Infoteca's E-Journal

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Cai Guo-Qiang: I Want to Believe

"Borrowing Your Enemy's Arrows" (1998)

The Guggenheim Museum's retrospective of the work of the Chinese artist Cai Guo-Qiang is nothing if not action packed, writes Roberta Smith. The galleries are so rife with the sound of explosions and the sight of suspended objects and wildlife (stuffed) that it might almost be a movie set for some new martial-arts spy thriller. Perhaps "The Air-Bourne Aesthetic: Writhing Tigers, Hurtling Wolves."

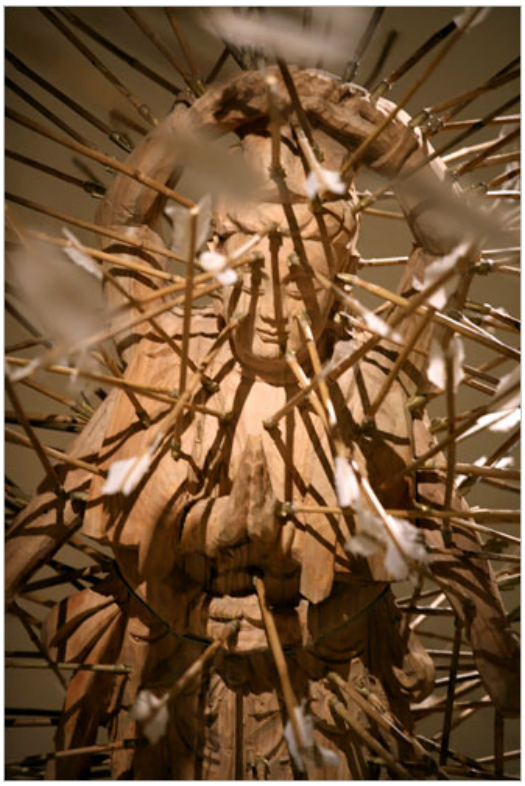
Organized by Thomas Krens, director of the Guggenheim Foundation, and Alexandra Munroe, the museum's senior curator of Asian art, this exhibition nearly fills the museum and introduces a conceptually inclined impresario best known for works using gunpowder. Regularly hailed as a global artist and chosen to oversee the opening and closing ceremonies at the 2008 Olympics in Beijing, Mr. Cai has parlayed a United Nations' worth of cultural sources and artistic strategies into crowd-pleasing, easily deciphered if not terribly original art.

Gianna Bambi of Florence, Italy, takes a boat ride.

"An Arbitrary History: River," a considerably less trompe l'oeil installation work, involves attractively rough-hewn pieces, including a woven-basket canal filled with water and dried animal-hide rafts for paddling in it. But the ensemble effect is, again, familiar; it suggests a 1980s Neo-Expressionist painting in three dimensions.

"Reflection - A Gift From Iwaki"

Take for example the rare moment of stasis at the show's conclusion: a large, salt-bitten hull of a Japanese fishing boat, resurrected from the sea and now marooned on a bed of shattered white porcelain statues. Mr. Cai has shown it twice before, and each time it is assembled and disassembled by the crew of Japanese workers and fishermen who originally recovered it. This is what might be called extreme appropriation art; the hull is hauntingly beautiful, not primarily as art but as an archaeological specimen and feat of engineering, both in its construction and its placement in a museum.



Detail of "The Age of Not Believing in God" (1999)

As shown here his work breaks down into three very different categories — installation art, gunpowder land art pieces (documented on video) and enormous gunpowder drawings — with markedly varied success. The installation pieces are the most spectacular, albeit the emptiest and most generic. They speak the familiar Esperanto of installation art that, subject to various cultural adjustments, has thrived at international biennials. Their hollowness makes a certain sense, given that Mr. Cai studied stage design.

The constants are suspended motion, sudden change, violence and, at times, transformation. Even the show's title, "Cai Guo-Qiang: I Want to Believe," suggests yearning for a different state, and whether this desire concerns art, religion, magic or U.F.O.'s is itself left up in the air.

Photo: Librado Romero/The New York Times

http://www.nytimes.com/slideshow/2008/02/22/arts/22cai-slideshow_index.html

From a Master Craftsman, Recurring Themes of Divinity, Death and Desire

By ALASTAIR MACAULAY

"Life's a curse, love's a blight, God's a blaggard, cherry blossom is quite nice." With these words a character in Tom Stoppard's play "The Invention of Love" sums up A. E. Housman's book of verse "A Shropshire Lad." A latter-day cynic could apply them to the dance works of Paul Taylor.

For all of Mr. Taylor's vastly greater range, Housman-like themes keep coming around in his repertory, as his current season at City Center demonstrates. What living choreographer more often shows or hints at death? Or more often brings in figures suggesting the religious or the divine? Where Housman employed the idea of rural simplicity, Mr. Taylor invokes primitive ceremony. The image of a glorious hero in the prime of life is as central to his work as to Housman's, and frequently that hero is marked for death, just as fulfilled love is shown as something finite.

The Playbill essay on Mr. Taylor reminds us, proudly, of his avant-garde beginnings in the 1950s. Is there anything avant-garde left in Mr. Taylor today? He retains a disquietingly original mind, which isn't the same thing. Instead he has long since become a master craftsman. This authority is evident both in the complex dynamics with which he fits his dances to music (who knows more about how to make slow work against fast, or sharp against smooth?) and in his elaborate, but generally symmetrical, display of spatial geometries.

Sunday afternoon's triple bill of Mr. Taylor's "Equinox," "Fiends Angelical" and "Piazzolla Caldera" seemed to celebrate his variety. "Equinox" (1983), set to Brahms's first string quintet, is a modern "Love's Labour's Lost" view of four pairs of elegant male-female lovers, clouded by a woman's central solo (danced by Lisa Viola) in which her private misgivings or grief intimate that the rest is already a memory.

In "Fiends Angelical" (2000), to George Crumb's "Black Angels" (with its quotation of Schubert's "Death and the Maiden"), a priestess (Parisa Khobdeh) presides over a primitive tribe amid which twinlike lovers (Annmaria Mazzini and Michael Trusnovec) die and are brought back to life. "Piazzolla Caldera" (1997) distills the sexual desires and raunchy dramas of the tango, to music by Astor Piazzolla and Jerzy Peterburshsky.

For me, however, the diversity and craftsmanship of such a program exist mainly on the surface. The construction of "Piazzolla Caldera" (which always wins a warm ovation from the audience) is impressive. But neither do its actual dances grip me nor do its steamy dramas convince me for a moment.

Mr. Taylor lays emphasis at several points on one woman's unfulfilled desires (Ms. Mazzini, legs signally parted much of the time, body writhing) and in one sequence on a male couple (Richard Chen See and Francisco Graciano) who are evidently plastered and whose physical togetherness is ambiguous. Though I can imagine enjoying these and other layers in another treatment, this piece's account of them is heavy-handed.

"Fiends Angelical," with its cult/love/death/religion story, is duller in the theater than it ought to be. But "Equinox," which makes so much of the idyllic community and sweet love of its couples ought to be more bland than it proves. Here Mr. Taylor's ingenuity as a dramatic poet rises, giving us multiple meanings and undercutting the dream with notes of pathos and paradox. His brilliance in contrasting a dance tempo with a musical one is at its most eloquent. Such subtleties, though, make the rest of the program feel the more crude.

Yet the span of Friday night's program — "Aureole" (1962), "Troilus and Cressida (reduced)" (2006), "Counterswarm" (1988) and "Promethean Fire" (2002) — only grows with recollection. True, "Troilus" (to Ponchielli's "Dance of the Hours," the opera-ballet score that Disney made uproarious in "Fantasia" and to which Christopher Wheeldon restored its charm in 2006) is less funny than it tries to be. True, "Counterswarm," to Ligeti, is a clever but unabsorbing conception of humans viewed as insects, and the real charm of "Aureole," to Handel, is reduced by the women's autopilot bright smiles (also by Mr. See's exaggerated facial reactions). But all four of these pieces face in strikingly different directions.

"Aureole," the oldest piece in this season's repertory, is a true classic of Taylor style. You can feel its dance juice working richly through the whole body, and amid its several moods, the central male solo (originally performed by Mr. Taylor himself, now by Orion Duckstein) is a particular marvel of unbroken fluency.

"Promethean Fire" (to three Bach scores as orchestrated by Stokowski) includes images of love and death, and yet what's more thrilling is Mr. Taylor's kaleidoscopic sweep of successive group geometries. It has grandeur, urgency, touches of Busby Berkeley absurdity and "Metropolis" epic impersonality. How odd; how irresistible. We're left thinking: who else but Mr. Taylor?

The company performs through March 16 at City Center, 131 West 55th Street, Manhattan; (212) 581-1212, citycenter.org.

http://www.nytimes.com/2008/03/04/arts/dance/04equi.html?ref=dance

The Sound Is Rural, the Setting Urban

By NATE CHINEN

"HOWDY, folks," Chris Thile said one recent Tuesday night, as he twisted a peg on his mandolin. His audience, packed into the cozy Rockwood Music Hall on the Lower East Side, seemed to appreciate the salutation. Somebody voiced a request: "Over the Waterfall," a bluegrass standard. "Second tune I ever learned," he shot back, "after 'Woody's Rag.' "

Mr. Thile, of Nickel Creek fame, was sitting in with his friend Michael Daves, a guitarist and fellow virtuoso who can be found at the Rockwood every week. At that same moment a less dazzling four-piece bluegrass band was playing just across the street, at a new bar called the National Underground. A few blocks away the guitarist and singer Tony Scherr was playing his gritty country-rock songs to a full house at the Living Room. And further uptown there was a gig by Citigrass, a band whose name is meant to suggest not a financial institution but a hybrid musical ideal.

It was a roots music night in New York, with all the seeming incongruities such a phrase might suggest. Though more commonly associated with indie-rock upstarts, jazz improvisers and hip-hop survivors, New York has lately become remarkably hospitable to musicians upholding more rustic ideals.

Of course there's precedent for this sort of thing, stretching back at least as far as the Greenwich Village folk revival of some 50 years ago. There have been setbacks, like the closing of the Bottom Line in 2004. But there has also been help from a couple of fairly recent surprise hits in the pop mainstream: the Appalachian-steeped soundtrack to "O Brother, Where Art Thou?" and "Come Away With Me," Norah Jones's folk-pop debut. Both albums were game-changers, creating new opportunities and fan bases for bluegrass pickers and singer-songwriters.

"There's another generation of people who want to hear music that's accessible, that's not a prefab product, that's lyric based but not preachy," said Adam Levy, a guitarist and singer-songwriter who has played on all of Ms. Jones's albums. "If there's a roots movement in New York now, I think of it in those terms."

Earlier this month the Grammy Award for best pop collaboration with vocals went to Alison Krauss and Robert Plant for a song from their album "Raising Sand," which, like the "O Brother" soundtrack, was produced by T Bone Burnett.

There's ample opportunity in New York to sample roots music at this level. Tickets for Ms. Krauss and Mr. Plant's tour, which stops here in June, go on sale Monday. Ralph Stanley, who like Ms. Krauss was on the "O, Brother" soundtrack, is scheduled to perform with his Clinch Mountain Boys on March 16 at the B. B. King Blues Club & Grill. For bluegrass of the fast, finger-busting variety, there's Tony Trischka's Double Banjo Bluegrass Spectacular at the Cutting Room on March 13. And Levon Helm, the former drummer with the Band, will headline the Beacon Theater next weekend; his recent release, "Dirt Farmer" (Vanguard), just won the Grammy for best traditional folk album.

But there's also plenty of action closer to ground level, in bars and clubs. Saturday night, for instance, you could catch the East River String Band at the Teneleven Bar on Avenue C. Or you could see the M Shanghai String Band, which will be holding court at a space in Williamsburg; or Ben Arnold, an accomplished singer-songwriter, at the Living Room. You could also check out King Wilkie, a Virginia band that put out a well-received album, "Low Country Suite," on Rounder last year: it will be making some noise at the Jalopy Theater in Red Hook, another new roots music hub.

These artists and others underscore the big difference between plain and primitive, a point Mr. Thile hit on in an interview before his Rockwood appearance. He also voiced his qualms about the worship of authenticity, an occupational hazard.

"There's a perception we have to fight through as folk musicians," he said. "Like, 'Oh yeah, we're going to go to this concert and get in touch with our roots.' That's totally valid, but it's also like visiting a museum."

Mr. Thile was sipping a cappuccino at the same East Village cafe where he says he wrote most of the music for "The Blind Leaving the Blind," a 40-minute, four-part suite inspired by classical composition. It appears on the new self-titled Nonesuch debut album by Punch Brothers, his current bluegrass-infused progressive chamber ensemble; last week they performed it under the auspices of Lincoln Center's American Songbook series. (On Friday night they're scheduled to appear on "The Tonight Show.")

Mr. Daves, the guitarist, is one of the key figures on the local bluegrass scene. He plays in Mr. Trischka's band and teaches some 45 students in the New York area. Born in Atlanta, he moved to Brooklyn about five years ago and, he says, found the new setting liberating.

"Bluegrass audiences in New York don't have the same rigid expectations for the music that you find in the South," Mr. Daves said. "People here don't have those deeply ingrained perceptions of the music. I can say, 'I think bluegrass is this iconoclastic, messy, raucous thing.' And people are like: 'O.K. Sure, sounds good.' "

In addition to playing solo on Tuesday nights — an appointment so steady that his most recent album is called "Live at the Rockwood" — Mr. Daves leads a popular jam session at the Parkside Lounge on the first Monday of every month. On Tuesday you can either hear Mr. Daves again at the Rockwood or dash across the street for bluegrass night at the National Underground, which will feature a guitarist named Daniel Marcus, with a band that includes the banjoist Tuey Connell.

On a recent Tuesday at the National Underground the owners, Gavin and Joey DeGraw, loitered on opposite ends of the bar. The DeGraw brothers, both singer-songwriters, opened the place a matter of weeks ago with a friend, Duggins King, who books the shows. "Originally I wanted a fiddle in here every night," Mr. King said. Instead he ended up with an eclectic booking policy that also includes New Orleans jazz. This Tuesday, while there's bluegrass upstairs, a separate band will play blues-rock downstairs, as an after-party for Gavin DeGraw's sold-out Bowery Ballroom show.

If there's only one night to spare, reserve Wednesday, which offers a reliable abundance. On one recent Wednesday I started out at Banjo Jim's on Avenue C, where Mr. Levy was performing along with a handpicked slate of other musicians. The night is called Adam Levy's Wish List, and it reflects the bar's newly adopted booking policy. "We wanted to build nights around the social connections among musicians," Richard Ogust, one of the owners, said.

I headed next to the Jalopy Theater, where Wednesdays are given over to Roots n Ruckus, an accurately named series run by the singer-songwriter Feral Foster. In addition to being a performance space, the Jalopy is a music school and instrument retail and repair shop — a good combination, considering the do-it-yourself ethos that still surrounds much folk music.

“There are about five different business going on here, and they all feed each other,” said Geoffrey Wiley, who owns the place with his wife, Lynette. “We always call it not a nonprofit, but a low-profit organization.”

Bluegrass and country share a home at the Jalopy with Gypsy swing, madcap ukulele music and even avant-garde jazz. (In that sense it might be considered a grittier cousin to Barbès, the eclectic bôite in Park Slope.) As Mr. Wiley spoke, a mustached banjoist named Curtis Eller serenaded his crowd from atop a folding chair. He’ll also be at Banjo Jim’s on Friday.

From the Jalopy it was a reasonably quick cab ride across the Brooklyn Bridge back to the Village, where the best bluegrass jam session in town, by common consensus, was well under way. Usually presided over by Bob Saidenberg, a lanky dobro player known to all as Sheriff Uncle Bob, it was more of a free-for-all on this occasion: Mr. Daves appeared to be the most proficient player in the room, by a comfortable margin.

Also in the room was Adam Nash, whose Web site, nycbluegrass.com, chronicles the many concerts and jam sessions on the local scene. Consult Mr. Nash’s site and you’ll see that Thursday is a strangely quiet night for bluegrass, perhaps because everyone is recovering from the night before. You’ll also see a couple of reliable Sunday jams, in Brooklyn (Boerum Hill) and Manhattan (Murray Hill). Curiously missing is the Saturday night jam at Sunny’s Bar, an old sailors’ joint in a remote section of Red Hook.

Less curiously, there aren’t many listings for singer-songwriter gigs. You’ll find them listed in Acoustic Live!, a newsletter and Web site (acousticlive.com) maintained by Richard Cuccaro, the former director of the Fast Folk Cafe. Where the “O, Brother” soundtrack produced a surge of public interest in bluegrass, Ms. Jones’s success created something more like a ripple effect. Mr. Levy has certainly gained some recognition, as have singer-songwriters like Jesse Harris, who played Banjo Jim’s a couple of nights ago, and Mr. Scherr, who will play perform at Joe’s Pub on March 25 and has an excellent new album, “Twist in the Wind” (Smells Like).

Both Mr. Harris and Mr. Scherr have appeared on all three of Ms. Jones’s studio albums. Another associate, Richard Julian, has reaped rewards; he’ll be at Joe’s Pub on March 8 to play from his new album, “Sunday Morning in Saturday’s Shoes” (Manhattan).

Whatever distance exists between the mythic cry of Ralph Stanley and the mellow croon of Ms. Jones, it seems to vanish completely at the Midnight Ramble, a perennial musical gathering at Mr. Helm’s barnlike home studio in Woodstock, N.Y. At one such event this month Mr. Helm, 67, presided over his fine working group with an irrepressible exuberance. His high, tight Arkansas yowl — a spine-tingling sound, and not just because his bout with throat cancer had silenced it until a few years ago — was just as enthralling as his drumming.

Mr. Helm played “Long Black Veil,” a standard that has been recorded by the Stanley Brothers and the bluegrass legend Bill Monroe, among countless others including the Band. On a tune from the new album, Mr. Helm played mandolin and sang lead while Amy Helm, his daughter, took over on drums.

Ms. Helm is a member of Ollabelle, a five-piece band that draws heavily on traditional sources. Mr. Burnett featured the band on his Great High Mountain Tour in 2004, an “O, Brother” tie-in. But its sound also suggests 1970s folk-rock, with Fender Rhodes piano and a gentle wash of acoustic and electric guitars. The group originally formed through a series of jam sessions at a bar called 9C, which preceded Banjo Jim’s in the same space, and prepared for its last album with a stretch at Mr. Helm’s home studio.

Next Friday and Saturday, Ollabelle will open for the Levon Helm Band at the Beacon Theater. The sparse integrity of “Dirt Farmer” will be a part of the night, but so will a few other things: roadhouse shuffles, rhythm and blues, and what Mr. Helm calls a “liberal dose of flat-out rock ’n’ roll.”

Speaking recently by phone Mr. Helm acknowledged that there seemed to be a lot of younger musicians taking American roots music seriously, in New York and elsewhere.

“There are groups out there who play in that — I don’t want to call it an old-fashioned way, but in a for-real way,” he said. “They still make it a musician’s game, rather than a producer’s game. The emphasis is on the playing of the instruments, the chops.”

http://www.nytimes.com/2008/02/29/arts/music/29folk.html?th=&emc=th&pagewanted=print

The Eiffel Tower Is Always Ready for Its Close-Up

By STEPHEN HOLDEN

Paris in the springtime, Paris in the fall. Paris when it drizzles and when it sizzles, and of course Paris in April. In the words of Cole Porter, "Until you've lived a lot, and loved a lot, and lost a lot, you don't know Paree."

People busily living, loving and losing amid the exhilaration and frustrations of life in Porter's "timeless town" animate Cédric Klapisch's panoramic "Paris," a highlight among the 15 films in the 13th annual Rendez-Vous With French Cinema 2008 series. Screenings begin on Friday at the Walter Reade Theater and at the IFC Center.

"Paris," in which the City of Light is a more palpable presence than the characters whose lives casually intersect, may not be the most artistically substantial film in the series — that distinction belongs to Claude Miller's post-Holocaust drama, "A Secret" ("Un Secret") — but it is the most purely entertaining. Above all, "Paris," in which the monuments are spread out before you like a sumptuous outdoor banquet, evokes the city as a robust social organism.

The realization by Pierre (Romain Duris), a chorus boy with heart disease, that Paris and its delights will outlive him — that, as Porter wrote, the city "will still be laughing after ev'ry one of us disappears" — is the most poignant note struck in the movie. While awaiting a heart transplant, he observes the city around him bursting with carefree exuberance, as if everyone on the streets believed life was limitless. In the weeks before his surgery, he moves in with his sister Élise (Juliette Binoche), a kindhearted social worker, and her three children and, despite himself, experiences some fleeting moments of joy.

Mr. Duris is a wonderful actor, but he is so trim and fit that the sight of him gasping for breath as he climbs stairs doesn't jibe. No matter. Like Mr. Klapisch's earlier movies "Russian Dolls" and "L'Auberge Espagnole," which each starred Mr. Duris, "Paris" has a light-handed view of life and death. In Mr. Klapisch's films vitality decisively trumps morbidity.

Beyond its entertainment value, "Paris" embodies the centrality of the city to French cinema. It has been the setting for so many of the series's films, including this year's, that it is impossible to imagine Rendez-Vous, or French cinema in general, existing without it.

Neither London nor Rome exerts the same mythic force in British or Italian cinema. In the United States, where New York and Los Angeles divide the spoils, Woody Allen's New York commanded some of the same mystique for a time. (A comically depicted May-November romance between a professor and a student in "Paris" suggests a conscious homage to "Manhattan.") But Mr. Allen's portraits of New York have been limited mostly to the Upper East Side of Manhattan. Mr. Klapisch's view of Paris is more free-ranging and democratic.

One place the film's vision of Paris doesn't encompass is the city's outlying areas, where severe riots have broken out in recent years. The only film to go there, the 23-year-old director Audrey Estrougo's "Ain't Scared" ("Regarde-Moi"), is set in a housing project seething with ethnic tension. Here the boredom and rage of impoverished teenagers has created a youth culture so mired in hopelessness that aspirations to a better life elsewhere, or even to find love inside this toxic environment, are treated as weaknesses to be viciously crushed.

The movie views the same events through the eyes of a group of boys and then a group of girls. The language spoken is the same profane, dehumanizing argot heard in American cities. Your heart goes out to these young people forced to suppress any tender feelings in a culture of toughness and negativity.

The biggest difference between there and here, of course, is the lack of guns. Yet there is still violence. In the ugliest scene the girl who has the best chance of escaping is attacked, beaten up and possibly raped with a stick by a gang of jealous female peers.

