 32,000 participants. The hereby identified candidate genes were validated in 14 further studies including 59,000 participants. In addition to the FTO and MC4R genes already known, it was now possible for six more obesity genes to be identified: TMEM18, KCTD15, GNPDA2, SH2B1, MTCH2, and NEGR1.

Gene expression analyses have shown that all six genes are active in brain cells. Also the previously known two obesity genes, FTO and MC4R, show a similar expression pattern; in case of the MC4R gene, a genotype-dependent influence on the behavior of appetite is already established. Scientists of the German National Genome Research Network (NGFN), Prof. H.-Erich Wichmann and Dr. Iris Heid from the Helmholtz Zentrum München, Institute of Epidemiology, who lead the German participation of this consortium, emphasize: "Definitely, the two main causes for obesity are poor nutrition and lack of physical activity. But the biology of these genes suggests genetic factors underlying the different reaction of people to lifestyle and environmental conditions."

With the exception of the SH2B1 gene, which plays a role in the leptin signalling and thus in the regulation of appetite, none of the other five genes was hitherto discussed as obesity genes. Iris Heid and her colleague Claudia Lamina from the Ludwigs-Maximilians-Universität München are enthused: "The purely statistical approach of the genome-wide association analysis can depict new aspects of the biology of weight regulation, which were previously unanticipated."

As a next step, the scientists evaluate other anthropometric measures, in order to shed light on different aspects of obesity. In addition, they will expand and include further studies into their analysis as they have realized that the individual studies are all too small, and only by means of collaboration, is it possible to achieve further success here.

Journal reference:

1. Willer et al. **Six new loci associated with body mass index highlight a neuronal influence on body weight regulation**. *Nature Genetics*, 2009; 41 (1): 25 DOI: 10.1038/ng.287

Adapted from materials provided by Helmholtz Zentrum Muenchen - German Research Centre for Environmental Health.

http://www.sciencedaily.com/releases/2009/01/090108082908.htm

Evolution In Action: Our Antibodies Take 'Evolutionary Leaps' To Fight Microbes

New research explains for the first time how humans keep up with microbes by rearranging the genes that make antibodies to foreign invaders. (Credit: iStockphoto/Henrik Jonsson)

ScienceDaily (Jan. 8, 2009) — With cold and flu season in full swing, the fact that viruses and bacteria rapidly evolve is apparent with every sneeze, sniffle, and cough. A new report explains for the first time how humans keep up with microbes by rearranging the genes that make antibodies to foreign invaders. This research fills a significant gap in our understanding of how the immune system helps us survive.

"We've known for a long time that our antibody-forming system adapts itself to every microbe we encounter," said Gerald Weissmann, M.D., Editor-in-Chief of The FASEB Journal, "but what we didn't understand fully is exactly how this happens. Now that we know, we can begin to find ways to manipulate this process so illnesses can be prevented or made significantly less dangerous."

When the body encounters a foreign invader, like a virus or bacterium, it immediately begins to find a way to neutralize it by means of cellular or antibody-mediated defenses. Part of the process involves tailoring the genes that code for antibodies to specific viruses or bacteria. Researchers have known that this involves two types of genetic manipulation. One type changes a single gene at a time, and the other type changes multiple genes at the same time. In the report, scientists from Wayne State University in Detroit describe how multiple genes can be modified simultaneously to make the "evolutionary leap" necessary to stave off infection.

The basic setup of the experiment treated DNA responsible for making antibody molecules with an enzyme, called activation-induced deaminase, while the DNA was being copied by RNA polymerase. Like a scanner, RNA polymerase moves across the DNA to copy it. When this scanning process moved smoothly, there were either single mutations or no mutations. When the researchers made the RNA polymerase stall along the DNA (under certain conditions), it caused several mutations at once (cluster

mutations) in the DNA, adapting our antibodies for a rapid and effective response to a new microbial invader.

"As the planet warms, infectious diseases may be one the biggest threats to human survival," Weissmann added. "Nowadays, mosquitoes, parasites and viruses cause diseases in the United States that were once isolated to warmer parts of the world. They evolve, and - a la Darwin - so does our immune system each time we meet a new microbial invader."