"Paris" has two main rivals for most entertaining movie in this year's series. One, Claude Lelouch's lavishly appointed thriller "Roman de Gare," examines the relationship between a haughty, best-selling author (Fanny Ardant) and her ghostwriter (Dominique Pinon), who may or may not be a serial killer. In the delightfully tricky plot, a young woman he meets by chance asks him to impersonate the fiancé with whom she has just broken up and accompany her when she visits her family. The story of their visit becomes the plot for the author's new novel. Gorgeous mountain scenery, sinister high jinks aboard a fancy yacht and the chansons of Gilbert Bécaud make "Roman de Gare" a sensuous Gallic romp with a 1960s feel.

The other candidate, "Fear(s) of the Dark"/"Peur(s) du Noir", stitches black-and-white animated horror and fantasy shorts by six graphic artists — Blutch, Charles Burns, Marie Caillou, Pierre Di Sciullo, Lorenzo Mattotti and Richard McGuire — into a sophisticated showcase of contemporary animation. The best short, by Mr. Burns, is a science-fiction nightmare of erotic slavery, with elements of "Alien" and Kafka's "Metamorphosis."

Three films in this year's Rendez-Vous — one almost great ("A Secret"); one profound but laboriously drawn-out (Nicolas Klotz's "Heartbeat Detector"/"La Question Humaine"); and one pretentious and impenetrable (Sophie Marceau's detective story "Trivial"/"La Disparue de Deauville") — examine how events 50 or more years ago shaped the present. The first two feature Mathieu Amalric, the star of "The Diving Bell and the Butterfly."

The complex flashback structure of "A Secret" explores how Jewish identity and the legacy of survivors' guilt affect a beautiful, athletic Jewish couple (Patrick Bruel and Cécile de France) idolized by their frail, shy son, who is baptized as a Christian and whom Mr. Amalric plays as a grown-up. A mysterious toy in the attic offers a clue to his father's life during the French occupation, when he had another family. The elegiac tone of this rueful romantic tragedy adapted from a novel by Philippe Grimbert recalls "The Garden of the Finzi-Continis."

In the more intellectually provocative "Heartbeat Detector" Mr. Amalric plays the director of human resources at the French branch of a giant petrochemical company. When the corporation's assistant director pressures him secretly to investigate the mental health of its melancholy director, who weeps at the music of Schubert, he uncovers the company's connections to Nazi war crimes. Gradually he realizes that his survival-of-the-fittest policies in evaluating and motivating employees resemble the Nazis' ruthless sorting of Jews in concentration camps. He comes to understand how the corporation, in metaphorical ways, resembles a concentration camp.

Two films, "The Feelings Factory" ("La Fabrique des Sentiments") by Jean-Marc Moutout, and "Let's Dance!" ("Faut que ça Danse!) by Noémie Lvovksy, don't have the same historical resonance but feature characters confronting modern social pressures who resist instant categorization based on sex and age.

In "The Feelings Factory" a successful, sexually freewheeling lawyer in her mid-30s (Elsa Zylberstein) who wants children tries speed-dating. The hero of "Let's Dance!" is a healthy, vigorous Holocaust survivor (Jean-Pierre Marielle), pushing 80, who begins a complicated relationship with a much younger woman (Sabine Azema). But he neglects to tell her that he has a wife (Bulle Ogier), hospitalized for dementia, from whom he has been separated for 20 years.

Illness also haunts Mia Hansen-Love's "All Is Forgiven" ("Tout Est Pardonné"), the touching story of the dissolving marriage of a young, heroin-addicted French writer (Paul Blain) and his Austrian wife (Marie-Christine Friedrich). Jumping ahead 11 years after the marriage ends, the movie observes the rapprochement of their daughter (Constance Rousseau), now a teenager, with her father.

Among the movies that might be described as Gallic pas de deux, "Those Who Remain" ("Ceux Qui Restent"), Anne Le Ny's debut as writer and director, is the most satisfying. This exquisitely observed psychological drama reunites Vincent Lindon and Emmanuelle Devos, who starred as a married couple in "La Moustache," a surreal high point of the 2006 Rendez-Vous series.

Set mostly in a hospital where their partners, whom we never see, are being treated for cancer, the film captures the deepening connection between two desperately anxious people: a stoic, emotionally guarded high school German teacher (Mr. Lindon) and a voluble graphic artist (Ms. Devos) who spills out her feelings.

In Eric Guirado's modest but well-made "Grocer's Son" ("Le Fils de l'Épicier"), a sullen young man reluctantly returns to the country from Paris to operate his family's mobile grocery store after his father suffers a heart attack. Joining him on his rounds is a Parisian friend and student (Clotilde Hesme) who may or may not remain with him.

The most wrenching film in the Rendez-Vous series, the actress Sandrine Bonnaire's "Her Name Is Sabine" ("Elle S'Appelle Sabine"), isn't fictional. Ms. Bonnaire's documentary about her younger sister's struggle with autism incorporates 25 years of home movies. The sadness of Sabine's decline from a young woman with sparkling eyes into an anxious, fearful middle age (she was 38 when the movie was completed) is mitigated by the film's portrait of a sisterhood that flourishes in spite of every obstacle.

The sweetest movies are two sexy, quintessentially French delicacies. In Christophe Honoré's dizzy musical comedy, "Love Songs" ("Les Chansons d'Amour"), the blissful ménage à trois of a young man and two women is shattered when one of the women suddenly dies. Pointedly bisexual on both sides, the musical has scenes of Louis Garrel (from "The Dreamers" and "Regular Lovers") smooching with a handsome male student who ardently pursues him.

In Emmanuel Mouret's "Shall We Kiss?" ("Un Baiser S'Il Vous Plait"), a meditation on the perils of infidelity, two mutually attracted strangers (Michael Cohen and Julie Gayet) who meet by chance in a provincial city spend an evening debating whether or not to share a kiss before one of them returns to Paris. You might call it Eric Rohmer lite.

A Gallic film series that didn't include at least one scrumptious bonbon would be like Paris without the Eiffel Tower.

Rendez-Vous With French Cinema runs through March 9 at the Walter Reade Theater, 165 West 65th Street, Lincoln Center, (212) 875-5600, filmlinc.com; and the IFC Center, 323 Avenue of the Americas, at Third Street, Greenwich Village, (212) 924-7771, ifccenter.com.

http://www.nytimes.com/2008/02/29/movies/29rend.html?th&emc=th

The Musical Mystery

By Colin McGinn

Musicophilia: Tales of Music and the Brain
by Oliver Sacks
Knopf, 381 pp., $26.00

Music is so ubiquitous and ancient in the human species—so integral to our nature—that we must be born to respond to it: there must be a music instinct. Just as we naturally take to language, as a matter of our innate endowment, so must music have a specific genetic basis, and be part of the very structure of the human brain.

An unmusical alien would be highly perplexed by our love of music—and other terrestrial species are left cold by what so transports us. Music is absolutely normal for members of our species, but utterly quirky.[1] Moreover, it is known that music activates almost all the human brain: the sensory centers, the prefrontal cortex that underlies rational functions, the emotional areas (cerebellum, amygdala, and nucleus accumbens), the hippocampus for memory, and the motor cortex for movement. When you listen to a piece of music your brain is abuzz with intense neural activity.

Oliver Sacks is fascinated both by the normality of this oddity and by its abnormal manifestations. Daniel J. Levitin, in his recent book *This Is Your Brain on Music: The Science of a Human Obsession*,[2] deals largely with the normal human response to music—particularly with the brain mechanisms that underlie ordinary human listening—but Sacks's interest is more in the pathologies of musical response, not surprisingly in view of his occupation as a clinical neurologist. Where Levitin gives us the peculiarities of the everyday, Sacks ventures into the outlandish and exotic—into the deficits and excesses of the musical brain. Yet both authors recognize that the normal is exotic enough in itself, and the abnormal merely variations on a theme (so to speak).

In a sense, nothing about music is quite "normal," except purely statistically. Sacks's style and method in *Musicophilia* will be familiar to readers of his earlier works: he provides us with descriptive summaries of various cases he has studied or encountered, which blend the humanistic and the clinical in a uniquely Sacksian style (the adjective seems warranted). We never lose sight of the human being exhibiting the pathology, but we are also continually reminded of the role of the brain in producing both normality and abnormality. The person, for Sacks, is irreducibly a center of thought, feeling, and will, yet is also a puppet of the circuits and nuclei that make up the brain. The brain is our ineluctable fate, but the person is more than a mere syncopation of brain regions. And you have to live with the brain you've got, making the best of its contingent strengths and weaknesses, not the brain you might ideally have preferred. Accordingly, Sacks's chapters contain little in the way of theory and explanation, or even systematic taxonomy, dwelling rather on the details of specific cases, with that unique mixture of empathy and detachment I mentioned. His prose style has become, perhaps, more restrained than in his earlier books, less prone to hyperbole or poetic flights; but the result, especially in this book, is a more affecting and informative accounting, at least to my mind. The case studies here are finely observed, judiciously expressed, and genuinely fascinating.

Sacks opens his book with a striking case, rather literally striking. Tony Cicoria, a forty-two-year-old orthopedic surgeon, was making a phone call to his mother when he was struck in the face by lightning. He thought he was dead immediately following the event but sustained no serious injuries and went back to work a few weeks later. But then, quite unexpectedly, he experienced an intense craving to listen to piano music—something he had never felt before. He started listening to piano music all the time, couldn't get enough of it. Then, a little later, he started hearing piano music in his head, insistently and powerfully; he felt the need to write it down, though he had no training in musical notation. Soon he was teaching himself to play the piano, playing the tunes that came to him unbidden at all moments. He played the piano at every opportunity, driving his wife to distraction. He had a bad case of sudden-onset

musicophilia, somehow triggered by the brain alterations wrought by the lightning. He had become, in effect, a completely new person, evidently because of having had his brain electrically rewired.

The rest of the first section of the book, aptly entitled "Haunted by Music," deals with musical pathologies, great and small. Sacks notes that not only do human beings listen to music a lot, they also imagine music constantly; so even if your ears aren't being musically stimulated, you may be self-stimulating musically the rest of the time. Sometimes, we voluntarily produce musical images, as when we sing a song to ourselves for the fun of it, but we can also be subject to involuntary musical imagery. We are all familiar with that insistent tune that runs through our head against our will and taste (I was recently subjected to the chorus of Tom Jones's "She's a Lady" for about a week—a song I dislike and despise).

Sacks calls these "brainworms" and the term is appropriate: musical imagery can be remarkably intrusive and annoying, subverting our ability to control our own imaginative lives. It gets in there and it won't let go. That is the "normal" case, but it can get much worse in abnormal cases. For some people, involuntary musical imagery crosses the line into outright musical hallucination, with loud and unwelcome music assaulting the sufferer's consciousness from dawn till dusk. Sacks describes a number of cases of musical hallucination, one of whom, a certain Mrs. O'C., eighty-eight and slightly deaf, suddenly started hearing Irish songs from her youth, so loudly and clearly that she thought the radio had been left on; they stopped, just as unaccountably, after a few weeks. Gordon B., a professional violinist, could not stop his oppressive musical hallucinations, but he could control their course, shifting from one theme to another. Generally, such hallucinations were not welcome.

Then there are those who suffer from musicogenic epilepsy, in which convulsions are brought on by musical stimulation. What is remarkable is that the stimulus can be extremely specific; only particular types of music will provoke an epileptic seizure—it might be Frank Sinatra songs. In these cases, musical sensitivity is not a gift but a curse—the musical brain running amok, without regard for the well-being of its owner. Maybe, Sacks speculates, there is too much music these days, with the advent of recorded sound; maybe the human brain simply can't deal with this degree of musical bombardment and develops strange pathologies in reaction. Or maybe the music is just too *good*—in the sense of its power of psychological penetration.

The range of human musicality is also remarkable, descending from the musical genius to the completely amusical. (Vladimir Nabokov once confessed: "Music, I regret to say, affects me merely as an arbitrary succession of more or less irritating sounds.... The concert piano and all wind instruments bore me in smaller doses and flay me in larger ones.") Some people have perfect pitch, naming notes as easily as the rest of us can name colors, though they may lack musical taste and aesthetic appreciation. There are musical savants with unusually low general intelligence and poor linguistic capacity; Sacks recites the case of Martin, who was a retarded man but who knew by heart some two thousand operas (I didn't know there were that many operas). Some people are deaf to melody but can appreciate rhythm, and some have the reverse problem (Che Guevara apparently fell into the latter category). I myself have a very good rhythmic sense, being a drummer, but I cannot carry a tune, to my great chagrin. Blindness can often lead to unusual musical talent, as with Stevie Wonder, suggesting that the lack of visual stimulation allows the brain to develop in the auditory sphere.

Then there is the phenomenon of musical synesthesia, in which particular notes are associated with visual impressions: Sacks reports that for the composer Michael Torke, say, D major is associated with the color blue, and G minor with ochre. It has been speculated that infants are natural synesthetes, their senses not yet properly differentiated, and that we lose this capacity as we mature (at least most of us do). It may even be that musical talent is more widespread than we realize, because the brain works actively to suppress it; when the inhibition is released, the natural ability is free to flow.

The human memory for music is generally excellent; people can remember songs from their childhood, for example, with striking accuracy. The case of Clive Wearing provides a dramatic illustration of the resilience of musical memory, since he suffers from extreme and debilitating amnesia, yet retains a remarkable amount of his old musical memories. He has little long-term memory in general but he also cannot acquire new memories from his passing experience, so that everything seems unfamiliar from

second to second. It is a deeply disturbing predicament that Wearing is in, but at least he can still play and conduct music (he was an accomplished musicologist before the brain infection that destroyed his memory).

Wearing retains his musical "procedural memory," i.e., the kind that is manifested in practical skills, but he also retains his musical taste and appreciation. This suggests that musical memory is a distinct subsystem in the human brain, possibly widely distributed, and strongly resistant to degradation. Strange as Clive's case is, it reminds us of something we all know from our own experience: that musical memory has a power all its own. Moreover, musical memory connects with our sense of self, since musical taste and experience are closely linked to personality and emotion. The music we remember is, without exaggeration, part of who we are.

Perhaps this is why music therapy works as well as it does—another theme of Sacks's book. It taps into the deeper regions of the psyche, where emotion, memory, and self intersect. Musical therapy can help patients suffering from aphasia and Parkinsonism; and music can also modulate the ticcing behavior characteristic of Tour-ette's syndrome. Music can trigger movements that other stimuli cannot, sometimes producing coordination out of chaos. Sacks cites Tourettic jazz drummers who can channel their motor cascades into coherent rhythms, and therapeutic drum circles that bring together such individuals to synchronize their Tourettic energy.

The capacity of melody to soothe and rhythm to excite is obvious to anyone with musical sensitivity. Music is so intimately connected with emotion and movement that its power can be tapped to elicit both sorts of response. Music is known to excite the motor cortex even when the listener isn't actually moving, so closely linked are musical hearing and bodily movement. This is why sitting still at a concert goes so much against the grain for most people. Yet the propulsive power of rhythm, so evident in our everyday experience of music, is actually quite puzzling. Why should the mere regularity of a beat cause the body to jerk so? What is the precise relation between the temporal sequence of heard sounds and movements of the limbs and trunk? We don't respond that way to language and other sounds—so why to musical sounds?

The last part of *Musicophilia* discusses depression, dementia, and Williams syndrome. In severe depression, say after bereavement, music may lose its appeal, sounding flat and pointless. Yet, as Sacks reports from personal experience, it may also be the trigger that lifts profound depression. In dementia, dormant musical powers can be released, as the more cognitive functions deteriorate. In people with Williams syndrome, caused by a highly localized genetic defect, we find a combination of hypermusicality and cognitive limitation; such people also exhibit extreme friendliness to strangers combined with indifference and ineptitude with respect to the inanimate environment—being often unable to draw simple geometrical figures or even tie their own shoelaces. They show a unique blend of psychological strengths and weaknesses, with a corresponding divergence from normal in their brain structure (smaller than normal visual cortex and larger auditory cortex). Here brain physiology maps neatly onto psychological profile, thus dem-onstrating that the brain is indeed fate.

At one point in his discussion of music and the emotions Sacks has this to say:

States of ecstasy and rapture may lie in wait for us if we give ourselves totally to music; a common scene during the 1950s was to see entire audiences swooning in response to Frank Sinatra or Elvis Presley—seized by an emotional and perhaps erotic excitement so intense as to induce fainting.

I was struck by that "perhaps": not much perhaps about it, I would have thought. Sacks generally confines himself to classical music in this book, saying little specifically about jazz and rock music—unlike Levitin, who favors the latter over the former. Anyone would think Sacks had never seen the kind of response elicited by the Beatles and other rock bands: the raw power of music to excite and move (literally) is at its clearest in the case of these more recent musical forms—and its connection to the sexual never more unmistakable. But Sacks tends to treat all music as psychologically equivalent; at any rate, it might have been useful to ask how different musical forms affect the mind and brain. The increasing dominance of rhythm in popular music, at its starkest in rap music, must surely tell us something about how the human brain responds to music.

In Levitin's book there is a subtle and instructive discussion of the creation of *groove* in rock music, involving considerations of the listener's expectations and playing with the mental beat set up in his or her mind; it is not a simple matter of metronomic exactitude ("In the Midnight Hour" by Wilson Pickett, for example, has a powerful groove, resulting from several interleaving aspects of the song's sound). This is specific to one genre of music, and must involve special brain mechanisms. I doubt very much, based on introspection, that my brain responds the same way to classical and rock music—as is evident from my tendencies to movement in the two cases. People can be made to sit still at a classical music concert, but try doing that at a live rock concert and you would have a riot.

Sacks generally eschews theoretical speculation in *Musicophilia*, but he does raise one theoretical possibility that has influenced thinking about mind and brain from the great British neuroscientist Hughlings Jackson on, namely the notion of *disinhibition*. Sacks writes:

Normally there is a balance in each individual, an equilibrium between excitatory and inhibitory forces. But if there is damage to the (more recently evolved) anterior temporal lobe of the dominant hemisphere, then this equilibrium may be upset, and there may be a disinhibition or release of the perceptual powers associated with the posterior parietal and temporal areas of the non-dominant hemisphere.

This is an extremely intriguing theory, because it suggests that the brain contains untapped potential that is released only in unusual conditions. With damage to the left hemisphere, in which language is primarily located, the right hemisphere tends to come into its own. Blindness and deafness can result in an access of musical achievement, as the brain devotes itself to activities other than seeing and hearing. Strokes can result in newfound talents precisely because they turn off the inhibitory mechanisms in the brain. Synesthesia may be lurking within all of us, if only our brain weren't tamping it down all the time. Savants may get the way they are simply because they don't have the brain circuits that put clamps on the natural abilities we all share.

In other words, the brain is forever reining itself in, slowing itself down, suppressing its natural powers—all in order to preserve that precious equilibrium. Remove the abstract rational and linguistic structures and the suppressed portions of the brain can break free and flower. In the case of music, it may be that, despite our obvious musicality, we are potentially far more musical than we appear—if only our musical brain wasn't being held in check by the rest of our brain. This is why damage to the inhibitory parts of the brain can result in the release of our musical potential.

Admittedly, this theory is still rather speculative, and there is little direct physiological evidence in its favor, but it certainly has a prima facie appeal. After all, the structure of the human brain is the outcome of millions of years of evolutionary accretion, stretching back to our prehominid ancestors, and the newer portions may well have needed to dampen down the excesses of the earlier brains they augmented, in order to maintain the right kind of balance of psychological functions (Freud's special notion of repression is a version of this basic idea of cerebral inhibition and its release).

Although Sacks endorses the notion of a music instinct, he says little about why such an instinct might have arisen; but Levitin devotes an entire chapter to the subject. The answer he proposes, adapted from Darwin, is that musical performance works as a courtship display, thus falling into the category of Darwinian sexual selection (as distinct from natural selection). Musical ability is like the peacock's tail: a trait that advertises fitness and health, without directly aiding in the serious business of survival—a luxury that only the most vital can afford to possess.

The ability to sing and dance well, in particular, serves to attract mates, because it signals intelligence, agility, and emotional quality—though it may not always go with a propensity to long-term child-rearing commitment. Levitin conjectures that this is why male rock stars and their music are so erotically appealing, despite the poor prospects of such performers as dedicated husbands: they are tapping into the primordial power of sexual selection through musical display.

From this point of view, unusual musical ability looks like an evolutionary advantage, despite its oddity when considered purely as an adaptation to the environment. The reason we are a musical species is that

our success in the mating game depends upon it. In that respect, we are not so different from birds. The erotic power of music, so tentatively alluded to by Sacks, is therefore central to its prevalence in the human species. Why, after all, is the love song the most popular form of music in the world? Because love songs are about the very thing that the music instinct is designed for—the selection of mates.

Oliver Sacks's great success as a popular writer might seem to need some explanation. He writes mainly about people with neurological damage, and he can be dry and clinical, as well as technical. No doubt his fine literary style is part of the explanation—and there is in his work always a natural interest in the strange and abnormal.

But I think it goes deeper than that. He reminds us of our extreme psychological complexity, and of the fragility of the human mind. From the inside, the mind can seem simple and automatic, like a pearl in an oyster, but actually it all depends on the complex orchestration of the millions of neurons that compose our brains: and if anything goes even slightly amiss in the machinery the mind can be altered beyond recognition. This realization gives us the feeling that we are suspended over an abyss, totally reliant on the mechanics of the physical organ that sustains the self. That organ is marvelously impressive, but it is also alarmingly prone to breakdown and malfunction; just deprive a tiny part of it of oxygen for a few seconds and all hell can break loose at the level of the conscious self. It makes you feel nervous about your nerves, does it not?

Sacks is an expert at making the reader feel queasy in this way. But there is also, I think, a tacit ethical message in everything he writes: namely, that even in the midst of tremendous neurological upset there is still a human self throbbing within. The aphasic or the Touretter or the amnesiac or the catatonic is still a center of consciousness, capable of feeling and thought. The human mind can take many forms, Sacks is saying, and some can indeed appear bizarre and threatening, but there is always a self that underlies these myriad forms—and that self can sometimes enjoy virtues and powers not found in the normal.

His implied message is therefore one of tolerance and understanding. At one point he shows a flash of this moral sense, when discussing a book about Alzheimer's disease called *The Loss of Self*, by Donna Cohen and Carl Eisdorfer:

For various reasons, I deplored the title (though it is a very good book as a resource for families and caregivers) and set myself to contradicting it, lecturing here and there on "Alzheimer's Disease and the Preservation of Self."