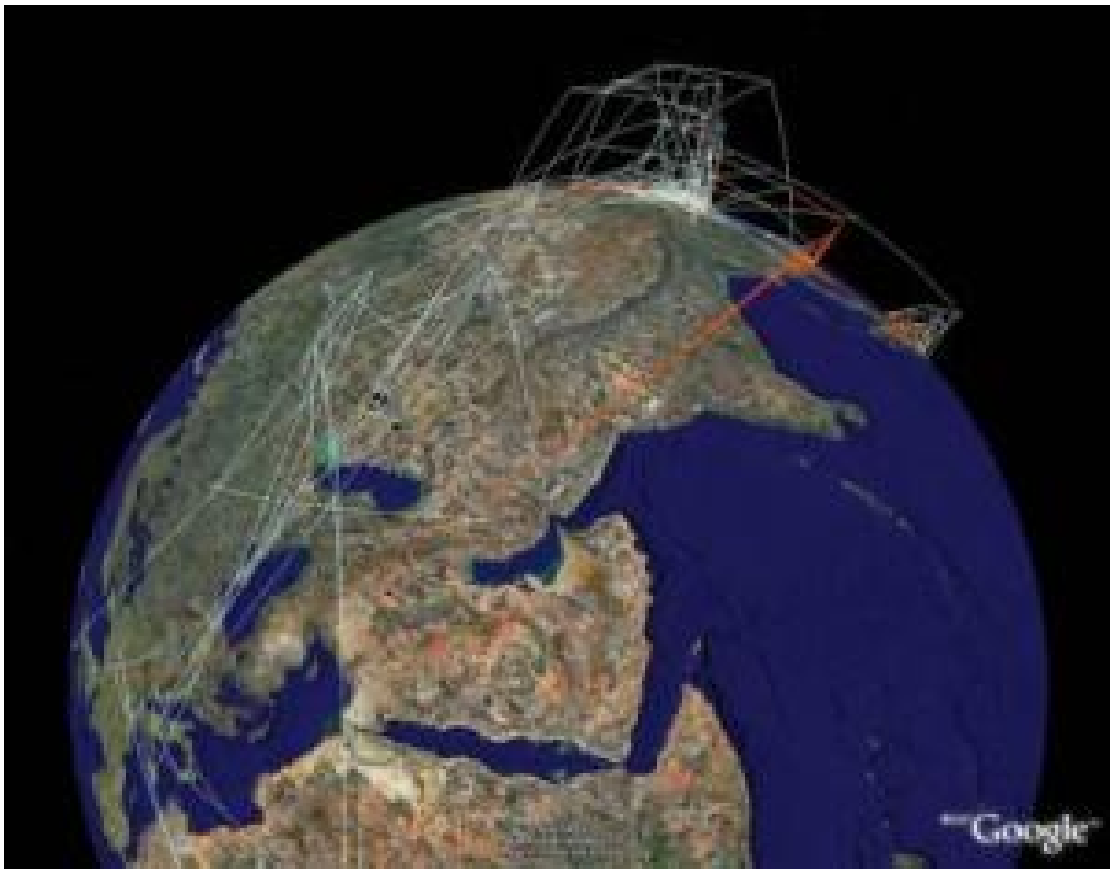
Journal reference:

1. Chandrika Canugovi, Mala Samaranayake, and Ashok S. Bhagwat. **Transcriptional pausing and stalling causes multiple clustered mutations by human activation-induced deaminase**. *FASEB J*, 2009 23: 34-44 [link]

Adapted from materials provided by Federation of American Societies for Experimental Biology, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2009/01/090105101501.htm

Avian Flu Becoming More Resistant To Antiviral Drugs



Researchers using Google Earth technology are able to visually chart individual outbreaks of the avian flu as it has spread outward from China over the past decade, including gene mutations that are causing a resistance to a major class of antiviral drugs. (Credit: Google Earth, University of Colorado)

ScienceDaily (Jan. 8, 2009) — A new University of Colorado at Boulder study shows the resistance of the avian flu virus to a major class of antiviral drugs is increasing through positive evolutionary selection, with researchers documenting the trend in more than 30 percent of the samples tested.