The preservation of self: that could be the motto for all of Sacks's writing on neurological disorders. The so-called normal case is highly contingent, he seems to be saying, depending on the physical integrity of the brain beneath, and in what we refer to as the abnormal case we are still dealing with a self in the fullest sense. There is always an "I" there, someone to whom things matter; so long as there is consciousness at all, there is a subject of that consciousness. Even if you can't tell your wife from a hat, there is still a you that must deal with this disability. Ultimately, then, Sacks's clinical case studies are exercises in love and respect.

http://www.nybooks.com:80/articles/21059

What Makes Finnish Kids So Smart?
Finland's teens score extraordinarily high on an international test. American educators are trying to figure out why.
By ELLEN GAMERMAN
February 29, 2008; Page W1

Helsinki, Finland


Markku Ulander/Lehtikuva

High-school students here rarely get more than a half-hour of homework a night. They have no school uniforms, no honor societies, no valedictorians, no tardy bells and no classes for the gifted. There is little standardized testing, few parents agonize over college and kids don't start school until age 7.

Yet by one international measure, Finnish teenagers are among the smartest in the world. They earned some of the top scores by 15-year-old students who were tested in 57 countries. American teens finished among the world's C students even as U.S. educators piled on more homework, standards and rules. Finnish youth, like their U.S. counterparts, also waste hours online. They dye their hair, love sarcasm and listen to rap and heavy metal. But by ninth grade they're way ahead in math, science and reading -- on track to keeping Finns among the world's most productive workers.

The Finns won attention with their performances in triennial tests sponsored by the Organization for Economic Cooperation and Development, a group funded by 30 countries that monitors social and economic trends. In the most recent test, which focused on science, Finland's students placed first in science and near the top in math and reading, according to results released late last year. An unofficial tally of Finland's combined scores puts it in first place overall, says Andreas Schleicher, who directs the OECD's test, known as the Programme for International Student Assessment, or PISA. The U.S. placed in the middle of the pack in math and science; its reading scores were tossed because of a glitch. About 400,000 students around the world answered multiple-choice questions and essays on the test that measured critical thinking and the application of knowledge. A typical subject: Discuss the artistic value of graffiti.

The academic prowess of Finland's students has lured educators from more than 50 countries in recent years to learn the country's secret, including an official from the U.S. Department of Education. What they find is simple but not easy: well-trained teachers and responsible children. Early on, kids do a lot without adults hovering. And teachers create lessons to fit their students. "We don't have oil or other riches. Knowledge is the thing Finnish people have," says Hannele Frantsi, a school principal.

Visitors and teacher trainees can peek at how it's done from a viewing balcony perched over a classroom at the Norssi School in Jyväskylä, a city in central Finland. What they see is a relaxed, back-to-basics approach. The school, which is a model campus, has no sports teams, marching bands or prom.

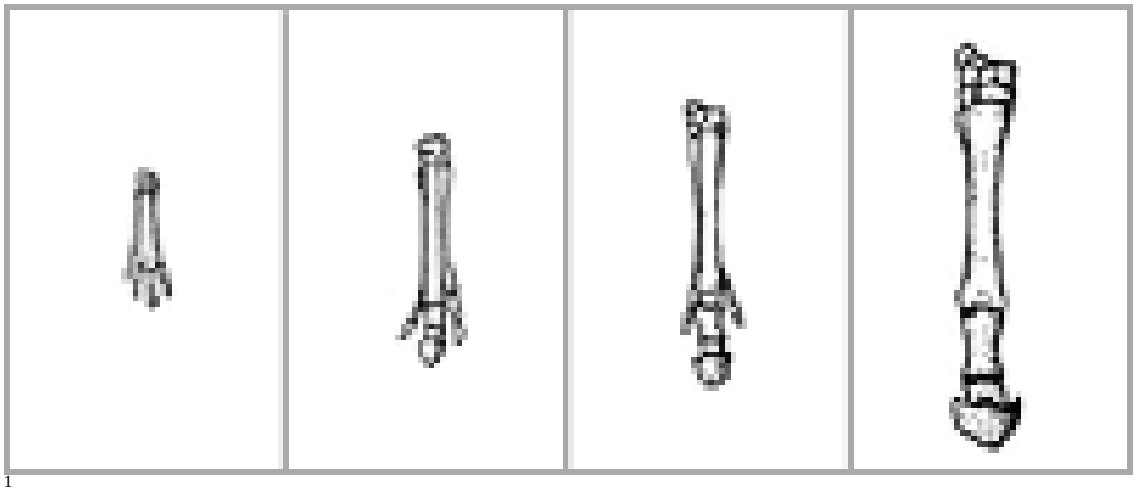
Trailing 15-year-old Fanny Salo at Norssi gives a glimpse of the no-frills curriculum. Fanny is a bubbly ninth-grader who loves "Gossip Girl" books, the TV show "Desperate Housewives" and digging through the clothing racks at H&M stores with her friends.

Fanny earns straight A's, and with no gifted classes she sometimes doodles in her journal while waiting for others to catch up. She often helps lagging classmates. "It's fun to have time to relax a little in the middle of class," Fanny says. Finnish educators believe they get better overall results by concentrating on

weaker students rather than by pushing gifted students ahead of everyone else. The idea is that bright students can help average ones without harming their own progress.

At lunch, Fanny and her friends leave campus to buy *salmiakki*, a salty licorice. They return for physics, where class starts when everyone quiets down. Teachers and students address each other by first names. About the only classroom rules are no cellphones, no iPods and no hats.

TESTING AROUND THE GLOBE



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Every three years, 15-year-olds in 57 countries around the world take a test called the Pisa exam, which measures proficiency in math, science and reading.

• **The test:**[2] Two sections from the Pisa science test
http://s.wsj.net/public/resources/documents/WSJ_080228_sciencetest.pdf

• **Chart:**[3] Recent scores for participating countries
http://online.wsj.com/public/resources/documents/info-FINN080229-sort.html?s=1&ps=false&a=up

Fanny's more rebellious classmates dye their blond hair black or sport pink dreadlocks. Others wear tank tops and stilettos to look tough in the chilly climate. Tanning lotions are popular in one clique. Teens sift by style, including "fruittari," or preppies; "hoppari," or hip-hop, or the confounding "fruittari-hoppari," which fuses both. Ask an obvious question and you may hear "KVG," short for "Check it on Google, you idiot." Heavy-metal fans listen to Nightwish, a Finnish band, and teens socialize online at irc-galleria.net.

The Norssi School is run like a teaching hospital, with about 800 teacher trainees each year. Graduate students work with kids while instructors evaluate from the sidelines. Teachers must hold master's degrees, and the profession is highly competitive: More than 40 people may apply for a single job. Their salaries are similar to those of U.S. teachers, but they generally have more freedom.

Finnish teachers pick books and customize lessons as they shape students to national standards. "In most countries, education feels like a car factory. In Finland, the teachers are the entrepreneurs," says Mr. Schleicher, of the Paris-based OECD, which began the international student test in 2000.

One explanation for the Finns' success is their love of reading. Parents of newborns receive a government-paid gift pack that includes a picture book. Some libraries are attached to shopping malls, and a book bus travels to more remote neighborhoods like a Good Humor truck.

Finland shares its language with no other country, and even the most popular English-language books are translated here long after they are first published. Many children struggled to read the last Harry Potter book in English because they feared they would hear about the ending before it arrived in Finnish. Movies and TV shows have Finnish subtitles instead of dubbing. One college student says she became a fast reader as a child because she was hooked on the 1990s show "Beverly Hills, 90210."

In November, a U.S. delegation visited, hoping to learn how Scandinavian educators used technology. Officials from the Education Department, the National Education Association and the American Association of School Librarians saw Finnish teachers with chalkboards instead of whiteboards, and lessons shown on overhead projectors instead of PowerPoint. Keith Krueger was less impressed by the technology than by the good teaching he saw. "You kind of wonder how could our country get to that?" says Mr. Krueger, CEO of the Consortium for School Networking, an association of school technology officers that organized the trip.

Markku Ulander/Lehtikuva

Ymmersta school principal Hannele Frantsi

Finnish high-school senior Elina Lamponen saw the differences firsthand. She spent a year at Colon High School in Colon, Mich., where strict rules didn't translate into tougher lessons or dedicated students, Ms. Lamponen says. She would ask students whether they did their homework. They would reply: " 'Nah. So what'd you do last night?'" she recalls. History tests were often multiple choice. The rare essay question, she says, allowed very little space in which to write. In-class projects were largely "glue this to the poster for an hour," she says. Her Finnish high school forced Ms. Lamponen, a spiky-haired 19-year-old, to repeat the year when she returned.

Lloyd Kirby, superintendent of Colon Community Schools in southern Michigan, says foreign students are told to ask for extra work if they find classes too easy. He says he is trying to make his schools more rigorous by asking parents to demand more from their children.

Despite the apparent simplicity of Finnish education, it would be tough to replicate in the U.S. With a largely homogeneous population, teachers have few students who don't speak Finnish. In the U.S., about 8% of students are learning English, according to the Education Department. There are fewer disparities in education and income levels among Finns. Finland separates students for the last three years of high school based on grades; 53% go to high school and the rest enter vocational school. (All 15-year-old students took the PISA test.) Finland has a high-school dropout rate of about 4% -- or 10% at vocational schools -- compared with roughly 25% in the U.S., according to their respective education departments.

Another difference is financial. Each school year, the U.S. spends an average of $8,700 per student, while the Finns spend $7,500. Finland's high-tax government provides roughly equal per-pupil funding, unlike the disparities between Beverly Hills public schools, for example, and schools in poorer districts. The gap between Finland's best- and worst-performing schools was the smallest of any country in the PISA testing. The U.S. ranks about average.

Finnish students have little *angstata* -- or teen angst -- about getting into the best university, and no worries about paying for it. College is free. There is competition for college based on academic specialties -- medical school, for instance. But even the best universities don't have the elite status of a Harvard.

Taking away the competition of getting into the "right schools" allows Finnish children to enjoy a less-pressured childhood. While many U.S. parents worry about enrolling their toddlers in academically oriented preschools, the Finns don't begin school until age 7, a year later than most U.S. first-graders.

Once school starts, the Finns are more self-reliant. While some U.S. parents fuss over accompanying their children to and from school, and arrange every play date and outing, young Finns do much more on their own. At the Ymmersta School in a nearby Helsinki suburb, some first-grade students trudge to school through a stand of evergreens in near darkness. At lunch, they pick out their own meals, which all schools give free, and carry the trays to lunch tables. There is no Internet filter in the school library. They can walk in their socks during class, but at home even the very young are expected to lace up their own skates or put on their own skis.

Markku Ulander/Lehtikuva

Students at the Ymmersta School near Helsinki

The Finns enjoy one of the highest standards of living in the world, but they, too, worry about falling behind in the shifting global economy. They rely on electronics and telecommunications companies, such as Finnish cellphone giant Nokia, along with forest-products and mining industries for jobs. Some educators say Finland needs to fast-track its brightest students the way the U.S. does, with gifted programs aimed at producing more go-getters. Parents also are getting pushier about special attention for their children, says Tapio Erma, principal of the suburban Olari School. "We are more and more aware of American-style parents," he says.

Mr. Erma's school is a showcase campus. Last summer, at a conference in Peru, he spoke about adopting Finnish teaching methods. During a recent afternoon in one of his school's advanced math courses, a high-school boy fell asleep at his desk. The teacher didn't disturb him, instead calling on others. While napping in class isn't condoned, Mr. Erma says, "We just have to accept the fact that they're kids and they're learning how to live."

Write to Ellen Gamerman at ellen.gamerman@wsj.com[5]

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(5) mailto:ellen.gamerman@wsj.com

ARTS AND THE ECONOMY
Conference to explore how to capitalize on arts districts

Sunday, March 02, 2008
Karen Sandstrom
Plain Dealer Reporter

Even the most exuberant Cleveland booster would have to agree that this city is no Paducah, Ky.

Over the last eight years, the modest little town some 500 miles away has attracted 70 new residents -- artists who have responded to incentives to buy and improve homes and convert buildings into galleries and work spaces. Paducah has become an unlikely tourist mecca.

How to translate such activity to Cleveland and similar cities will lie at the heart of "From Rust Belt to Artist Belt," a daylong conference here for developers, real estate professionals, lenders and community development corporations.

The conference will be presented from 8 a.m. to 5 p.m. Wednesday, May 14, by the Community Partnership for Arts and Culture, a nonprofit agency that provides research and educational programs to strengthen the local arts community. The conference will be at the Levin College of Urban Affairs.

Topics will include the marketing and branding of artist districts, finances and legal matters, and how to engage artists in the development of the districts. Although the conference is being advertised to those on the "supply side" of housing and development, it is open to anyone, said CPAC President Thomas B. Schorgl. Organizers hope to draw about 100 people from Northeast Ohio and another 100 from other states.

"From Rust Belt to Artist Belt" grew out of the organization's Creative Compass project, which aims to link artists to affordable real estate, both as a way to increase home ownership among artists and to take advantage of the arts as an economic development tool.

Despite being more than two hours from bigger cities like Nashville, Tenn., and St. Louis, Mo., Paducah's award-winning Artist Relocation Program has lured artists to transform its once-blighted Lowertown neighborhood.

The area thrives with galleries and retail shops and has become an international model for such development. Artists have moved there from other states because of attractive housing deals and the opportunity to live near other artists.

Similar activity is percolating in some Cleveland neighborhoods. Tremont, the Gordon Square Arts District in the Detroit-Shoreway neighborhood and the Waterloo Road district in North Collinwood all have benefited from artists who have been buying and improving older, sometimes dilapidated buildings, forming creative enclaves along the way.

But there's still much to teach about establishing a critical creative mass, said Seth Beattie, program manager at CPAC.

Certain neighborhoods and types of real estate work better for artist districts, and different types of artists have different housing and work needs.

Schorgl notes that Cleveland has about 32 community development corporations, each with its own characteristics. The districts work best, he says, when they capitalize on what they have and develop their own identity. A neighborhood with a vacant theater as a hub might draw more dancers or performing artists, for instance.

"We're not talking about creating 32 Tremonts," he said.

Beattie said the organization hopes to attract people from as far as Missouri, Wisconsin and Illinois, as well as Kentucky, Pennsylvania and New York.

Visitors also will be encouraged to attend the Pop Up Arts District, a program that will bring artists to vacant storefronts along two blocks of the Gordon Square Arts District for exhibitions and performances running from 6 to 10 p.m. the night of the summit. The purpose is to demonstrate the vitality artists bring to a neighborhood.

CPAC also plans a two-day Creative Compass summit later this year that will include a housing fair and information on topics such as credit and mortgage options.

To reach this Plain Dealer reporter:

ksandstrom@plaind.com, 216-999-4810

http://www.cleveland.com/entertainment/plaindealer/index.ssf?/base/entertainment-0/1204365357315190.xml&coll=2

50 arts secrets revealed

Do directors find sex scenes embarrassing? Is the urinal in my local pub art? How does a triangle player make a living? What's the difference between pornographic and erotic photos? Our experts from the worlds of music, literature, film and art answer those intriguing questions you've always wanted to ask. Interviews by Ally Carnwath, Tom Templeton and Katie Toms

Ally Carnwath, Tom Templeton and Katie Toms
Sunday March 2, 2008

Observer

Pop

The experts: **Sam Duckworth** (Get Cape. Wear Cape. Fly) singer; **Roísín Murphy** singer; **Nitin Sawhney** producer/composer; **Will Young** singer

Can you ever be too old to be a pop star?

SD: I would hate there to be a time when all music on the radio is made by under-25s. There's only so much youthful exuberance you can take.

RM: I'm getting to the point now where it's: can I go on without having plastic surgery?

WY: No. Tony Bennett is one of my favourite popstars.

Q What is the difference between a producer and an engineer?

SD: The producer oversees the sound of a record and the feel. The engineer makes sure that the sound quality is good. An engineer says: 'Can you move the mike a little bit closer so you get a better sound?' The producer says: 'How about we just put the mike there and we'll get a good vibe?'

RM: Producers are always quite parental; it's just a case of whether you have a fearful parental relationship or a nurturing one. An engineer is never parental, he comes under the producer's guidance.

NS: One twiddles knobs and faders whilst the other pretends to know why.

WY: A producer directs music, an engineer facilitates it.

Q Can modern equipment make any voice sound great?

SD: No, though you can make any voice sound in tune. There are two expressions - neither of them too savoury - that both get used in the studio: 'You can't polish a turd' and: 'Put shit in, you get shit out.'

RM: No voice is perfectly in tune down to the last decimal point, but a pitch bend can give it that digital sound. But a really good voice has got nothing to do with what's going on in the singer's throat, it's about what's going on in their head and their heart. You can't create that.

NS: I normally use a combination of compressors, graphic equalisers, reverb and 'auto-tune' to get singers to sound natural!

WY: Yes, modern equipment can make any voice sound great just as modern surgery can make any LA octogenarian look 'great'. Whether it is right, however, is another matter!

Q What is the Wall of Sound?

RM: That was Phil Spector who put a tunnel of reverb on everything. The original reverbs were actual physical tunnels that you'd send the sound down and then rerecord it as it travelled in the space. Spector would throw everything down one of those.

NS: Bloody loud! Mainly because it consists of multi-layered tones generated by lots of guitars simultaneously playing the same part. The same effect can be achieved by upsetting vast numbers of babies.

Q When do artists mime?

SD: You have to mime for video shoots. It's like doing singalong songs - you're not leading it, you're being led. For some TV shows, I've done live vocal to track where you mime your instrument and you sing live. It's one of those horrible things you have to do if they are trying to shoot a show with six bands in one day - it's a time thing but the energy of a live performance isn't there.

Q Toilet venues or stadiums - which are really more satisfying to play?

SD: Arenas are good for the ego and toilet venues are good for the soul. It depends whether you want to be famous and a star or you want to connect with people. It's great to play to loads of people, but if you can't see everyone in the venue, it's really hard.

RM: Toilets are tricky if you're trying to do something as big and glamorous as I try to do. As for stadiums, they are hard to fill with your presence; 2,000 to 6,000 capacity venues are ideal for me.

Classical

The experts: **Nicholas Kenyon** managing director, Barbican; **Sarah Willis** French horn, Berlin Philharmonic

Q How does the orchestra's triangle player earn a living?

NK: No one in an orchestra is paid by how many notes they play. They're paid, and rightly so, for the amount of time they spend in rehearsal and on stage. You might think a triangle player's job was pretty easy compared to, say, a first violin, but just think of counting all those bars' rest and what happens if you come in wrong...

SW: To be a member of the percussion section, you have to be an expert at 35 different instruments. As a member of the orchestra, he gets the same salary as the rest of us rank-and-file members, or 'tutti' as we are known.

Q What does a conductor do?

NK: Nothing, that's the point. He or she does nothing in sonic terms, while the orchestra players actually do everything and make all the sounds. But the conductor is the central point in the audience's relationship with the music, which I suppose is why they tend to get paid so much.

SW: From the outside, it looks like when he waves his arms we play and when he doesn't we stop. In fact, he interprets the piece. There's a lot of latitude within a score as to how to play things - the speed, the tone, the dynamics, the manner. So if you listen to recordings of Beethoven's fifth symphony, each one is different. I once asked Simon Rattle whether he'd noticed a player dropping their instrument and he said: 'I had my eyes closed, I was too busy interpreting.'

Q What do orchestras do to unwind?

SW: The strings practise all of the time, the wind players scrape on their reeds all day, the percussionists worry about counting bars and the brass players put away the most beer.

Q How can we tell if a piece of music has been played well?

NK: I think the audience senses subliminally if a performance is going well or badly.

SW: When a long solo has just been played look at the orchestra's feet. If they shuffle them or stick their leg out that's their discreet way of saying to their colleague 'well done'.

Q How come many opera singers are so thin these days?

NK: One of the positive things that's happened in opera in recent years is that great acting and dramatic commitment have become as important as great singing; the era of sometimes glorious noise accompanied by lumpen, unconvincing drama is over. We're getting away from the cliche that opera is just the fat lady singing, and there's a premium on opera singers who fit their roles well visually as well as vocally - though of course this can be done by singers large and small.

Books

The experts: **AL Kennedy** author; **Michael Morpurgo** author; **Rebecca Stott** author and professor of creative writing at UEA

Q Is it always better to write about what you know?

ALK: This idea has always alarmed me, given my awareness that I know very little. That and I've always found that writing about things I find interesting and can learn about gets me out of the house and means I can be an asset in pub quizzes. Write about what you want to write about.

MM: If you don't know about it, you go and find out about it. It's in the research process that I find inspiration. I'm much more comfortable writing about the landscapes around me in Devon or the Isles of Scilly or a period of history I'm familiar with, but I'm also inspired to write about new places and new periods of history.

RS: Yes, but what we know we know in wildly different ways. We might know about how to tie knots or what it is like to work in a factory or a pub, or what heartbreak feels like, but we also know things imaginatively, empathetically and intuitively through the other lives we lead in books, films, poetry and non-fiction.

Q Do children's books have to take the children's side?

ALK: They all take the children's side - they tell the sticky, wriggly little scamps a story. They're a treat - one that doesn't make the nippers violent and/or fat. Do any kinds of books need to endlessly stroke their readers' egos? I'd hope not.

MM: It's fair to say that a child should be central, but it mustn't be written as if it's going to be read by children; you don't make concessions to them. The most important thing is to be full of insights about yourself and other children. Books need to make children feel they're part of the world, not a separate tribe.

RS: No. Good books push our allegiances and our judgments by making us see sides of things that are sometimes uncomfortable. A character in a Robert Browning poem once said: 'Our interest's on the dangerous edge of things. The honest thief, the tender murderer, the superstitious atheist.' I'm with him on this.

Q Why don't we read short stories in Britain?

ALK: That's like saying I don't like pandas because I don't spend much time with them. We do read short stories; it's amazing how much we read them, when we rarely know they've been published, because they aren't reviewed. We can't find them in bookshops and rarely see them in magazines.

MM: Sometimes, if you hand in a work to a publisher and it's short, they look disappointed. I think we've got hung up on big. There's a perception that for a novel to be worthwhile, it has to be 500 or 600 pages. Some of the best - Frank O'Connor, Guy de Maupassant, Paul Gallico - knew how to create an entire world in a few thousand words.

Q Does everyone have a novel in them?

ALK: They have all kinds of things in them - liver, spleen, perhaps recklessly inserted lightbulbs. Whether you want any of those things to be removed and then sold to strangers is the question.

MM: I don't know, but I do think that everyone has a story to tell. The question is, can they find the voice and the confidence to tell it? We lack the encouragement as young people to believe this; we very often think that writing is for clever people, which it isn't.