The avian flu, an Influenza A subtype dubbed H5N1, is evolving a resistance to a group of antiviral drugs known as adamantanes, one of two classes of antiviral drugs used to prevent and treat flu symptoms, said CU-Boulder doctoral student Andrew Hill, lead study author. The rise of resistance to adamantanes -- which include the nonprescription drugs amantadine and rimantadane -- appears to be linked to Chinese farmers adding the drugs to chicken feed as a flu preventative, according to a 2008 paper by researchers from China Agricultural University, said Hill.

In contrast, resistance of the avian flu virus to the second, newer class of antiviral drugs that includes oseltamivir -- a prescription drug marketed under the brand name Tamiflu -- is present, but is not yet prevalent or under positive genetic selection, said Hill of CU-Boulder's ecology and evolutionary biology department. The CU findings should help health administrators around the world plan for the possibility of an avian flu pandemic.

The CU-Boulder study is the first to show H5N1 drug resistance to adamantanes arose through novel genetic mutations rather than an exchange of RNA segments within cells, a process known as re-assortment, said Hill. The research on the mutations, combined with molecular evolution tests and a

geographic visualization technique using Google Earth, "provides a framework for analysis of globally distributed data to monitor the evolution of drug resistance," said Hill.

The CU-Boulder-led study appears online in the journal Infection, Genetics and Evolution. Co-authors included CU-Boulder Associate Professor Robert Guralnick, recent CU-Boulder graduate Meredith Wilson, Farhat Habib of Kansas State University and Daniel Janies of Ohio State University.

"As these adamantanes have gotten into nonhuman vectors like birds, the positive selection for resistance to avian flu is rising," said Hill. "If Tamiflu is ever used in the manner of adamantanes, we could conceivably see a similar resistance developing through positive selection."

The research team used an interactive "supermap" using Google Earth technology that portrays the individual gene mutations and spread of the avian flu around the globe, said Guralnick of CU-Boulder's ecology and evolutionary biology department. By projecting genetic and geographic information onto the interactive globe, users can "fly" around the planet to see where resistant H5N1 strains are occurring, said Guralnick, also Hill's doctoral adviser.

For the study, the researchers analyzed 676 whole genomes of Influenza A/H5N1 from National Institutes of Health databases of viruses isolated between 1996 and 2007. The team is comparing how often amino acid sequence changes in genes lead to mutations that affect drug resistance in the H5N1 virus and how often such changes evolve into random mutations that don't affect resistance, Hill said.

The next step is to analyze 2008 data, he said.

First detected in China in 1996, the avian flu has spread throughout Asia and to India, Russia, Pakistan, the Middle East, Africa and Europe by various carriers, including poultry and migratory waterfowl, Hill said. While H5N1 is not highly communicable to humans from birds or between humans, experts are concerned future evolution of this subtype or other subtypes, or genetic re-assortment between subtypes, could make an avian influenza strain more contagious with the potential to cause a pandemic.

"Even if H5N1 is not the flu subtype that develops into the next pandemic, this technique can help us understand the properties of flu viruses and we can use these methods to track mutations in other viruses," said Guralnick. "We can harvest genetic influenza data and monitor it in near real-time, which should give this project some traction to help governments make decisions on managing potential pandemics."

Like the legend of a road map, colors and symbols on the supermap indicate which types of hosts carry the virus or the distribution of genotypes of interest, said Hill. A click by users on viral "isolates" generates computer windows revealing H5N1 mutations linked to positive genetic selection resulting from the spread and use of adamantanes.

The information is linked by computer to the National Institutes of Health's GenBank, a database with more than 75 million sequence records.

According to the Centers for Disease Control in Atlanta, an avian flu pandemic could kill millions of people in America, infect 15 percent to 35 percent of the population and cost well over $100 billion.

Adapted from materials provided by University of Colorado at Boulder.

http://www.sciencedaily.com/releases/2009/01/090107122658.htm