Q How many unpublished novels are written every year?

MM: God knows. But what's really good is that there are people making stories and writing them and the vast majority never see the light of day and it doesn't matter a fig. Stories are there to be told and the point is the doing of it, not whether it gets published or not.

RS: There's no way of knowing. More than ever probably, because of creative writing courses. Someone once told me that one in four Radio 4 listeners has either started or completed a novel. That's a lot.

Q How long does it take to write a novel?

MM: I spend months, sometimes years, doing what I call dreamtime, weaving it together inside my head. But when I actually feel that the egg of my story is ready to hatch, then I can write it in three months. Then I know the landscape and the people well and from the inside, but I don't necessarily know where the story is going to take us.

RS: It takes me about two years for each book I write but then I have a day job. The whole premise and story of Ghostwalk came to me in a 45-minute taxi journey heading towards an airport in thick fog at 5am. The research took several months. The first half took six or eight months to write, piece by piece; the second half, written in a silent writing retreat in a 15th-century Scottish castle, took less than a month. Then a year of editing, checking of facts, copy-editing and proofreading.

Q Has anyone read Finnegans Wake from cover to cover?

RS: I know of a reading group in Scotland who read a few pages of it every few weeks and meet to discuss those pages over a few pints, for pleasure. If they'd invite me, I'd go.

Q How much money does a jobbing novelist make?

ALK: As much as his/her job earns. The novel won't make much.

RS: Usually not enough to live on. Most novelists I know have to supplement their incomes by teaching or journalism.

Drama

The experts: **Alistair Beaton**playwright; **Gurinder Chadha** director; **Benedict Cumberbatch** actor; **Miriam Karlin** actor; **Elizabeth McGovern** actor; **Daniel Mays** actor; **Michael Winner** director

Q Are sex scenes as uncomfortable for directors as for actors?

GC: Yes. I'm a good Indian girl, I still don't do sex scenes in my movies because my mum would kill me!

MW: They weren't uncomfortable for me except when Marlon Brando insisted on wearing pants and Wellingtons when he was meant to be naked having sex with Stephanie Beacham in an erotic scene in The Nightcomers. The cameraman kept calling 'pants' or 'Wellington boots', indicating they were in the shot. The minute I said 'cut' I was on the floor crying with laughter. The scene came out superbly.

Q How do actors remember their lines?

AB: Sometimes they don't. At its worst, this means they 'dry' and silence descends. More commonly, the original lines are paraphrased in some alarming way. It's hard to say which is more painful for the author. Less serious, but quite irritating is to hear the word 'Well' inserted at the beginning of speeches.

BC: With difficulty. Few of us have photographic memories. In rehearsals, repetition, 'actioning' the script, a Stanislavski-based method of understanding the why, what and how of the part by applying transitive verbs to each line, association with that action, the cue line and any blocking all act as triggers to remember the line. Dictaphones are helpful for learning cues. Another indispensable help is a patient assistant director or girlfriend.

DM: You rely on each other. I did Ladybird at the Royal Court, a really fast-paced ensemble piece with tons of quickfire dialogue, and suddenly we all just stopped. No one had any idea whose turn it was to speak. The silence lasted for about a minute, but then we found our way.

EM: People think it's hard but it's actually one of the easiest things in the world. During rehearsals, you explore why your character says a certain thing at a certain time, then your character will want to say a line at a given time.

Q What do actors do in the intervals?

AB: Drink tea. There was, of course, a certain production of Much Ado where two household names were believed to use the interval for intimate encounters.

BC: I tend to have a cup of tea, try to stop worrying about what I did wrong, cool down and will the audience back in as soon as possible.

DM: Some have a fag, some a cuppa.

EM: At the beginning of a long-running play, everyone's nervous and paces around in a panic and reapplies lipstick. After a while, you'll get long-running card games or word games like Boggle.

Q Is the booze on stage ever booze?

EM: Not unless someone's pulled a fast one. They often use ginger ale for champagne. With whisky, they drop something into water to colour it and red wine is generally grape juice.

Q What's the hardest accent to adopt?

BC: Welsh. I can always guarantee a laugh from my girlfriend when I try it.

DM: I can do them all apart from Welsh. I always try it on my girlfriend, but I just end up sounding Indian.

Q Does the show always go on?

AB: Nearly always. A production without understudies can be a worrying experience. Writer, director and producer then develop a sudden and suspiciously intense concern for the well-being of the cast.

BC: Not always. I've worked in London's Regent's Park, where the elements sometimes win, but in true British spirit it has to get really wet and dangerous before the show is stopped. I once lost my voice playing Orlando after whispering the words: 'I cannot speak to her!' which got a laugh from the one person in the 1,000-strong Regent's Park crowd who heard it.

I've also been sick before a show, during a show and after a show, but still managed to do it. Doctor Theatre is a strange, adrenaline-fuelled cure.

MK: The rules are that if the cast outnumbers the audience then you don't have to play. There was a day in the Fifties when we had the worst smog that London has ever known. I was in a fringe play and only two audience members turned up. I called a little Equity meeting and I said: 'Look, those two chaps have come through this smog, the least we can do is play.' So we did. When I got home, my darling grandfather died that night - one of thousands of smog victims.

Q Is education theatre's noblest function?

AB: No. Theatre can entertain, provoke, challenge, investigate, comfort and educate. It's arrogant of a playwright to think education is more important than anything else. Writing for the theatre does not give you permission to lecture, hector or bore.

Q Where does the word 'luvvie' come from?

AB: No idea. It's a word I hate.

BC: Not remembering people's names, I suspect.

Q Do star actors audition?

GC: If a good actor wants a role, they'll do whatever it takes to get the pa rt. Directors are the same. We do 'meetings', not auditions: that tells you a whole lot more about an actor, too.

DM: No. I don't think Ian McKellen and Judi Dench have to audition for theatre. Everyone knows what they can do. Also they are going to guarantee bums on seats.

MW: Star actors do not audition unless there is a strange and specific reason such as my friend Marlon Brando testing for The Godfather to show he could act and look much older than he was. In reality, stars audition the director to see if they want to work with him.

Q How long should a film pitch be?

GC: The shorter the better. It doesn't matter how complex your plot or your characters are; you have to be able to express the big idea of a film in a sentence or two.

MW: A pitch is the most horrific part of film-making. If the pitch is just a precis it may take only a week or so to work out and write. If it's a full script it can take anything from a few weeks to a few years. If it's a script it has to be upwards of 120 A4 pages. If it's a precis it could be half a page! It took me two days to get the script of Hannibal Brooks from a pitch to a firm 'go ahead'. It took six years to get Death Wish okayed because all the distributors said you couldn't possibly make a film where the hero was a citizen killing other citizens. Now they lecture on it in America as a breakthrough film.

Q What kind of book transfers well to the screen?

GC: You need a protagonist with a strong point of view who immerses you in a specific world; a great plot helps.

MW: Simple ones. Books tend to meander on forever. If acted aloud, they'd go on for 24 hours. Films need a clearer, shorter plot line. So some marvellous books fall flat as movies and some lesser books translate more easily.

Q Whose vision does the audience get closest to seeing?

AB: British theatre allows the writer's voice to be heard clearly. This is not the case in Germany, for example, where Regietheater rules and the director is inclined to show scant respect for both text and stage directions. In the end, a good production has to be a collaboration.

Comedy

The experts: **Josie Long** stand-up comic; **Ben Miller** comedian and actor

Q Are all comedians secretly depressives?

JL: There definitely is truth to the crying clown thing. I did start trying to make people laugh because I was a big heifer of a girl and I thought if I could make people laugh about how awkward I am, it'd make me less awkward. But you also realise how fun it is to make people laugh.

BM: My theory about comedians is that their greatest fear is other people laughing at them. So comedy is an attempt to control and manipulate the thing they find most frightening.

Q What makes a joke funny?

JL: Surprise makes a joke funny. I love it when someone tells me something I couldn't possibly have expected; you've been led along one path and - bang! - the joke comes out of nowhere.

BM: There are practical things which contribute to a joke's funniness. People will find a joke funnier if they are sitting closer together, if it's cold (they get too comfortable if they're warm), if they've paid and if they are told it's funny beforehand.

Q Do you enjoy heckles?

JL: Not when a second before I deliver the punchline they shout out a worse one - that just annoys everyone. But you can get really beautiful heckles. It's funny when they are well-informed. One of my comedian friends has got a joke about thermodynamics and he got heckled with the law of thermodynamics.

BM: It depends on the situation. Virtually everything you say in response to a heckler will get a laugh because a heckle makes the audience very nervous. But I've been heckled in a play and that's difficult. I stopped the play and said: 'Who's heckling? How much did your seat cost? Well, here's 10 quid. Now fuck off.'

Q Should some topics be off-limits for comedians?

JL: It's complicated. A lot of the time it's about deliberately flirting with the edge. I saw one show where a comedian asked: 'Who here has been abused?' Someone put their hand up and said: 'Yeah, actually. I was raped by my uncle' and she was in tears. It was the most horrible atmosphere I've ever been a part of.

BM: Whatever happens in life can happen on the stage, but as a comedian you should always be clear what your target is. It's fine to be gratuitously tasteless if that's what you are intending to do. It's that old line: I don't defend what a comedian might say but I defend to the death his right to say it.

Q Is it hard to keep a straight face during comedy scenes?

BM: Definitely. It's considered really bad form to laugh at someone else because you can ruin their best take. But sometimes it's very hard not to.

Q Do comics read the critics?

JL: I try my hardest not to. The trouble with stand-up is it sort of is you and yet it isn't you and it's incredibly hard not to take everything said about you personally. I would never Google my own name; I don't want to hear people being mean about me.

BM: If you don't, you're missing an opportunity to learn. In 1993, we had a review of our show which said: 'Armstrong and Miller have invented a new kind of comedy. One which isn't funny and has no jokes whatsoever.' I thought: 'Oh my God!' But then I thought: 'I've just been told I'm absolutely shit at this and yet I want to do it anyway.' It was a very liberating moment.

Photography:

The experts: **Mark Haworth-Booth** Visiting professor of photography at University of the Arts London; **Martin Parr** Magnum photographer

Q Are photographs artworks?

MHB: You can make a work of art with photography, just as you can make one by painting or writing. Or you can use it for some other purpose - like making a passport photo, just as you can use painting to create a nicer bathroom or writing to do a shopping list. It depends what you use a medium for - and then how talented you are.

MP: Photography is Art and Art is Photography.

Q Does the quality of a picture relate to the quality of the camera?

MHB: Technically - yes (depending on the proficiency of the photographer); aesthetically - not necessarily.

MP: Not at all. One of the best projects of the decade was Richard Billingham's Ray's a Laugh - photos of his dysfunctional family taken on a compact camera. Also remember the terrible quality images from Abu Ghraib that had a profound effect on our reading of the American troops in Iraq. They were barely-in-focus snaps.

Q What's the difference between pornographic and erotic photos?

MHB: The first is intended solely to provoke desire, the second is an expression of desire. The word nude, as opposed to naked, is important too: there are family snapshots or anthropological photographs of naked bodies that are not pornographic. It is generally not hard to separate the different kinds in practice.

Q Would Henri Cartier-Bresson have used colour and digital?

MHB: He did use colour in a number of photo-essays in the 1950s, but greatly preferred black and white, which gave him greater aesthetic control and enhanced expressive effects. During the important part of his career he spent as a photojournalist, working remote from the magazines based in Paris, London and New York, instant digital transmission would have been vital. More generally, I think he would have enjoyed the latitude, in terms of working in low light, of digital photography too.

MP: If HCB had been born even 20 years later, he probably would be using digital. Even the oldest Magnum members are either dabbling with digital or have switched right over. You have to be very conservative not to try this these days, as the technology has improved so dramatically in the last few years.

Q Do you have to ask people's permission to take their pictures?

MHB: It is advisable these days if you want to publish or exhibit the photos.

MP: Sometimes it feels right to ask, but I will not ask, unless it is essential to do so. If you asked all the time, you would miss everything. With the exception of portraits, it is generally bad news if people are looking at the camera.

Q Are photos realistic?

MHB: They are often realistic and they can indeed be true, but can also be the opposite. Photography is a highly elastic medium. In River Scene, France (1858), Camille Silvy selected and positioned all of the people in the photograph and added a sky from a completely different negative.

MP: Photographs are interpretations of reality; as such, it is entirely subjective. Most photos are taken with an agenda, to sell something or to make a subject look better than it really is. Think of family snapshots - everyone is smiling and happy.

Art

The experts: **Ekow Eshun** director, ICA; **Grayson Perry** artist; **Matthew Slotover** editor, Frieze magazine

Q Is the urinal in my local pub a work of art?

EE: No, sometimes a urinal really is just a urinal.

GP: Yes. I have just declared it so, but unlike Duchamp's fountain, mine is a very derivative, childish and boring work of art.

MS: No - Duchamp's urinal was art once he put it in a gallery. In fact, one working definition of art is anything that is in a gallery.

Q Are we now post-postmodern?

GP: We are if it satisfies your need to categorise everything. Contemporary art often plays to the part of us that is very uncomfortable with not being sure, that cannot maintain a state of 'don't know'. The over-

prioritising of meaning gets in the way of just experiencing the art in a more sensual way. Judging quality purely from an intuitive emotional response needs more confidence and experience than just working it out like a crossword clue.

Q Why are there so few great female painters?

EE: Ask Frida Kahlo. Or Georgia O'Keeffe. Or Bridget Riley.

GP: Marlene Dumas and Paula Rego might take exception to this question. Desmond Morris says that men make better artists because they are greater risk-takers; on the other hand, he thinks that women are better organisers and diplomats and more suited to become politicians.

MS: Art (and society) was a lot more subject to sexism 50 years ago than it is now. Since that period, there have been plenty of very good female painters, 2006 Turner Prize-winner Tomma Abts among them. How much history needs to pass before an artist is called 'great'? That is the real question.

Q When does a movement become a movement?

MS: Movements are overrated and invented by the press. Ask any artist if they feel or felt part of a movement - the good ones will all say no.

Q Can you make a great work of art accidentally?

EE: That's like asking whether you can write a great book or shoot a great movie accidentally. Even splashing paint across a canvas takes effort and concentration if you want to end up with something meaningful and lasting.

GP: Yes, definitely, but recognising it as a great work takes great talent.

MS: Art is about the context in which it is made as much as the object itself; objects take on different meanings in different contexts. If the artist is unaware of the context, it's very unlikely the work will be very good.

Q Can graffiti be a work of art?

MS: Graffiti is something written on a wall, and, of course, art can be exhibited or produced anywhere: a wall is just another venue. Banksy's work is achieving very high prices at present. He's making paintings for private collectors, but I'm not seeing museum shows of his work yet. All good artists think about their audience and I do think that Banksy's work is fantastically arresting when you see it. Street art is designed to be seen out of the corner of your eye, on the hoof. Art that's made for galleries is made to be looked at in a more static way for a longer period of time and may not be so striking immediately, but perhaps resonates for a longer period. But the term 'work of art' is being used here as the pinnacle of visual culture which is not a correct assumption. Is graffiti as important culturally as Picasso? Now that's a very interesting question.

Q Does great art always have something to do with suffering?

EE: That's a myth perpetrated by the Romantics that still lingers on today. These days, most artists aren't starving in their garrets. In fact, when was the last time you even saw an artist in a garret?

GP: It is true that there are not many smiling faces in modern art galleries. Happy art is much harder to make. Art and humour are uneasy bedfellows. Artists need strong feelings to motivate them to make things. I am often fuelled by anger.

Contributors

Get Cape. Wear Cape. Fly's single 'Find the Time' is out 3 March. It is from the album Searching for the Hows and Whys, out 10 March (Atlantic Records).

Gurinder Chadha's new film Angus, Thongs and Full Frontal Snogging is out on 25 July.

Benedict Cumberbatch appears in The City by Martin Crimp at the Royal Court Theatre, London, from 24 April.

The ICA is showing the exhibition Double Agent until 6 April

Miriam Karlin's autobiography Some Sort of a Life (Oberon Books) is out now. She is appearing in the film Flashbacks of a Fool, out 18 April.

AL Kennedy's novel Day (Weidenfeld and Nicolson) is Costa book of the year.

Elizabeth McGovern stars in Freezing, out on DVD on 31 March.

Daniel Mays is appearing in Scarborough at the Royal Court Theatre, London. He can also been seen in The Bank Job, and in BBC2's White Girl on 10 March.

Michael Morpurgo's novel Born to Run (HarperCollins) is out now.

Rebecca Stott's novel Ghostwalk (Weidenfeld and Nicolson) is out in paperback now.

Michael Winner's The Fat Pig Diet (JR Books) is out now.

http://arts.guardian.co.uk/theatre/news/story/0,,2261381,00.html

You want the brutal truth? Concrete can be beautiful
Stephen Bayley
Sunday March 2, 2008

Observer

Late 1960's GLC housing at Robin Hood Gardens, Poplar

We have a special prejudice about materials. The Japanese have Zen words to describe the beautiful way in which stone, wood and other natural materials age and patinate, acquiring charm and character as they deteriorate. We lack that. No one has yet coined a term, at least not a favourable one, to describe the way man-made materials grow old. There are no haikus about plastic. There is not much Zen in an old Ford Mondeo. There is even less Zen in an old housing estate.

This is specially so if it is made of concrete, the fashionable hate material of today. The only words that concrete attracts are 'grimy', 'stained' and the ones they tag with aerosol paint. Right now culture minister Margaret Hodge has taken very badly against concrete. The particular object of her vengeful, twin-set loathing is Robin Hood Gardens, a failing social housing megastructure near the north end of London's Blackwall Tunnel that was completed in 1972. Mrs Hodge does not have council household taste. She wants it demolished. It does rather remind us that nothing dates quite so quickly as visions of the future.

Robin Hood Gardens was designed by the husband-and-wife partnership of Peter and Alison Smithson, a couple fully possessed of a vision of the future which seems as quaint in our day as John Betjeman's soppy idylls about honey on the vicarage lawn seemed in theirs. The Smithsons were the great intellectualisers of British postwar architecture, but that is not meant to sound as faintly praiseworthy as it does. British postwar architecture needed it. In the same drab landscape of beige rissoles and rationing which inspired Elizabeth David to discover the exoticism of lemon, oil and garlic, the Smithsons sensed the excitement of a future designed by architects.

In the late Forties they built Britain's first Modernist school at Hunstanton on the north Norfolk coast: space and clarity were brought to a building type which had hitherto not enjoyed such simple delights. Between 1959 and 1964 their Economist Building went up in St James's: it is a magnificent composition

that contains great urban spaces and surprises, remaining one of the very best commercial buildings in all of London.

The Smithsons were great connectors. Alison wrote an appreciation of the Citroën DS that was as sibylline as Roland Barthes's, even if it did not become so famous. They were often criticised for this unrepentant, lofty, continental-style intellectualism. But the pair saw architecture and design as part of a whole cultural continuum.

The influential 1956 exhibition This Is Tomorrow was where Pop Art was launched into Britain's grey spaces. The Smithsons showed a plastic house and proposed a self-cleaning bathroom. The mood is brilliantly described by JG Ballard, one of their collaborators, in his new memoirs. One of their other collaborators was the architectural historian Reyner Banham who later gave the world the term 'Brutalism'. This is how, and however wrongly, the Smithsons will always be remembered.

Brutalism was not originally a term of opprobrium, but because of a prejudice about concrete and the debatable, one-dimensional 'failure' of Robin Hood Gardens, it has become one. As teachers and polemicists with an eye to European fashion, the Smithsons were among the most articulate champions of le Corbusier. Robin Hood Gardens is a development of the Swiss-French architect's Unité d'Habitation in Marseille. This was designed as a whole city within a single building: with shops and schools within an apparently simple, but subtle, structure. Before Mrs Hodge and her elfin helpmates condemn the sinister influence of Corbu on the British idyll that was life-before-concrete, I suggest she visit Marseille. I have stayed in the Unité d'Habitation and it is magnificent: an architectural masterpiece and a social success.

Robin Hood Gardens is, essentially, two large blocks of 10 and seven storeys comprising 213 flats arranged as one-storey apartments or more spatially interesting duplexes; every third floor there are what the Smithsons idealistically called 'streets in the sky'.

Alas, their architectural reach exceeded the grasp of the builders and Robin Hood Gardens suffered from the start with a singular lack of commodity and firmness. Worse, the unintelligent housing policies of Tower Hamlets populated Robin Hood Gardens with the tenants least likely to be able to make sensible use of the accommodation. We have to whisper it, but the Unité d'Habitation works because it is populated by teachers, psychologists, doctors, graphic designers, not by single mothers struggling with buggies.

There is now a campaign to save Robin Hood Gardens. Mrs Hodge's advisers say it is too costly to refurbish (at £70,000 per unit this is obviously nonsense). The minister herself declares that historical purposes may be served by a detailed digital record of the building, an argument which could, I think, with equal force be applied to Uppark, Windsor Castle or Stonehenge. Supporters say it should be refurbished by an enlightened developer, just as Tom Bloxham's Urban Splash is refurbishing Sheffield's 1961 Park Hill Estate. This is now a Grade II* listed building. English Heritage will submit its report on Robin Hood Gardens on 21 March.

The Smithsons were the angry young architects of their day. Concrete Brutalism suited their mood. No one among the supporters, probably not even Richard Rogers and Robert Venturi, signed up to the cause by Building Design (bdonline.co.uk), the trade paper, thinks Robin Hood Gardens has any more delight than it has commodity and firmness, but the campaign against is uninformed and unfair. True, le Corbusier's style often worked badly in interpretation: the first riots in the French banlieues were at Toulouse-le Mirail, designed with streets in the sky by his disciples. Robin Hood Gardens has been a social calamity. But the architecture alone is not to blame. Its neighbour is Balfron Tower, designed by Corbu student Ernö Goldfinger (dashing inspiration for the Bond villain). When people criticised Goldfinger's design, he went to live in his concrete tower block 'to taste his own cooking'. That he pronounced it delicious is maybe not surprising, but its twin sister, Trellick Tower in Notting Hill, has people fighting for flats when they come on the market. As Marx asked, does consciousness determine existence or does existence determine consciousness? Or to put it less correctly, do the pigs make the sty or does the sty make the pigs ?

Margaret Hodge's remarks about concrete are ignorant prejudice. Concrete is a fine material, but needs maintenance and care as much as marble and oak need maintenance and care. Denys Lasdun once told me it would have been cheaper to make the National Theatre out of travertine, but who says this cared-for concrete on the South Bank is anything less than wonderful? Granted, these are strange times when Modernists fight the conservation cause and Labour ministers attack low-cost housing. Robin Hood Gardens is a test for lots of things: a test for taste, for intellect and vision. And a test for the government's ability to seize an interesting opportunity which could act as a model for benign redevelopment in every city in Britain.

The Smithsons used to say that good architecture was 'ordinariness and light'. I wonder if so fine and rare a sentiment is known to the minister...

What do you think? review@observer.co.uk

http://arts.guardian.co.uk/art/architecture/story/0,,2261337,00.html

Cuban art reveals country's search for identity

Collective, Havana's complex Murale du Salon de Mai (1967) is one of some 400 Cuban works on display at Montreal Museum of Fine Arts.
March 01, 2008
PETER GODDARD

MONTREAL

Anyone wondering about the unusually subdued, almost contemplative wait-and-see response in Cuba following the news of Fidel Castro's resignation might do well to visit "Cuba! Art and History from 1868 to Today" at the Montreal Museum of Fine Arts.

Beyond the blast of brilliant dancing colour on the bunting outside the museum entrance, it is the most heartfelt big show I've come across in years. All of the current soul-searching concerning a Cuba after Fidel is entirely in line with the sort of contemplation that began decades before he showed up and is evident through most Cuban art.

"Cuba!" is about the ongoing search for the country's identity then, more than the comings and goings of its strongmen.

By all of the usual criteria, "Cuba!" is a blockbuster event with some 400 images and objects, many on loan from the National Museum of Fine Arts in Havana.

Few have been seen this far north of the Caribbean, although the show includes a number of lesser-known 20th-century masters such as Wilfredo Lam, the Surrealist-inclined painter who settled in Paris to rub shoulders with Picasso. Lam is the show's major art star.

The dates used as bookends for the exhibition play into our knowledge of the violence, bloodshed and imperialist chicanery that marked each major political upheaval in the country's history, beginning when the city of Bayamo declared its independence from the Spanish overlords in 1868. This set the table for the United States' 1898 invasion to make safe the world's supply of Bacardi rum.

Indeed, "Cuba!" covers sufficient political upheaval for any connoisseur of bloody regime change. Widespread poverty and corruption under the American-backed dictator Gerardo Machado y Morales during the late '20s and early '30s are documented through a collection of images American photographer Walker Evans originally shot for Carlton Beals's 1933 book *The Crime of Cuba.*

Castro's Communist Cuba itself has been one great big photo op for the government since it first set up shop in 1959.

(My favourite image shows Che Guevara, the Jim Morrison poster-boy of the Revolution, behind a wheelbarrow, a sort of early Cuban version of the American media's coverage of rugged old George W. Bush labouring away at his Texas "ranch.")

But for the most part, politics in "Cuba!" are treated with the circumspection one might expect. Skeptics can rightly contend that in going for so much soul-searching, the exhibition gets around the problem of political correctness, still a major consideration in contemporary Cuba, which has seen many of its best artists leave since the '90s.

Giving the chop to all examples of extreme political dissent most likely made it a lot easier for Moraima Clavijo Colom, the Havana museum's director, to assemble the show and export it abroad.

Any anti-Castro sentiment included in the exhibition often appears in a highly aesthetic, recondite or cheeky fashion. An example is Los Carpinteros' *Jewellery Case* (1999), a handsome, well-crafted wooden model of a hand grenade.

Uncle Sam doesn't get whacked much, either. So anyone looking for any hardcore anti-American vitriol will come away from "Cuba!" disappointed. In fact, razzing the Russians seemed more to the liking of Cuban artists. *Long Live free Cuba!* (1989), a spoof of a Russian children's story by Tomás Esson Reid and Carlos Rodriguez Cárdenas, shows a ratty-looking Soviet bear with a bright-eyed Cuban kid riding high on its back.

But as "Cuba!" makes clear, it's the search for an essential sense of Cuban-ness that provides a straight-line narrative through all of Cuban history, starting with the very earliest of derivative genre paintings, such as Victor Patricio de Landaluze's *The Cane Harvest* (1874).

And being Cuban involves a certain sense of isolation, of the kind best-known to an island people.

"The sea is both a boundless horizon and a boundary," says Nathalie Bondil, director of the Montreal museum in an introduction in the exhibition's catalogue. "While island dwellers are always aware of the vastness of the world, they also always have a sense of the physical limits of their own territory, surrounded on all sides by water."

Due to Castro's propaganda needs, Cuban photography – a strong element within the overall exhibition – and filmmaking flourished through the '60s and '70s. So did the graphic arts and some fabulous Cuban poster-making.

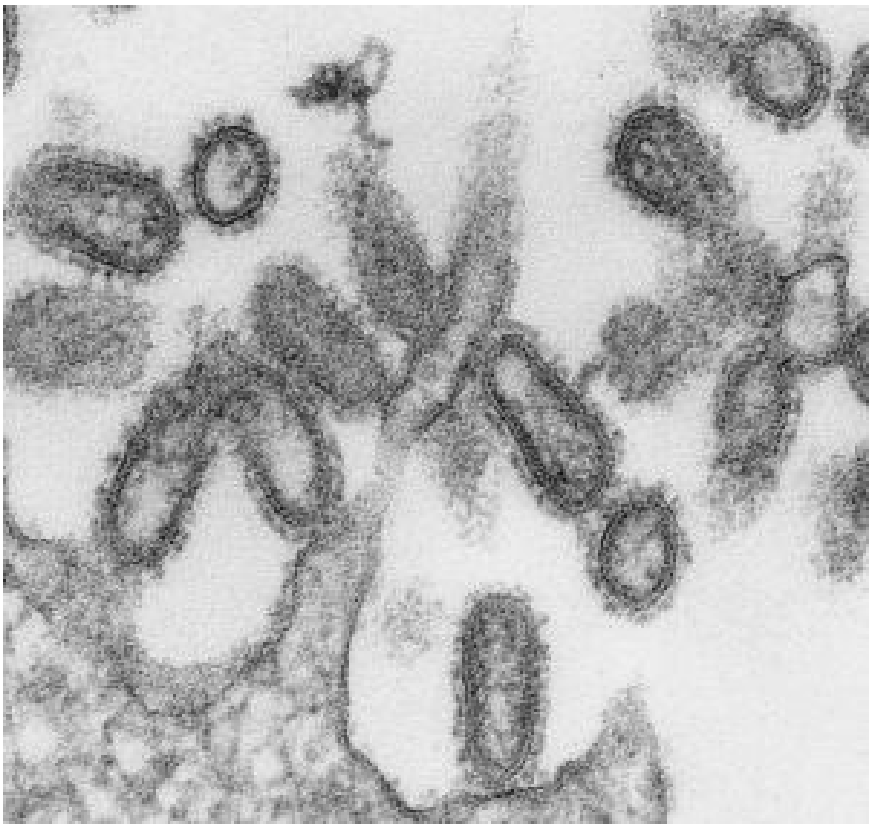
But the same can't be said of Cuban painting. In *The Bermuda Triangle* (1978) by Rogelio López Marín (Gory), a woman is shown from the back staring north over the Caribbean toward North America and Europe.

"Cuba! Art and History from 1868 to Today" is at the Montréal Museum of Fine Arts until June 8.

pgoddard@thestar.ca

http://www.thestar.com/entertainment/article/307906

Major Mid-century Influenza Epidemics Caused By Novel Hybrid Viruses



This transmission electron micrograph (TEM) of an ultra-thin specimen revealed some of the ultrastructural morphologic features seen in 1918 influenza virus virions. (Credit: Cynthia Goldsmith)

ScienceDaily (Mar. 3, 2008) — Reassortment of the influenza A virus occurs frequently throughout its evolutionary history. Researchers at Pennsylvania State University and the National Institute of Health used an evolutionary analysis of influenza viruses sampled from 1918 -- 2005 to investigate the influenza viruses that cause seasonal epidemics in humans, particularly those where mortality was unusually high.

Specifically, the researchers found that the severe influenza epidemics of 1947 and 1951 were caused by genetic reassortment events in which two human influenza viruses of the same H1N1 strain exchanged genetic material, producing a new hybrid virus in both cases. It has been a mystery why unusually severe epidemics of influenza occur from time to time, such as in 1947 and 1951, when illness and mortality rates exceeded standard epidemic levels. The standard model of human influenza virus evolution holds that major influenza pandemics, the largest of which occurred in 1918, are caused by reassortment between human and avian influenza viruses. But seasonal influenza epidemics, which occur each winter in the United States, do not involve the reassortment of genetic material. These new findings suggest that the evolution of seasonal influenza is more complex than previously thought, and that multiple forms of the same strain co-circulate and re-assort within a single population, rapidly generating genetically novel viruses with the potential to ignite major epidemics. It is therefore critical that intensive surveillance is undertaken to capture the full extent of influenza genetic diversity that co-circulates at a given time, particularly as an aid to vaccine design. Journal reference: Nelson MI, Viboud C, Simonsen L, Bennett RT, Griesemer SB, et al. (2008) Multiple Reassortment Events in the Evolutionary History of H1N1 Influenza A Virus Since 1918. PLoS Pathog 4(2): e1000012. doi:10.1371/journal.ppat.1000012 http://www.plospathogens.org/doi/ppat.1000012*Adapted from materials provided by Public Library of Science, via EurekAlert!, a service of AAAS.*

http://www.sciencedaily.com/releases/2008/02/080229075244.htm

Predictors For Sickle-cell-anemia Complications

Dr. Charles Quinn helped to determine that the level of oxygen in blood can be used to identify children with sickle cell anemia who are at an increased risk of stroke. The researchers have also found that a published method used to predict severe sickle-cell complications may not be adequate. (Credit: UT Southwestern Medical Center)

ScienceDaily (Mar. 3, 2008) — Researchers at UT Southwestern Medical Center have determined that the level, or saturation, of oxygen in blood could be used to identify children with sickle cell anemia who are at an increased risk of stroke.

In a related study, they have also found that a published method used to predict severe complications of the disease may not be adequate. "Stroke is a serious but increasingly preventable complication of sickle cell disease," said Dr. Charles Quinn, assistant professor of pediatrics at UT Southwestern and lead author of a study appearing in February's British Journal of Haematology. "Several factors have been identified that increase risk for stroke, but better screening tools are still needed."

Hemoglobin is an oxygen-transport protein in red blood cells. People with sickle cell disease, including an estimated 100,000 Americans, have a genetic error affecting their hemoglobin. The defect turns normally soft, round blood cells into inflexible, sickle-shaped cells. The altered shape causes blockages in blood vessels and prevents body tissues from receiving oxygen.

The researchers reviewed the cases of 412 children who are part of the Dallas Newborn Cohort, the world's largest group of patients with sickle cell disease who were initially diagnosed by newborn screening. All patients reviewed were born after Jan. 1, 1990, a date chosen because patient data was available electronically.

Oxygen saturation in the children's blood was tracked over time, and the records of those who suffered a stroke were compared to those who did not. The children who had lower levels of oxygen in their blood were more likely to develop stroke, the researchers found.

"A decline in oxygen saturation over time seems to further increase the risk of stroke," said Dr. Quinn. "Oxygen saturation is easily measured, potentially modifiable and might be used to identify children with sickle cell disease who are at greater risk of having a stroke."

Another study by Dr. Quinn and his colleagues appeared in the January issue of the journal Blood. That study examined how effectively a model developed by the Cooperative Study of Sickle Cell Disease (CSSCD) predicted severe disease in the newborn cohort.

Because sickle cell disease can affect children in many different ways, it is difficult to identify young children who are at high risk of adverse outcomes before irreversible organ damage occurs. Such outcomes include death, stroke, frequent pain or recurrent acute chest syndrome. The CSSCD criteria, which evaluates patients based on factors such as occurrences of dactylitis -- a type of painful swelling of the hands and feet -- in the first year of life, steady-state hemoglobin concentration in the second year of life, and steady-state leukocyte count in the second year of life, was created in hopes that a predictive model would allow early, tailored therapy to prevent adverse outcomes.

"We found the CSSCD model was not better than random prediction when applied to the Dallas Newborn Cohort," said Dr. Quinn, the Blood study's lead author. "Most subjects who experienced adverse events were predicted to be at low risk for adverse events, and no subject who was predicted to be at high risk actually experienced an adverse outcome. We concluded that the model was not clinically useful, at least not in the Dallas cohort."

Dr. Quinn said the findings suggest that the CSSCD model should not be used as the sole criterion to initiate early, high-risk intervention and that a robust early prediction model is still needed.

In 2002 UT Southwestern and UT Dallas received a multimillion-dollar five-year grant from the National Institutes of Health that established the Southwestern Comprehensive Sickle Cell Center at UT Southwestern.

UT Southwestern medical student James Sargent contributed to the British Journal of Haematology study. Dr. Zora Rogers, associate professor of pediatrics; Nancy Lee, UT Southwestern medical student; Elizabeth Shull, a research nurse at Children's; and Naveed Ahmad, a statistician at Children's; contributed to the study in Blood.

Both studies were supported by grants from the NIH.

Adapted from materials provided by UT Southwestern Medical Center, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/02/080229075207.htm

Supercomputer Confirms Standard Model Theory Of The Universe, Deepens Puzzle

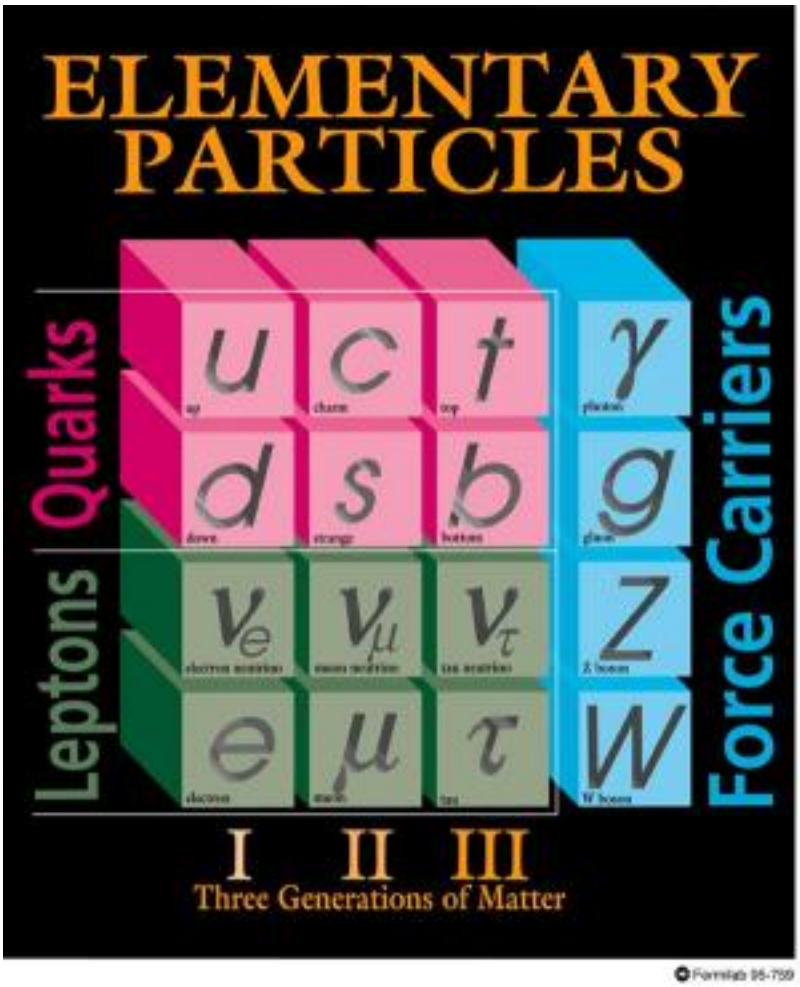


Illustration showing the Standard Model of elementary particles. (Credit: DOE/Fermi National Accelerator Laboratory)

ScienceDaily (Mar. 3, 2008) — Scientists have used a supercomputer to shed new light on one of the most important theories of physics, the Standard Model, which encapsulates understanding of all the material that makes up the universe. This 30-year-old theory explains all the known elementary particles and three of the four forces acting upon them - however, it excludes the force of gravity, which is its shortcoming.

Physicists have been trying to find the missing pieces in the jigsaw that would extend the Standard Model into a complete theory of all the forces of nature. However, the landmark findings by researchers at the Universities of Edinburgh and Southampton, and their partners in Japan and the US, confirm the Standard Model to even greater precision than before, deepening the puzzle.

The project's enormously complex calculations relate to the behaviour of tiny particles found in the nuclei of atoms, known as quarks. In order to carry out these calculations, the researchers first designed and built a supercomputer that was among the fastest in the world, capable of tens of trillions of calculations per second. The computations themselves have taken a further three years to complete.

Their result shows that the Standard Model's claim to be the best theory invented holds firm. It raises the stakes for the riddle to be solved by experiments at the Large Hadron Collider at CERN, which will switch on later this year. Physicists' efforts to confront Standard Model predictions using the most powerful computers available with the most precise experiments offer no clues about what to expect.

Professor Chris Sachrajda of the University of Southampton's School of Physics and Astronomy said: 'Modern supercomputers and improved theoretical techniques are allowing us to explore the limits of the Standard Model to an unprecedented precision. The next stage will be to combine such computations with new experimental results expected from the Large Hadron Collider to unravel the next level of fundamental physics.'

Professor Richard Kenway of the University of Edinburgh's School of Physics added: 'Although the Standard Model has been a fantastic success, there were one or two dark corners where experimental tests had been inconclusive, because vital calculations were not accurate enough. We shone a light on one of these, but to our enormous frustration, nothing was lurking there.'

The research, published in Physical Review Letters, was supported by the Science and Technology Facilities Council.

Adapted from materials provided by University of Southampton.

http://www.sciencedaily.com/releases/2008/02/080229140415.htm

Field Strength And Density Of Fusion Implosions Measured

Graduate students Dan Casey and Mario Manuel, left, and Professor Richard Petrasso of the MIT Plasma Science and Fusion Center with the detector used to study implosions that recreate the high temperatures and densities found inside stars. (Credit: MIT photo by Sean McDuffee)

ScienceDaily (Mar. 3, 2008) — Scientists have identified for the first time two distinctly different types of electromagnetic configurations in inertial confinement fusion implosions that have substantial effects on implosion dynamics and diagnosis.

In the most recent research, which appears in the Feb. 29 issue of the journal, Science, Ryan Rygg of Lawrence Livermore National Laboratory and colleagues from the Massachusetts Institute of Technology and the University of Rochester used radiography with a pulsed monoenergetic proton source to simultaneously measure field strength and area densities by looking at the energy lost by protons during the implosion.

Inertial confinement fusion (ICF) is a process where nuclear fusion reactions (which release copious amounts of energy) are initiated by heating and compressing a fuel target, typically in the form of a spherical shell containing a mixture of deuterium and tritium. Upon completion of the National Ignition Facility laser, fuel will be compressed a thousand-fold by rapid energy deposition onto the surface of a fuel target.

At the OMEGA laser in Rochester, the team blasted 36 laser beams that deposited 14 kilojoules of energy in a one nano-second pulse into ICF fast-ignition capsules. (A nanosecond is one billionth of a second). To observe the dynamics of the imploding capsules, Rygg radiographed the targets before and during implosion. Radiography typically uses X-rays to view unseen or hard-to-image objects, but radiography using protons is sensitive to different phenomena.

The radiographic images showed the presence of complex, filamentary magnetic fields, which permeate the field of view, while a coherent centrally directed electric field is seen near the capsule shell, which had imploded to half its initial radius.

"By measuring the evolution of this coherent electric field, we could potentially map capsule pressure dynamics throughout the implosion, which would be invaluable in assessing implosion performance," Rygg said. "The striated fields may provide a snapshot of structures originally produced inside the critical surface at various times during the implosion, which would open the door for evaluating the entire implosion process."

This work was performed while Rygg was a postdoc at MIT.

Adapted from materials provided by DOE/Lawrence Livermore National Laboratory.

http://www.sciencedaily.com/releases/2008/02/080229094729.htm

West Antarctic Glaciers Melting At 20 Times Former Rate, Rock Analysis Shows

Antarctic boulder - Boulders the size of footballs. (Credit: Image courtesy of British Antarctic Survey)

ScienceDaily (Mar. 2, 2008) — Boulders the size footballs could help scientists predict the West Antarctic Ice Sheet's (WAIS) contribution to sea-level rise according to new research.

Scientists from British Antarctic Survey (BAS), Durham University and Germany's Alfred Wegener Institute for Polar and Marine Research (AWI) collected boulders deposited by three glaciers in the Amundsen Sea Embayment -- a region currently the focus of intense international scientific attention because it is changing faster than anywhere else on the WAIS and it has the potential to raise sea-level by around 1.5 metres.

Analysis of the boulders has enabled the scientists to start constructing a long-term picture of glacier behaviour in the region. An urgent task is to put recent ice sheet changes into a historical context, and determine if these are part of a natural retreat since the end of the last glacial period (about 20 thousands years ago), or if they are a result of recent human-induced climate change.

Lead author Dr Joanne Johnson of BAS says, "Until now we didn't know much about the long-term history of this part of the West Antarctic Ice Sheet because the region is incredibly remote and inaccessible. Our geological findings add a new piece to the jigsaw and will be used for improving computer models -- the most important tools we have for predicting future change."

Initial results show that Pine Island Glacier has 'thinned' by around 4 centimetres per year over the past 5,000 years, while Smith and Pope Glaciers thinned by just over 2 cm per year during the past 14,500 years. These rates are more than 20 times slower than recent changes: satellite, airborne and ground based observations made since the 1990s show that Pine Island Glacier has thinned by around 1.6 metres per year in recent years.

The scientists reached their conclusions by investigating how long the boulders have been exposed to cosmic radiation rather than being shielded by ice or sediment.

Co-author Dr Mike Bentley from the University of Durham said, "When rocks are left high and dry by thinning glaciers they are exposed to high energy cosmic rays which bombard the rock. This creates atoms of particular elements that we can extract and measure in the laboratory - the longer they have been exposed the greater the build-up of these elements. The discovery that we can place a fix on when rocks were left behind by the ice has revolutionised our understanding of how the Antarctic ice sheet has behaved in the past. "

Collapse of West Antarctic Ice Sheet?

The Amundsen Sea Embayment (ASE) lies on the side of the West Antarctic Ice Sheet (WAIS). It is an area that has always caused glaciologists concern, because here the bedrock beneath the ice is a long way below sea-level and the ice is only kept in place because it is thick enough to rest on the bed. Thinning of the ice around the coast could lead to glacier acceleration and further thinning of the ice sheet. Essentially, the ice sheet may be unstable, and the recent pattern of thinning could be a precursor to wholesale loss of the ASE ice sheet (implying a sea-level rise of around 1.5 m).

Complete collapse of the WAIS would result in a rise of about 5 m in global sea level. Most scientists working in the area think that complete collapse within the next few hundred years is unlikely, but even loss of one sector of the ice sheet would imply that projections of sea-level rise are at present too low.

Fieldwork

The ASE is a notoriously difficult place in which to undertake fieldwork, it is cold, windy and is more than 1400 km from any research station.

Using a helicopter from the German research vessel Polarstern during an expedition led by Karsten Gohl (AWI) BAS scientist Joanne Johnson and colleagues visited remote rock outcrops protruding from Pine Island, Pope and Smith glaciers on the vast West Antarctic Ice Sheet. They collected samples from boulders that have lain ice-free for thousands of years.

Pine Island Glacier is of great interest to scientists worldwide as it has been thinning at a rate of more than 1 m/year and its flow rate has accelerated over the past 15 years. The location at which the glacier starts to float on the sea also retreated at a rate of more than 1 km/year during part of this period.

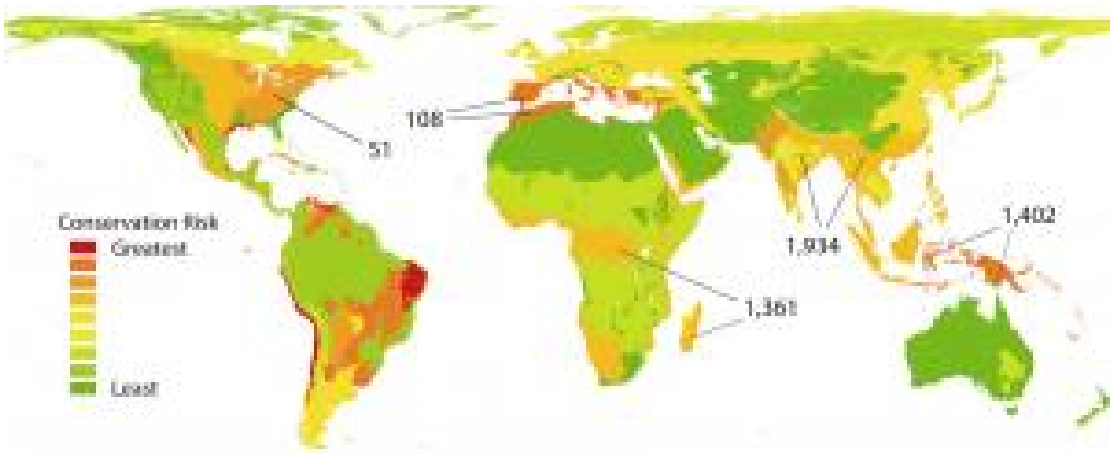
Cosmogenic isotopes (eg Beryllium-10 and Aluminium-26) are created in rocks when they are bombarded by cosmic rays that penetrate the atmosphere from outer space. The accumulation of these isotopes within a rock surface can be used to establish its 'surface exposure age', i.e., how long it has been exposed to cosmic radiation rather than being shielded by ice or sediment.

Journal reference:First exposure ages from the Amundsen Sea Embayment, West Antarctica: The Late Quaternary context for recent thinning of Pine Island, Smith and Pope Glaciers by Joanne S. Johnson, Michael J. Bentley and Karsten Gohl is published in the March issue of the journal Geology.

Adapted from materials provided by British Antarctic Survey.

http://www.sciencedaily.com/releases/2008/02/080229075228.htm

Future 'Battlegrounds' for Habitat Conservation Very Different to Those in Past



In the face of impending global change, some regions are more in need of protected lands than others. The map shows regions color-ranked by how much area is projected to change by 2100 in relation to how much area is currently protected ("Conservation Risk"). Many of the tropical, but not temperate regions with greatest risk (red) are also of highest conservation value as indicated by their higher number of globally unique amphibians, birds, mammals and reptiles. (Credit: Image courtesy of University of California - San Diego)

ScienceDaily (Mar. 2, 2008) — Biologists at the University of California, San Diego have developed a series of global maps that show where projected habitat loss and climate change are expected to drive the need for future reserves to prevent biodiversity loss.

Their study, published online February 28 in the journal Proceedings of the Royal Society B, provides a guide for conservationists of the areas of our planet where conservation investments would have the most impact in the future to limit extinctions and damage to ecosystems due to rapid human-driven climate and land-use change.

The researchers found that many of the regions that face the greatest habitat change in relation to the amount of land currently protected —such as Indonesia and Madagascar—are in globally threatened and endemic species-rich, developing tropical nations that have the fewest resources for conservation. Conversely, many of the temperate regions of the planet with an already expansive network of reserves are in countries—such as Austria, Germany and Switzerland—with the greatest financial resources for conservation efforts, but comparatively less biodiversity under threat.

"There's a huge discrepancy between where the world's conservation resources are concentrated and where the greatest threats to biodiversity are projected to come from future global change," said Walter Jetz, an assistant professor of biological sciences at UC San Diego, who headed the study. "The developed nations are where the world's wealth is concentrated, but they are not the future battlegrounds for conservation."

"While many details still have to be worked out, our study is a first baseline attempt on a global scale to quantitatively demonstrate the urgent need to plan reserves and other conservation efforts in view of future global change impacts," he added. "Reserves have often been set up haphazardly, following some national goal, such as to preserve 10 percent of a country's area, or in response to past threats. But little consideration has been given to the actual geography of future threats in relation to biodiversity. Yet it's those future threats that expose biodiversity to extinction."

To conduct their study, the researchers examined the impact of climate and land use changes on networks of biological reserves around the world and contrasted them to four projections of future global warming, agricultural expansion and human population growth from the global Millennium Ecosystem Assessment.

They discovered that past human impacts on the land poorly predicted the future impacts of climate change, revealing the inadequacy of current global conservation plans.

“The past can only guide you so much in the future,” said Tien Ming Lee, a graduate student and the first author of the study. “This is why we may have to change our future conservation priorities if we want to be effective in conserving biodiversity in the long run.”

Lee said the study also confirmed the longstanding argument that wealthy countries with few threats to future biodiversity loss would do better to spent their conservation dollars on underdeveloped countries with greater threats of future extinctions than in their own backyards.

“Tropical countries are currently sitting on vast tracts of forests that are substantial carbon sinks and if they can get adequate financial help to protect these habitats, both global climate change and biodiversity loss could be mitigated,” he said.

Funding for the study was provided by the National Science Foundation.

Adapted from materials provided by University of California - San Diego.

http://www.sciencedaily.com/releases/2008/02/080228100735.htm

Why Juniper Trees Can Live On Less Water

Hardy junipers grow near cacti in New Mexico's Florida Mountains. (Credit: Cynthia Willson)

ScienceDaily (Mar. 2, 2008) — An ability to avoid the plant equivalent of vapor lock and a favorable evolutionary history may explain the unusual drought resistance of junipers, some varieties of which are now spreading rapidly in water-starved regions of the western United States, a Duke University study has found.

"The take-home message is that junipers are the most drought-resistant group that has ever been studied," said Robert Jackson, a professor of global environmental change and biology at Duke's Nicholas School of the Environment and Earth Sciences.

"We examined 14 species from the U.S. and Caribbean, and they're all relatively drought-resistant -- even ones in the mountains of Jamaica that get hundreds of inches of rain a year," he said.

"They've been expanding for about 100 years in some places, and drought plays a role in that," added Jackson, who is corresponding author of the new report published Feb. 27 in the American Journal of Botany's online edition. "For example, recent droughts have decimated pinyon pine populations in pinyon-juniper woodlands of the Southwestern U.S. but left the junipers relatively unscathed."

Many juniper species -- including several popularly known as cedars -- "are invading drier habitats and increasing in abundance where they already exist by surviving droughts that other conifers cannot," the report said.

To understand why junipers are so successful, Jackson's graduate student Cynthia Willson and Duke associate biology professor Paul Manos assessed structural and genetic features in the 14 species that can explain their special drought tolerance.

They found a key structural adaptation in junipers: resistance to what scientists call "cavitation" -- a tendency for bubbles to form in the water-conducting xylem tissues of plants.

Water is sucked through xylem tissues under a partial vacuum, "so it's almost like a rubber band being stretched out," explained Jackson. "The dryer the conditions, the greater the tension on that 'rubber band' and the more likely that it will snap. If it snaps, air bubbles can get into the xylem."

The scientists found that xylem tissues of juniper species tend to be reinforced with extra woody material to prevent rupture. Such rupturing can introduce bubble-forming air either through seepage from adjacent cavities or by coming out of solution from the water itself, Jackson said.

The scientists also determined that the more cavitation-resistant Juniper species have thicker but narrower leaves -- a trait known as low specific leaf area (SLA) -- and live primarily in the western United States.

"Plants in drier environments typically have lower SLA," said Willson, the study's first author, who having completed her Ph.D. at Duke is now a student at North Carolina State University's College of Veterinary Medicine. "We found that junipers from the driest environments were more drought resistant and also had the lowest SLA."

Their research found that the most cavitation-resistant species is the California juniper, which grows in California's Mojave Desert, while the least resistant is the eastern red cedar -- the most widespread conifer in the relatively-moist eastern U.S.

While less drought-tolerant than other junipers, eastern red cedars still handle dry spells well and are in fact invading into Midwestern states including Nebraska, Jackson noted. Juniper species growing in wet parts of the Caribbean also benefit from drought tolerance because they "tend to grow in shallow, rocky soils that don't hold a lot of water," Jackson said.

In parts of the Southwest undergoing an extended drying period, junipers are edging out another hardy, water-thrifty conifer -- the pinyon pine. "They're both very drought- resistant, but the pinyons aren't as resistant as the junipers are," Jackson said.

The scientists also investigated how and where these tree types evolved their collective drought tolerance by analyzing each juniper species' DNA. That analysis found that junipers evolved into different species relatively recently, separating into eastern and western groups -- technically called "clades."

"The center of diversity for junipers is in arid regions of Mexico," said Willson. "The fact that many juniper species seem to be more drought-resistant than necessary for their current range suggests that a common ancestor of those two clades was also quite drought-resistant."

The work was funded by the National Science Foundation, Duke University and the Andrew W. Mellon Foundation.

Adapted from materials provided by Duke University.

http://www.sciencedaily.com/releases/2008/02/080227142653.htm

Mathematicians Prove New Way To Build A Better Estimate

ScienceDaily (Mar. 2, 2008) — How do you sift through hundreds of billions of bits of information and make accurate inferences from such gargantuan sets of data? Brown University mathematician Charles "Chip" Lawrence and graduate student Luis Carvalho have arrived at a fresh answer with broad applications in science, technology and business.

In new work published in the Proceedings of the National Academy of Sciences, Lawrence and Carvalho describe a new class of statistical estimators and prove four theorems concerning their properties. Their work shows that these "centroid" estimators allow for better statistical predictions – and, as a result, better ways to extract information from the immense data sets used in computational biology, information technology, banking and finance, medicine and engineering."What's exciting about this work – what makes it every scientist's dream – is that it's so fundamental," Lawrence said. "These new estimators have applications in biology and beyond and they advance a statistical method that's been around for decades."

For more than 80 years, one of the most common methods of statistical prediction has been maximum likelihood estimation (MLE). This method is used to find the single most probable solution, or estimate, from a set of data.But new technologies that capture enormous amounts of data – human genome sequencing, Internet transaction tracking, instruments that beam high-resolution images from outer space – have opened opportunities to predict discrete "high dimensional" or "high-D" unknowns. The huge number of combinations of these "high-D" unknowns produces enormous statistical uncertainty. Data has outgrown data analysis.

This discrepancy creates a paradox. Instead of producing more precise predictions about gene activity, shopping habits or the presence of faraway stars, these large data sets are producing more unreliable predictions, given current procedures. That's because maximum likelihood estimators use data to identify the single most probable solution. But because any one data point swims in an increasingly immense sea, it's not likely to be representative.

Lawrence, a professor of applied mathematics and a faculty member in the Center for Computational Molecular Biology at Brown, first came upon this paradox and a potential way around it while working on predicting the structure of RNA molecules. If you want to predict the structure of these molecules – how the molecule will look when it folds onto itself – you'd have billions and billions of possible shapes to choose from.

"Using maximum likelihood estimation, the most likely outcome would be very, very, very unlikely," Lawrence said, "so we knew we needed a better estimation method."Lawrence and Carvahlo used statistical decision theory to understand the limitations of the old procedure when faced with new "high-D" problems. They also used statistical decision-making theory to find an estimation procedure that applies to a broad range of statistical problems. These "centroid" estimators identify not the single most probable solution, but the solution that is most representative of all the data in a set.

Lawrence and Carvahlo went on to prove four theorems that illustrate the favorable properties of these estimators and show that they can be easily computed in many important applications."This new procedure should benefit any field that needs to reliably make predictions of large-scale, high-D unknowns," Lawrence said.

The U.S. Department of Energy and the National Institutes of Health funded the work.

Adapted from materials provided by Brown University.

http://www.sciencedaily.com/releases/2008/02/080229090817.htm

Kilogram Is Losing Weight: Redefine Kilogram Based On Universal Constants, Scientists Urge

Hy Tran examines a kilogram sample in a mass comparator at Sandia's Primary Standards Laboratory. (Credit: Photo by Randy Montoya)

ScienceDaily (Mar. 1, 2008) — The kilogram is losing weight and many international scientists, including some at Sandia National Laboratories, agree that it's time to redefine it. Scientists are hoping to redefine the kilogram by basing it on standards of universal constants rather than on an artifact standard.

The International Prototype Kilogram (IPK) or "Le Grand K," made in the 1880s, is a bar of platinum-iridium alloy kept in a vault near Paris. "The idea is to replace the single master kilogram with something based on physical constants, rather than an artifact that could be damaged accidentally," says mechanical engineer Hy Tran, a project leader at the Primary Standards Laboratory (PSL) at Sandia.

Of the seven units of measurement in the International System, or SI, the kilogram is the only base still defined by a physical object. In addition, copies of the kilogram have changed over time by either gaining or losing weight as compared to the standard kilogram.

The purpose of redefining the kilogram is based on risk reduction, says Tran. "In the long term, the redefinition — especially if performed correctly — is beneficial because of risk reduction and because it may enable better measurements in the future," he says.

By replacing the master kilogram — Le Grand K —with a unit based on physical constants, researchers at multiple laboratories and at national measurement institutes could establish traceability, he says.

Tran says the kilogram will remain the kilogram; it's only the way it will be defined that will change. He says the earliest the kilogram would be redefined is 2011.

"If and when the redefinition takes place, it will be done in such a fashion as to have minimal or no practical impact with other measured quantities," Tran says. "In other words, if it is redefined so as to ensure better than 10 parts per billion agreement — rather than 20 parts per billion agreement — then we will see no major changes immediately."

Based on the current formal definition of the kilogram (the mass of the 1 kilogram prototype) and experimental dissemination to standards labs, the uncertainty (95 percent confidence) in PSL's kilogram is about 40 parts per billion, compared to the IPK.

One part per billion is about the ratio of the area of a square 3/32 inch on a side, with respect to the area of a regulation NFL football field (including the endzones, or 120 yards by 53-1/3 yards), Tran says.

The target originally proposed by the Bureau International des Poids et Mesures (International Bureau of Weights & Measures) was to get one of the alternative kilogram definitions, such as the experimental measurement of force on the watt balance (or counting atoms on the silicon sphere), and deriving the kilogram, matched to experimental measurements of the prototype kilogram to within 20 parts per billion.

Sandia physicist Harold Parks agrees that the redefinition of the kilogram is inevitable and says there are a couple of issues that need to be resolved before it's redefined.

"The watt balance method of defining the kilogram makes the most sense for those of us in electrical metrology and so far it is the most accurate," he says. "But other proposals, such as those based on counting the number of atoms in a silicon crystal, are being considered."

The watt balance is based on an idea that compares electrical and mechanical power with a high degree of accuracy, he says.

Conflicts between the results of the watt balance and the atom counting experiments will also need to be resolved, Parks says.

"The NIST (National Institute of Standards and Technology) watt balance experiment has achieved the accuracy needed to redefine the kilogram, but the experiment will need to be confirmed by other groups in order for the results to be fully accepted," he says.

Tran says redefining the kilogram will have little impact on the Primary Standards Lab or the broader nuclear weapons complex. The lab develops and maintains primary standards traceable to national standards and calibrates and certifies customer reference standards.

"It should not affect PSL or the complex if the international metrology community ensures that they fully consider the uncertainties, the necessary experimental apparatus to realize the kilogram, and implementation issues prior to agreeing to the redefinition," Tran says.

In preparation for the change, PSL staff members are staying up to date in research in metrology and standards practices. Staff also participate in standards activities in order to ensure that any transition would be smooth.

Adapted from materials provided by DOE/Sandia National Laboratories.

http://www.sciencedaily.com/releases/2008/02/080228120943.htm

Does Gingko Biloba Affect Memory?

Taking the supplement ginkgo biloba had no clear-cut benefit on the risk of developing memory problems, according to a new study. (Credit: iStockphoto/Eugene Bochkarev)

ScienceDaily (Mar. 1, 2008) — Taking the supplement ginkgo biloba had no clear-cut benefit on the risk of developing memory problems, according to a new study.

The three-year study involved 118 people age 85 and older with no memory problems. Half of the participants took ginkgo biloba extract three times a day and half took a placebo. During the study, 21 people developed mild memory problems, or questionable dementia: 14 of those took the placebo and seven took the ginkgo extract. Although there was a trend favoring ginkgo, the difference between those who took gingko versus the placebo was not statistically significant.

The researchers made an interesting observation when they examined the data at the end of the trial. Taking into account whether people followed directions in taking the study pills, they found that people who reliably took the supplement had a 68 percent lower risk of developing mild memory problems than those who took the placebo. Without further study, it is unclear if this difference is real or just a chance occurrence.

On a cautionary note, the study also found that people taking ginkgo biloba were more likely to have a stroke or transient ischemic attack, or mini stroke. Seven people taking ginkgo had strokes, while none of those taking placebo did. "Ginkgo has been reported to cause bleeding-related complications, but the strokes in this case were due to blood clots, not excessive bleeding, and were generally not severe," said study author Hiroko Dodge, PhD, of the Department of Public Health and Center for Healthy Aging Research at Oregon State University in Corvallis.

"These results need to be clarified with larger studies, but the findings are interesting because ginkgo biloba is already widely used, readily available, and relatively inexpensive," said Dodge. "One of the most pressing public health problems facing our society is the rapidly growing number of people who, due to their age alone, are at high risk of developing dementia. The potential to delay or prevent this is of great importance. Further studies are needed to determine whether gingko biloba has any benefits in preventing cognitive decline and whether it is safe."

Dodge noted that this is the first randomized, controlled trial of prevention of dementia in people age 85 and older.

This study was published in the February 27, 2008, online issue of Neurology®, the medical journal of the American Academy of Neurology.

The research was conducted at Oregon Health & Science University's NIA-Layton Aging & Alzheimer's Disease Center and the Oregon Center for Complementary and Alternative Medicine in Neurological Disorders. The study was supported by grants from the National Institute on Aging and the National Center for Complementary and Alternative Medicine (NCCAM). The ginkgo biloba extract was provided by Thorne Research, Inc.

Adapted from materials provided by American Academy of Neurology.

http://www.sciencedaily.com/releases/2008/02/080227164125.htm

Increased Hurricane Losses Due To More People, Wealth Along Coastlines, Not Stronger Storms

Hurricane Katrina, August 28, 2005. (Credit: NOAA)

ScienceDaily (Mar. 1, 2008) — A team of scientists have found that the economic damages from hurricanes have increased in the U.S. over time due to greater population, infrastructure, and wealth on the U.S.coastlines, and not to any spike in the number or intensity of hurricanes.

"We found that although some decades were quieter and less damaging in the U.S. and others had more land-falling hurricanes and more damage, the economic costs of land-falling hurricanes have steadily increased over time," said Chris Landsea, one of the researchers as well as the science and operations officer at NOAA's National Hurricane Center in Miami. "There is nothing in the U.S. hurricane damage record that indicates global warming has caused a significant increase in destruction along our coasts."

In a newly published paper in Natural Hazards Review, the researchers also found that economic hurricane damage in the U.S. has been doubling every 10 to 15 years. If more people continue to move to the hurricane-prone coastline, future economic hurricane losses may be far greater than previously thought.

"Unless action is taken to address the growing concentration of people and property in coastal hurricane areas, the damage will increase by a great deal as more people and infrastructure inhabit these coastal locations," said Landsea.

The Natural Hazards Review paper, "Normalized Hurricane Damage in the United States: 1900-2005," was written by Roger A. Pielke Jr. (University of Colorado), Joel Gratz (ICAT Managers, Inc.), Chris Landsea, Douglas Collins (Tillinghast-Towers Perrin), Mark A. Saunders (University College London), and Rade Musulin (Aon Re Australia).

The team used two different approaches, which gave similar results, to estimate the economic damages of historical hurricanes if they were to strike today, building upon the work published originally by Landsea and Pielke in 1998, and by Collins and Lowe in 2001. Both methods used changes in inflation and wealth at the national level. The first method utilized population increases at the county coastal level, while the second used changes in housing units at the county coastal level.

The results illustrate the effects of the tremendous pace of growth in vulnerable hurricane areas. If the 1926 Great Miami Hurricane were to hit today, the study estimated it would cause the largest losses at $140 billion to $157 billion, with Hurricane Katrina second on the list at $81 billion.

The team concludes that potential damage from storms – currently about $10 billion yearly – is growing at a rate that may place severe burdens on exposed communities, and that avoiding huge losses will require a change in the rate of population growth in coastal areas, major improvements in construction standards, or other mitigation actions.

Adapted from materials provided by National Oceanic And Atmospheric Administration.

http://www.sciencedaily.com/releases/2008/02/080228074324.htm

Immune system differences found
Researchers have found population differences in the behaviour of immune system genes - potentially affecting how people respond to infection.

The Chicago University team looked at over 9,000 genes in 180 people, half Caucasian and half from Nigeria.

They found differences between the two races in 5% of key genes.

The American Journal of Human Genetics study may help explain why some groups are more vulnerable to disease, and aid development of more tailored treatment.

Gum disease

The researchers used gene chip array technology, which uses a microscope to analyse a specialised slide capable of containing thousands of genes derived from blood cells.

Sixty nuclear families, each including a mother, a father and a child were studied. Thirty were from Utah in the US, while the rest were Yorubans from Ibadan, Nigeria.

> **We want to understand why different populations experience different degrees of toxicity when taking certain drugs**
> Professor Eileen Dolan, University of Chicago

The researchers looked at expression levels - how active a gene is.

They found significant differences, particularly in immune system genes involved in producing antibodies to combat bacterial infection.

This backs up previous work which has shown African Americans may be more susceptible than Caucasians to infection, such as the gum disease bug Porphyromonas gingivalis.

The US study also found activity levels varied significantly in genes involved in basic cellular processes which are thought to play a part in how the body responds to drugs, including the risk of side effects.

'Small and subtle'

Professor Eileen Dolan, who led the research, said: "Our primary interest is the genes that regulate how people respond to medicines, such as cancer chemotherapy.

"We want to understand why different populations experience different degrees of toxicity when taking certain drugs and learn how to predict who might be most at risk for drug side effects."

She added: "Population differences in gene expression have only recently begun to be investigated.

"We believe they play a significant role in susceptibility to disease and in regulating drug response.

"Our current research focuses on how these genetic and expression differences play a role in sensitivity to adverse effects associated with chemotherapy."

Dr Chris Tyler-Smith, a geneticist at the Wellcome Trust's Sanger Institute, said genetic differences between ethnic groups were "small and subtle".

"They usually just consist of slight differences in frequency of a few variants found in all populations. But they are important for our understanding of recent evolution and can have medical implications as well.

"They have been difficult to identify, and it is particularly interesting to see that characteristics like variation in susceptibility to infection are showing up."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/1/hi/health/7270562.stm

Published: 2008/02/29 13:23:09 GMT

'Many struggle' with arithmetic
One in four adults has difficulty with mental arithmetic, a survey suggests.

Women are less confident than men, with one in three struggling to add up sums in their head, compared to 18% of men, the poll of 2,000 adults found.

Some 47% of those polled wished they had learnt more maths at school, the survey for numeracy campaign charity Every Child Counts suggested.

And more than half of women asked maths questions by their children or family said they struggled to answer them.

> **Adult innumeracy was one of the greatest scourges facing the country**
> John Griffiths-Jones
> Every Child a Chance

The findings tie in with earlier research that suggests a large chunk of the adult population has problems doing basic maths.

This is problematic as it is estimated that these skills are needed up to 14 times a day.

The survey suggested one in five adults aged 25 to 34 said they felt a greater ability in maths would further them in their career.

Severe difficulties with maths were spread across the social classes.

Some 3% of those working in professional, administrative and managerial jobs and 4% of those in skilled and unskilled manual trades said they struggled with mental maths in shops most of the time.

A third of those in lower social groups polled said they felt uncomfortable in shops some of the time, compared to 25% in the top social groups.

'Scourge'

Those aged over 55 were the most confident at 77%, compared to 64% of the 25-34-year-olds who were the least confident.

Adults taking part in the poll were also asked a mathematical question: what is the square root of 64?

One in five did not give the correct answer of eight.

The chairman of charity Every Child a Chance, which is running the campaign, John Griffiths-Jones, said adult innumeracy was one of the greatest scourges facing the country.

"The survey shows how essential it is that the business community gets involved in tackling the problem."

The charity is working with the government to develop a programme helping primary-age children struggling with numeracy.

"Through the programme we aim to find a long-tem solution, spearheading resources of specially trained teachers to help the seven-year-olds who have the greatest difficulties with maths."

The Department for Innovation, Universities and Skills is working on an adult numeracy strategy which is due to be launched later in the year.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/1/hi/education/7271396.stm

Published: 2008/03/03 00:38:07 GMT

Snoring 'linked to heart disease'

By Matt McGrath
BBC science reporter

New research suggests there is a strong link between loud snoring and both heart disease and strokes.

Hungarian scientists did interviews with more than 12,000 patients.

They concluded that heavy snorers were significantly more likely to have a heart attack or stroke compared to the rest of the population.

This new data, published in the Journal Sleep, adds weight to existing theories about the link between snoring and cardiovascular disease.

We all snore at some stage in our lives. And while it is more common in people who are overweight it is estimated that about 40% of adult males and 24% of adult females are habitual snorers.

For several years now, scientists have been aware of a relationship between snoring and cardiovascular diseases such as heart attacks and strokes.

But this new study from Hungary adds more weight to the idea.

Increased risk

More than 12,000 people were interviewed in their homes and questioned about snoring.

Compared to the rest of the population, loud snorers had a 34% increased risk of having a heart attack, and a 67% greater chance of suffering a stroke.

The researchers say that loud snoring with breathing pauses could be used to help identify people at risk from these diseases.

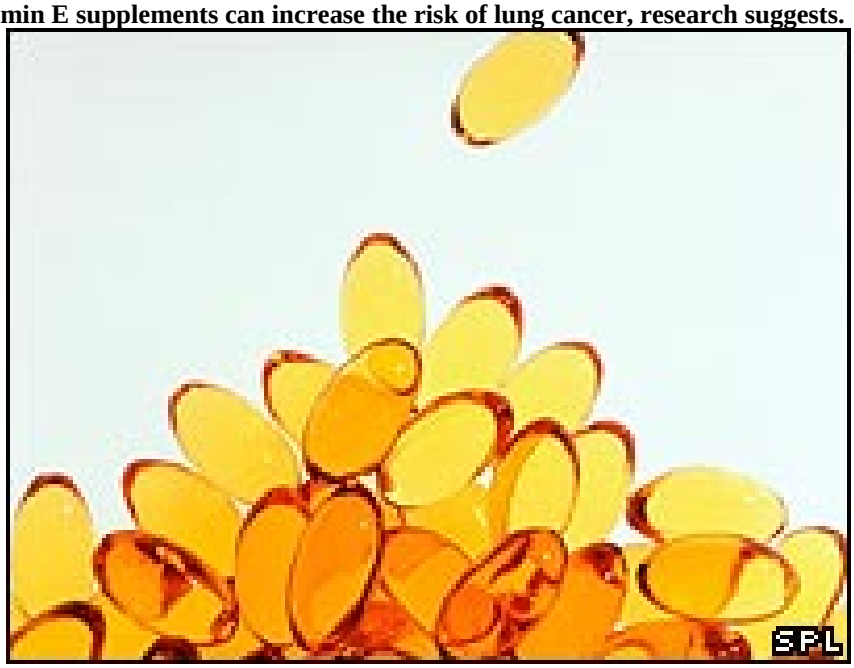
The data highlighted the fact that people who snore quietly had no increase in their risk of cardiovascular illness.

Some good news though - for men, it seems the tendency to snore declines once they get past the age of 70.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/1/hi/health/7272651.stm

Published: 2008/03/01 13:13:25 GMT

Vitamin E linked to lung cancer
Taking high doses of vitamin E supplements can increase the risk of lung cancer, research suggests.



The US study of 77,000 people found taking 400 milligrams per day long-term increased cancer risk by 28% - with smokers at particular risk.

It follows warnings about similar risks of excessive beta-carotene use.

Writing in the American Journal of Respiratory and Critical Care Medicine, an expert said people should get their vitamins from fruit and veg.

> **The jury's still very much out on whether vitamin and mineral supplements can affect cancer risk**
> Henry Scowcroft, Cancer Research UK

Dr Tim Byers, from the University of Colorado, said a healthy, balanced diet meant people took in a whole range of beneficial nutrients and minerals, which might help to reduce cancer risk.

The researchers followed people aged between 50 and 76 for four years and looked at their average daily use of vitamin C and folic acid, and vitamin E supplements.

Over the course of the study, 521 people developed lung cancer.

Smoking, family history and age all had unsurprisingly strong links to cancer risk.

And while neither vitamin C or folic acid use had any effect on lung cancer risk, vitamin E use did.

The researchers extrapolated their findings, and concluded that over a decade, there was an additional 7% increase in risk for every 100 milligrams taken per day.

The vitamin E trend was most prominent among smokers, but was not confined to them.

Vitamin E is known to be an antioxidant - protecting cells from molecules called free radicals.

But the US researchers speculate that, in high doses, it may also act as a pro-oxidant - causing oxidation and therefore damage to cells.

'Toxic effects'

Dr Christopher Slatore of the University of Washington in Seattle, who led the study, said: "In contrast to the often assumed benefits or at least lack of harm, supplemental vitamin E was associated with a small increased risk of lung cancer.

"Future studies may focus on other components of fruits and vegetables that may explain the decreased risk of cancer that has been associated with fruit and vegetables.

"Meanwhile, our results should prompt clinicians to counsel patients that these supplements are unlikely to reduce the risk of lung cancer and may be detrimental."

But Henry Scowcroft, senior science information officer at Cancer Research UK, said: "The jury's still very much out on whether vitamin and mineral supplements can affect cancer risk.

"Some studies suggest a benefit, but many others show no effect and some, like this one, suggest they may even increase risk."

He added: "Research repeatedly shows that a healthy, balanced diet can reduce your risk of some cancers while giving you all the vitamins you need.

"Quitting smoking remains the most effective way to avoid many cancers. There's no diet, or vitamin supplement, that could ever counter the toxic effects of cigarette smoke."

In 2002 a Finnish study of 29,000 male smokers found taking beta-carotene - which is converted into vitamin A in the body - was linked to an 18% increased risk of developing lung cancer

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/1/hi/health/7271189.stm

Published: 2008/02/29 16:11:30 GMT

Web desktop targets 'cybernomads'
A virtual desktop aimed at users who access the web via cybercafes is attracting interest from organisations set up to bridge the digital divide

Offered by Luxembourg-based start-up Jooce, it is being billed as a way of personalising any computer.

Jooce is targeting the estimated 500 million people who log on to the internet from a cybercafe every day.

Its free web-based desktop could prove valuable for those who can't afford their own PC, said experts.

Jooce offers users the functionality they would get from their personal computer on any machine, allowing them access to files, e-mail, instant messaging, storage and other applications.

"It's a platform that will make it much easier for the world's cybernomads to manage their digital lives," said Jooce founder Stefan Surzyck.

"The one thing that has been missing is a place on the internet where these people can properly manage their online lives - their very own private space online," he said.

A public desktop - known as a Joocetop - is also available to allow friends to access and share files. A dedicated e-mail client is also in development.

Bandwidth issues

Eloisa San Mateo is a regional IT coordinator for the Philippines National Computer Centres - government-sponsored cybercafes set up to provide net access for those in remote areas.

She sees potential for Jooce as a storage device for those who use the centres but has some concerns.

"It seems to require a lot of memory and while the performance of Jooce on high-end computers is very good, when it is run on lower spec machines with poor bandwidth it takes too long," she said.

She is currently running workshops to give locals a feel for the system and is looking to install it on machines over the next six months.

Meddia Mayanja is a senior program officer of Telecentre.org, an organisation that offers advice to telecentres in Africa, Asia and Latin America.

He sees new technologies such as Jooce as crucial if publicly-funded net access centres are going to remain relevant and useful to the audience they intend to serve.

"It is one of many applications that add value to users," he said.

Jooce is also working with the ITU (International Telecommunications Union) to bolster its telecentre programme - a network of cyber kiosks across the developing world.

In India, it is partnering with charity Mission 2007 and ISP Tatatel to support their digital divide activities.

It is also seeing big interest from China.

Heavy-weight backer

Jooce is one of many companies which offer so-called web-based operating systems.

Companies such as Global Hosted Operating System (g.ho.st), desktoptwo and startforce also offer net-based desktops allowing users to access files and applications from any browser.

Michael Gartenberg, an analyst with JupiterResearch, believes the concept of a web OS is a misleading one.

"WebOS is a buzzword but it has little that technically represents an operating system and is more about aggregating functionality," he said.

"It is a crowded market but it is interesting that people are more and more looking to have their digital personas linked into online universes," he said.

Jooce has been in public beta testing for one month and in its first week of operation had 60,000 sign up for a free account.

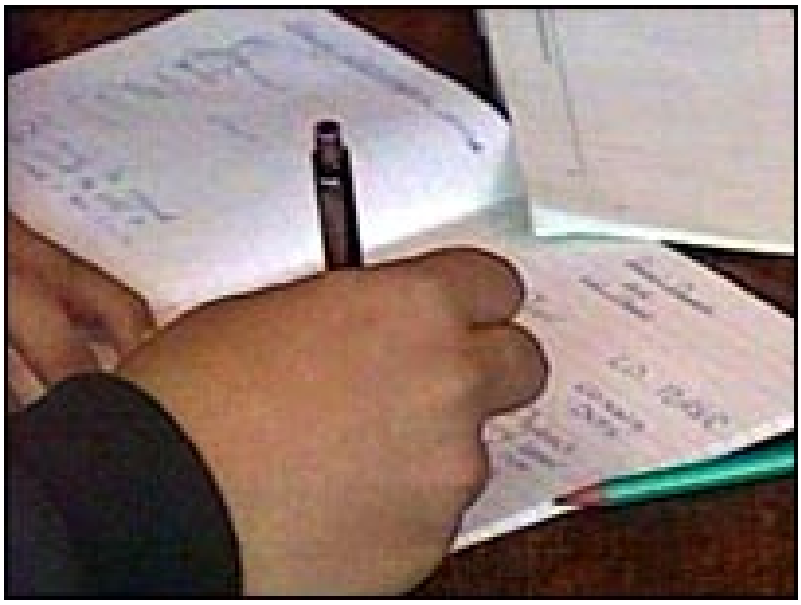
It has a heavy-weight backer in the form of Mangrove - the venture capital firm that provided the initial funding for voice-over-IP platform Skype.

Online technology news site CNET.com has nominated Jooce as a finalist in its 2008 Webware 100 awards.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/1/hi/technology/7267534.stm

Published: 2008/02/28 09:04:39 GMT

Children's mags 'damage writing'
Lightweight fiction and magazines could be damaging children's ability to write good English, a government report says.



It added that teachers felt the "informal style of pupils' personal reading diets" pervaded some pupils' writing - making it too colloquial.

And there were claims that the language of texting and e-mailing was being used when a more formal style was required.

The report looked at how best to boost the performance of children who were falling behind in the core subjects.

It is part of a Making Good Progress resource pack being made available soon to schools, a draft of which was released to journalists.

The latest results show that four out of 10 14-year-old boys failed to achieve the expected level in last year's national English, maths and science tests.

A third of 14-year-old girls also failed to make the grade.

The Department for Children, Families and Schools report offers voluntary guidance for schools on how best they can help pupils who are at risk of not meeting these standards.

'Key obstacle'

It looks at the experiences of 285 pupils in 43 secondary schools across England whom teachers considered to be "slow moving".

The report said these pupils read lightweight fiction and magazines at home for pleasure, which some teachers regarded as "comfort reading".

Teachers said they were concerned about the impact on pupils' writing, which tended to be "inappropriately colloquial" when the task required a little more formal style.

This could be addressed by making pupils realise that writing is not simply "talk written down", the report added.

Teachers should also give pupils the chance to use spoken and written language in formal as well as informal situations, the report added.

Poor literacy skills had a negative influence on other subjects too, the report suggested.

'**Mental calculation**'

It was often seen as a key obstacle to progress in mathematics and science.

Those struggling in maths also lacked confidence and the vocabulary to talk about maths.

The report also said these pupils struggled with "mental calculation" and were put off numbers larger than 100 because they were too big.

But equally they needed more experience of using calculators and had difficulty in interpreting the display, it added.

Those struggling in science also tended to have problems with reading and writing.

Many of them simply could not remember what they had studied from one week to the next.

And pupils said they spent most of their science lessons listening to teachers and did little group activity.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/1/hi/education/7268663.stm

Published: 2008/02/29 12:52:33 GMT

Girls 'more skilled on computers'
Girls are more confident than boys about using a computer, a survey of more than 1,000 children suggests.

The research by the Tesco Computers for Schools programme found girls were more likely than boys to be able to perform key tasks, such as creating documents.

It also showed three-quarters of the seven to 16-year-olds polled used a computer every day, with half spending at least two hours a day online.

Meanwhile, the survey suggested parents relied on children for help.

Child advisers

By the age of seven, nearly three quarters (73%) could use search engines and well over half (62%) were able to edit documents, the research found.

It also showed the level of skills among teenagers meant 70% could confidently create a social networking profile, 59% could download music and more than a third (35%) were able to edit and manipulate photography.

Among the girls in both groups only 6% said they lacked confidence using a computer, compared with 10% of boys.

Many parents also lacked confidence, the survey suggested.

More than half (57%) of parents said they relied on their children for advice on how to use their computer and the internet, and only 40% of parents thought they were the most proficient computer user in their household.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/1/hi/uk/7270307.stm

Published: 2008/02/29 02:35:54 GMT

Cleaner Water With a Wand (No Magic Required)

By ANNE EISENBERG

TRAVELERS who don't trust the water from a mountain stream or a hotel-room faucet have often used chemicals or filters to purify it. Now they have a high-tech option as well: swirl the water with a portable, lightweight wand that beams rays of ultraviolet light.

The wand can clean up a quart of water that is clear — but could harbor stomach-wrecking microorganisms — in 90 seconds. The high-frequency light damages the DNA of bacteria, viruses and protozoa in the water like giardia and cryptosporidium so they can't reproduce and create havoc.

To make the disinfection process easier for users to monitor, one new device on the market, the SteriPen JourneyLCD($129.95) has a liquid-crystal display that shows a countdown during purification (48 seconds for 16 ounces, 90 seconds for 32 ounces) and a smiley face at the end to signal that the job is done.

The device, which weighs a bit less than 5 ounces, including two disposable batteries, will be sold at camping, travel and other stores beginning in April and online at rei.com and other sites, said Edward A. Volkwein, the president of Hydro-Photon, the company in Blue Hill, Me., that makes the unit.

The L.C.D. screen and its messages are a good idea, said James P. Malley Jr., a professor of civil and environmental engineering at the University of New Hampshire in Durham, who specializes in the use of ultraviolet light for treating drinking water. "Forty-eight seconds is a long time for some people," Mr. Malley said of the purification process with the wand. Without a display screen to guide them, people might be inclined to do a perfunctory job of disinfection.

"Human nature is to give a lick and a promise. You are swirling away with your arm out," and might stop before the water is safe, he said. "It's very wise to put a smiley face and other simple symbols there to guide people."

A thorough swirling of the water being disinfected is important, so that photons released by the ultraviolet bulb can penetrate organisms in the water. Professor Malley also recommended that apparently clear water be filtered at a minimum with a fine piece of mesh screening, for instance, before it is purified. "UV is not meant to replace filters," he said. "Filter first, and then disinfect second."

If the water is tea-colored, has an orange or yellow tinge, or has objects like leaves in it, ultraviolet devices will not work well, as particulates in the water can absorb the light meant to destroy the harmful organisms, he said.

For example, “you wouldn’t want to use these devices to disinfect apple cider,” he said. “The light wouldn’t penetrate.”

The lamp that creates the ultraviolet light, which has a wavelength of 254 nanometers, is good for 10,000 treatments — about 2,500 gallons of water — said Miles Maiden, inventor of the SteriPen and the chief executive of Hydro-Photon. The batteries will last for about 100 treatments before they need to be replaced.

Ultraviolet rays, of course, can be damaging to eyes and skin, so the product comes with safety features. The SteriPen has electrodes or water sensors in its neck that prevent its turning on until the device is completely immersed in water, Mr. Maiden said. After that, the ultraviolet light is securely contained: the surface of the water acts as a mirror, blocking the ultraviolet light from escaping, and UV beams cannot pass through standard container materials.

SHANNON DAVIS, associate editor of Backpacker magazine in Boulder, Colo., liked the liquid-crystal display and the microprocessor of the new SteriPen Journey. “The display shows you that you’ve left the device in there the right amount of time,” Mr. Davis said, “and that adds confidence.” He also liked the snug fit between the pen and standard plastic bottles that hold, for instance, one or two liters of water. “The fit is so tight that you can insert the pen in the bottle,” he said, and then swirl the bottle vigorously without spilling a drop.

Meridian Design, of San Jose, Calif., also makes a portable ultraviolet water purifier, the mÜV ($49 at the company Web site, uvaquastar.com) that is rechargeable, said Dan Matthews, president of the company. The unit is in limited production, Mr. Matthews said. “We’re testing them individually before they are released to full marketing,” he said. “We’re not ready to make thousands of them until we’re comfortable we’ve worked out the kinks.”

Jamie DeBenedetto, a hiker and trail leader who lives in Phoenix, tried the mÜV and prefers it to the iodine tablets she usually carries in her backpack for purification of water. It is easy to recharge, she said, “and the water tastes a lot better than it does with iodine.”

E-mail: novelties@nytimes.com.

Black and White and Graphic All Over: A 1930s Tale of Race, Passing and Pain

By GEORGE GENE GUSTINES

INCOGNEGRO

By Mat Johnson; art by Warren Pleece

136 pages. Vertigo/DC Comics. $19.99.

Zane Pinchback, a reporter for The New Holland Herald of New York, is a black man who can pass for white. Zane uses this ability to go undercover to investigate lynchings in the 1930s South. “Identity is open-ended,” he proclaims. “Why have just one?” That belief is a theme that comes up in unexpected ways in this engrossing graphic novel, with its smart dialogue and sharp images.

The inspiration for “Incognegro” comes from the personal and professional experience of its writer, Mat Johnson. The author’s note reveals that Mr. Johnson, as a young boy, could pass for white and would act out missions as a race spy in the war against white supremacy. As an adult he learned of Walter White, the former chief executive of the National Association for the Advancement of Colored People, who passed for white to investigate lynchings. The 2005 birth of Mr. Johnson’s twins — one “brown-skinned” with “Afro hair” and the other with “the palest of pink skins” and “European curly hair” — also inspires part of the tightly plotted tale.

Zane is a confident charmer who throws himself into perilous situations for his reporting because, as he puts it, “most of the white papers don’t even consider it news.” At one lynching, where a photographer sets up shop to create postcards as keepsakes of the moment — a practice that is, sadly, historically accurate — Zane takes charge of the onlookers, getting their addresses ostensibly to mail their mementos but really to include their identities in his dispatch.

The name he most longs to reveal, however, is his own. But that desire must go unfulfilled as the precarious nature of his work demands the use of a pseudonym, Incognegro.

Aching to become a more recognized part of the booming, cultural Harlem Renaissance, Zane cuts a deal with his editor: one last investigative report in exchange for the positions of managing editor and columnist. Zane’s preparation for his trip to Tupelo, Miss., showcases the strength of graphic novels: words and images working together to enhance each other. If this were a superhero comic book, this section would reveal Zane’s secret origin. We read that he is “the product of the Southern tradition nobody likes to talk about” — slavery and rape — and we see a discreet image of the terrible deed in a mirror.

We also learn the steps Zane takes to pass — among them, clothing changes and beauty products from Madame C. J. Walker that straighten his hair — and we can witness, in "before" and "after" panels, the subtle differences in his appearance. The graphic novel is printed in black and white, which helps strengthen the idea that Zane can blend in. But the lack of distinguishing color cues, which can be used to convey everything from skin tone to mood, also invites a closer inspection of the illustrations, which are richly rendered by Warren Pleece.

The rest of Zane's subterfuge can be chalked up to philosophy and role playing. "Race doesn't really exist," he says. "Race is just a bunch of rules meant to keep us on the bottom. Race is a strategy. The rest is just people acting. Playing roles. That's what white folks never get. They don't think they have accents. They don't think they eat ethnic foods. Their music is classical. They think they're just normal. That they are the universal and that everyone else is an odd deviation from form. That's what makes them so easy to infiltrate."

Carl, a black friend of Zane's who also longs for recognition, accompanies him on the trip. But where the confident Zane uses his reporting to dole out justice, Carl is cocky and confrontational. An unpleasant encounter on the train forces Zane to remind him: "America is not 135th Street, Carl. You can't just attack white men when they say something racist." Though his style ultimately lands him in dire trouble, Carl's method of jumping into the thick of things generates almost as much information as Zane's restraint.

Once in Tupelo we learn the too-close-to-home details of Zane's latest assignment: his twin brother, Alonzo, has been accused of murdering Michaela Mathers, a local white woman he had been dating and with whom he had set up a moonshine operation. The body, discovered in the woods, is one of the book's several violent images. "Incognegro" is not for the faint of heart. Besides the corpse, there's a brutal lynching that opens the story and a messy rifle shooting. Anti-black slurs, and some anti-white ones, also abound.

The perception of identity — and the words, demeanor and props that help create it — comes up again and again in "Incognegro." To save a young black man who is being hounded at the rail station by three white men, Zane passes himself off as a Klansman to get the young man safely on the train. "AYAK?" he asks, using a code for "Are you a Klansman?" A white man affirmatively responds, "AKIA" ("A Klansman I am"). Two characters see the resemblance between Zane and Alonzo, who presumably has darker skin, only after they are told the men are brothers.

Carl presents himself as a caricature of a European baron ("Blimey, gentlemen. Blimey!" and "I shall partake in another game and another glass of your so-called 'sweet tea,' as you Americans call it") interested in acquiring large tracts of land. A character suspicious of the charade says he sounds like the butler on "The Eddie Cantor Radio Show." Carl is undaunted. "They don't see a Negro in front of them," he explains. "All they see is green."

The ultimate examples of passing are tied to the central mystery and the coup de grâce of "Incognegro," both of which are best not revealed here. The former is a tragedy while the latter, which punishes the man behind the lynchings, is a case of both poetic justice and deliberate mistaken identity. The powerful coda well befits the story, much as "Incognegro" proudly exemplifies the graphic novel.

http://www.nytimes.com/2008/03/03/books/03gust.html

Teaching Boys and Girls Separately

By ELIZABETH WEIL

On an unseasonably cold day last November in Foley, Ala., Colby Royster and Michael Peterson, two students in William Bender's fourth-grade public-school class, informed me that the class corn snake could eat a rat faster than the class boa constrictor. Bender teaches 26 fourth graders, all boys. Down the hall and around the corner, Michelle Gay teaches 26 fourth-grade girls. The boys like being on their own, they say, because girls don't appreciate their jokes and think boys are too messy, and are also scared of snakes. The walls of the boys' classroom are painted blue, the light bulbs emit a cool white light and the thermostat is set to 69 degrees. In the girls' room, by contrast, the walls are yellow, the light bulbs emit a warm yellow light and the temperature is kept six degrees warmer, as per the instructions of Leonard Sax, a family physician turned author and advocate who this May will quit his medical practice to devote himself full time to promoting single-sex public education.

Foley Intermediate School began offering separate classes for boys and girls a few years ago, after the school's principal, Lee Mansell, read a book by Michael Gurian called "Boys and Girls Learn Differently!" After that, she read a magazine article by Sax and thought that his insights would help improve the test scores of Foley's lowest-achieving cohort, minority boys. Sax went on to publish those ideas in "Why Gender Matters: What Parents and Teachers Need to Know About the Emerging Science of Sex Differences." Both books feature conversion stories of children, particularly boys, failing and on Ritalin in coeducational settings and then pulling themselves together in single-sex schools. Sax's book and lectures also include neurological diagrams and scores of citations of obscure scientific studies, like one by a Swedish researcher who found, in a study of 96 adults, that males and females have different emotional and cognitive responses to different kinds of light. Sax refers to a few other studies that he says show that girls and boys draw differently, including one from a group of Japanese researchers who found girls' drawings typically depict still lifes of people, pets or flowers, using 10 or more crayons, favoring warm colors like red, green, beige and brown; boys, on the other hand, draw action, using 6 or fewer colors, mostly cool hues like gray, blue, silver and black. This apparent difference, which Sax argues is hard-wired, causes teachers to praise girls' artwork and make boys feel that they're drawing incorrectly. Under Sax's leadership, teachers learn to say things like, "Damien, take your green crayon and draw some sparks and take your black crayon and draw some black lines coming out from the back of the vehicle, to make it look like it's going faster." "Now Damien feels encouraged," Sax explained to me when I first met him last spring in San Francisco. "To say: 'Why don't you use more colors? Why don't you put someone in the vehicle?' is as discouraging as if you say to Emily, 'Well, this is nice, but why don't you have one of them kick the other one — give us some action.' "

During the fall of 2003, Principal Mansell asked her entire faculty to read "Boys and Girls Learn Differently!" and, in the spring of 2004, to attend a one-day seminar led by Sax at the school, explaining boys' and girls' innate differences and how to teach to them. She also invited all Foley Intermediate School parents to a meeting extolling the virtues of single-sex public education. Enough parents were impressed that when Foley Intermediate, a school of 322 fourth and fifth graders, reopened after summer

recess, the school had four single-sex classrooms: a girls' and a boys' class in both the fourth and fifth grades. Four classrooms in each grade remained coed.

Separating schoolboys from schoolgirls has long been a staple of private and parochial education. But the idea is now gaining traction in American public schools, in response to both the desire of parents to have more choice in their children's public education and the separate education crises girls and boys have been widely reported to experience. The girls' crisis was cited in the 1990s, when the American Association of University Women published "Shortchanging Girls, Shortchanging America," which described how girls' self-esteem plummets during puberty and how girls are subtly discouraged from careers in math and science. More recently, in what Sara Mead, an education expert at the New America Foundation, calls a "man bites dog" sensation, public and parental concerns have shifted to boys. Boys are currently behind their sisters in high-school and college graduation rates. School, the boy-crisis argument goes, is shaped by females to match the abilities of girls (or, as Sax puts it, is taught "by soft-spoken women who bore" boys). In 2006, Doug Anglin, a 17-year-old in Milton, Mass., filed a civil rights complaint with the United States Department of Education, claiming that his high school — where there are twice as many girls on the honor roll as there are boys — discriminated against males. His case did not prevail in the courts, but his sentiment found support in the Legislature and the press. That same year, as part of No Child Left Behind, the federal law that authorizes programs aimed at improving accountability and test scores in public schools, the Department of Education passed new regulations making it easier for districts to create single-sex classrooms and schools.

In part because of these regulations and in part because of a mix of cultural and technological forces — ranging from the growth of brain-scan research to the increased academic pressures on kindergarteners and a chronic achievement gap between richer and poorer students and between white and minority students — new single-sex public schools and classrooms are opening at an accelerating pace. In 1995, there were two single-sex public schools operating in this country. Currently, there are 49, and 65 percent of those have opened in the last three years. Nobody is keeping exact count of the number of schools offering single-sex classrooms, but Sax estimates that in the fall of 2002, only about a dozen public schools in the United States offered any kind of single-sex educational options (excluding schools which offered single-sex classrooms only in health or physical education). By this past fall, Sax says, that number had soared to more than 360, with boys- and girls-only classrooms now established in Cleveland; Detroit; Albany; Gary, Ind.; Philadelphia; Dallas; and Nashville, among other places. A disproportionate number of the schools are in the South (where attitudes toward gender roles tend to be more conservative) or serve disadvantaged kids. Sax claims that "many more are in the pipeline for 2008-2009."

Among advocates of single-sex public education, there are two camps: those who favor separating boys from girls because they are essentially different and those who favor separating boys from girls because they have different social experiences and social needs. Leonard Sax represents the essential-difference view, arguing that boys and girls should be educated separately for reasons of biology: for example, Sax asserts that boys don't hear as well as girls, which means that an instructor needs to speak louder in order for the boys in the room to hear her; and that boys' visual systems are better at seeing action, while girls are better at seeing the nuance of color and texture. The social view is represented by teachers like Emily Wylie, who works at the Young Women's Leadership School of East Harlem (T.Y.W.L.S.), an all-girls school for Grades 7-12. Wylie described her job to me by saying, "It's my subversive mission to create all these strong girls who will then go out into the world and be astonished when people try to oppress them." Sax calls schools like T.Y.W.L.S. "anachronisms" — because, he says, they're stuck in 1970s-era feminist ideology and they don't base their pedagogy on the latest research. Few on the other side want to disparage Sax publicly, though T.Y.W.L.S.'s founder, Ann Tisch, did tell me pointedly, "Nobody is planning the days of our girls around a photograph of a brain."

The two camps face a common enemy in the A.C.L.U., which opposes all single-sex public education. (When I asked a lawyer at the A.C.L.U.'s Women's Rights Project why, she said, "Have you ever heard of Title IX?" referring to the 1972 Education Amendments that outlaw all discrimination in educational programs on the basis of sex.) But that hasn't brought the two sides together. "What kind of message does it give when you tell a group of kids that boys and girls need to be separated because they don't even see or hear alike?" asks Rosemary Salomone, a legal scholar at St. John's University School of Law. Salomone is especially invested in the debate, as she provided support to T.Y.W.L.S. before it opened in

1996 and was subsequently tapped by the United States Department of Education to draft the revised regulations that made it easier for districts to separate boys from girls. Those regulations now require that a district "provide a rationale," review its program every two years and ensure that enrollment in single-sex classrooms is voluntary. When Salomone revised the regulations, she thought they would usher in a flurry of schools of the T.Y.W.L.S. — not the Sax — variety. She was wrong. "As one of the people who let the horse out the barn, I'm now feeling like I really need to watch that horse," Salomone told me over lunch near her home in Rye, N.Y., last month. "Every time I hear of school officials selling single-sex programs to parents based on brain research, my heart sinks."

On that November day in Foley, Ala., William Bender pulled a stool up to a lectern and began reading to his fourth-grade boys from Gary Paulsen's young-adult novel "Hatchet." Bender's voice is deep and calm, a balm to many of his students who lack father figures or else have parents who, Bender says, "don't want to be parents. They want to be their kids' friends." Bender paused to ask one of his boys, who said he was feeling sick, "Are you going to make it, brother?" Then he kept reading. " 'The pain in his forehead seemed to be abating. . . .' What's *abating*, gentlemen?" The protagonist of "Hatchet" survives a plane crash and finds himself alone by an insect-infested lake. Bender encouraged his boys to empathize. They discussed how annoying it is, when you're out hunting, to be swarmed by yellow flies.

Meanwhile, in Michelle Gay's fourth-grade class, the girls sang a vigorous rendition of "Always Sisters" and then did a tidy science experiment: pouring red water, blue oil and clear syrup into a plastic cup to test which has the greatest density, then confirming their results with the firsthand knowledge that when you're doing the dishes after your mother makes fried chicken, the oil always settles on top of the water in the sink.

Foley, population 11,300, is 10 miles from the Gulf Coast. Fifty-seven percent of Foley Intermediate's students are white, 24 percent are black and 17 percent are Latino; 70 percent receive free or reduced-price lunches each day. In the first year of Foley's single-sex program, a third of the kids enrolled. The next year, two-thirds signed up, and in its third year 87 percent of parents requested the program. Principal Mansell reports that her single-sex classes produce fewer discipline problems, more parental support and better scores in writing, reading and math. She does, however, acknowledge that her data are compromised, as her highest-performing teachers and her most-motivated students have chosen single-sex.

In his books and frequent media appearances, Sax holds up Foley Intermediate as an example of his theories put to good use. In his second book, "Boys Adrift: The Five Factors Driving the Growing Epidemic of Unmotivated Boys and Underachieving Young Men," Sax credits Bender for helping focus a boy who was given a wrong diagnosis of attention-deficit disorder by telling him that his father, who had left the family, would be even less likely to return if all his mother had to report was the boy misbehaving in school. Sax also goes out of his way to note that Bender had this conversation with the boy "shoulder

to shoulder," not "face to face." "Just remember this rule of thumb," Sax tells readers: "A good place to talk with your son is in your car, with you driving and your son in the passenger seat."

Sax used to say that he was "uniquely unqualified to lead the single-sex public education movement," since, for among other reasons, he had never been a teacher. Now, he no longer says that, and he maintains that a school's teachers and staff need only 14 hours of training — two 7-hour days with him — to prepare to switch from coeducation to single-sex. Sax is 48, square-jawed and sturdily built, with a thick shag of side-parted brown hair and a relentless intellect and tireless charisma that leave even his critics exhausted and impressed. In the 1980s he earned an M.D. and Ph.D. (in psychology) from the University of Pennsylvania. Last year, he gave about 50 seminars and lectures on sex differences in children. The first time I met him, he was swinging through San Francisco to give a series of such talks at the Katherine Delmar Burke School, a private all-girls school. Speaking to a group of sixth graders, Sax explained his theory that girls' hearing ability is much better than boys', as is girls' sense of smell. The girls, just on the edge of puberty, sat utterly rapt, seeming to want to understand why their brothers, boy cousins, cute skater-dude neighbors and fathers were so weird. A few weeks after the lecture, Sax sent me a packet of color photocopies of thank-you notes he had received from the girls. One, from a girl with two fathers, read: "Dr. Sax, Thank you so much for coming to Burkes. . . . I had a smell in my room and my Dads couldn't smell it but I could. I thought I was going crazy. It ends up there was a dead rat in the wall. Hope you come back soon."

Sax comes off as a true believer and describes his conversion experience like this: In 2000, one of his patients, a 12-year-old boy, came to his medical office. For several years before then, the boy had been withdrawn, uninspired and on multiple medications, but he had recently made a big turnaround, which his parents credited to having enrolled him in an all-boys school. Upon hearing this, Sax said to the boy's mother, "With all due respect, I regard single-sex education as an antiquated relic of the Victorian Era." To which he says she replied, "With all due respect, Dr. Sax, you have no idea what you're talking about." After visiting a handful of single-sex schools, Sax threw himself into studying neurological differences between males and females, eventually focusing on how to protect boys from a syndrome he calls "failure to launch," which Sax often characterizes as caring more about getting a Kilimanjaro in Halo 3 than performing well in high school or taking a girl on a date. Among his early proposals was that boys should start kindergarten at age 6, a year later than girls, in order to ease the "sense of scholastic incompetence" that so many boys feel early on because they tend to develop later. Several friends quickly convinced Sax that American families would never go for this. So Sax started thinking it might be better for boys and girls to be in different classrooms.

Sax's official foray into single-sex public-school advocacy started in early 2002, when, he says, he applied for "a 501(c)(3) with the pretentious and improbable name of the National Association for Single-Sex Public Education." In its first few years, N.A.S.S.P.E. didn't see much action. Then, in 2004, he was invited to give a seminar in Foley. His appearance there led to a workshop in Wilcox County, Ala., and over the next few years, Sax says, "things started to mushroom." Sax estimates that, at present, 300 of the 360 single-sex public school programs in the country "are coming at this from a neuroscience basis." Either he or one of N.A.S.S.P.E.'s board members has been in touch with about half the programs.

David Chadwell, one of Sax's disciples and the coordinator of Single- Gender Initiatives at the South Carolina Department of Education, explained to me the ways that teachers should teach to gender differences. For boys, he said: "You need to get them up and moving. That's based on the nervous system, that's based on eyes, that's based upon volume and the use of volume with the boys." Chadwell, like Sax, says that differences in eyesight, hearing and the nervous system all should influence how you instruct boys. "You need to engage boys' energy, use it, rather than trying to say, No, no, no. So instead of having boys raise their hands, you're going to have boys literally stand up. You're going to do physical representation of number lines. Relay races. Ball tosses during discussion." For the girls, Chadwell prescribes a focus on "the connections girls have (a) with the content, (b) with each other and (c) with the teacher. If you try to stop girls from talking to one another, that's not successful. So you do a lot of meeting in circles, where every girl can share something from her own life that relates to the content in class."

While Sax rejects the notion that he is a gender essentialist — according to Sax's own definition, "a gender essentialist is a derogatory term that arose in the 1970s to define someone who is an idiot, or a Republican, or both, who does not understand that gender is socially constructed" — he does say that "human nature is gendered to the core" and that "all that happens when you take a toy gun away from your son and give him a doll instead is that you tell him, 'I don't like the person that you are and I wish you were more like your sister, Emily.' " He opens "Why Gender Matters" with two cautionary tales: one about a boy who starts kindergarten at age 5, is given a diagnosis of A.D.H.D. and depression and ends up on a three-drug cocktail of Adderall, Wellbutrin and clonidine; the other about a girl who transforms "from chubby wallflower to outgoing socialite" in middle school, seems to have it all — friends, academic success — and then shocks her parents by overdosing on Vicodin and Xanax. The two anecdotes are capsule versions of the boys' and girls' crises, and depending on one's point of view, Sax effectively either addresses or exploits these parental concerns. After presenting the Adderall-doped grammar-school boy and the suicidal middle-school girl, Sax offers a possible cause of these sad stories. "The neglect of gender in education and child-rearing has done real harm." These tragedies "might have been averted if the parents had known enough about gender differences to recognize what was really happening in their child's life."

Among the differences Sax notes between boys and girls: Baby boys prefer to stare at mobiles; baby girls at faces. Boys solve maze puzzles using the hippocampus; girls use the cerebral cortex. Boys covet risk; girls shy away. Boys perform better under moderate stress; girls perform worse. Many academics and progressives tend to find Sax's views stereotyped and infuriating, yet Sax does not seem to mind. Sax told me that in 2005, he delivered a lecture at a conference at the University of Alaska in Fairbanks. When the next speaker, Michael Younger, of Cambridge University, took the lectern, Sax says Younger threw down his speech and said, "I'm going to depart from my prepared remarks because I'm so annoyed by the sexist rubbish I just heard from Dr. Sax. Dr. Sax is trying to tell us that boys draw action and girls draw stasis. He might as well have said: 'Boys are active, girls are passive. Boys should go out and have jobs, girls should stay home and have babies.' " While Sax, a gadfly, enjoys telling this story, Younger calls it "a fiction," though he does concede "that certain aspects of Sax's work suggest an essentialism about boys and girls which is not borne out by reality as exposed in our own research."

A deluge of data has emerged in recent years detailing how boys and girls have different developmental trajectories and different brains. Sax has made a role for himself popularizing this work, though it's not yet clear what the research means or whether there are implications for single-sex education. For instance, among neuroscientists, motor skills are often used as proxies for assessing cognitive skills and social and emotional control in younger children. As Martha Denckla, director of the Developmental Cognitive Neurology Clinic at Kennedy Krieger Institute in Maryland, explained to me: "Looking at normal motor development in boys and girls — the ability to balance, to hop, to use your feet, to use your fingers and your hands — as a group, 5-year-old girls look almost completely the same as 6-year-old boys. The same is also true for anything having to do with speed of output: for example, how quickly you answer a question. Maybe you know the answer, but you just can't prepare your mouth to form the words." The gender gap in motor development shrinks through grammar and middle schools, Denckla says, disappearing once everyone has gone through puberty, around age 15. Yet Denckla doesn't see any need for single-sex public education; she thinks mixed-grade K-1, 1-2 and 2-3 classrooms are a better way to deal with the developmental differences among school-age kids.

Scans of boys' and girls' brains over time also show they develop differently. Analyzing data from the largest pediatric neuro-imaging study to date — 829 scans from 387 subjects ages 3 to 27 — researchers from the National Institute of Mental Health found that total cerebral volume peaks at 10.5 years in girls, four years earlier than in boys. Cortical and subcortical gray-matter trajectories peak one to two years earlier in girls as well. This may sound very significant, but researchers claim it means nothing for educators, or at least nothing yet. "Differences in brain size between males and females should not be interpreted as implying any sort of functional advantage or disadvantage," the N.I.M.H. paper concludes. Not one to be deterred, Sax invited Jay Giedd, chief of brain imaging at the Child Psychiatry Branch at N.I.M.H., to give the keynote address at his N.A.S.S.P.E. conference in 2007. Giedd spoke for 90 minutes, but made no comments on schooling at all.

One reason for this, Giedd says, is that when it comes to education, gender is a pretty crude tool for sorting minds. Giedd puts the research on brain differences in perspective by using the analogy of height. “On both the brain imaging and the psychological testing, the biggest differences we see between boys and girls are about one standard deviation. Height differences between boys and girls are two standard deviations.” Giedd suggests a thought experiment: Imagine trying to assign a population of students to the boys’ and girls’ locker rooms based solely on height. As boys tend to be taller than girls, one would assign the tallest 50 percent of the students to the boys’ locker room and the shortest 50 percent of the students to the girls’ locker room. What would happen? While you’d end up with a better-than-random sort, the results would be abysmal, with unacceptably large percentages of students in the wrong place. Giedd suggests the same is true when educators use gender alone to assign educational experiences for kids. Yes, you’ll get more students who favor cooperative learning in the girls’ room, and more students who enjoy competitive learning in the boys’, but you won’t do very well. Says Giedd, “There are just too many exceptions to the rule.”

Despite a lack of empirical evidence, a cottage industry has emerged working the “boys and girls are essentially different, so we should educate them differently” angle. Several advocates like Sax have been quite successful commercially, including Michael Gurian, a family therapist, who published the best-selling “The Wonder of Boys” in 1996, a work he has since followed up with 15 more, including “Boys and Girls Learn Differently!” Through the Gurian Institute, he provides trainings to teachers, “showing the PET scans, showing the Spect scans” (a Spect scan is a nuclear imaging test that shows how blood flows through tissue), “teaching how the male and female brain are different,” Gurian told me. Like Sax, Gurian speaks authoritatively, yet both have been criticized for cherry-picking studies to serve their views. For instance, Sax initially built his argument that girls hear better than boys on two papers published in 1959 and 1963 by a psychologist named John Corso. Mark Liberman, a linguistics professor at the University of Pennsylvania, has spent a fair amount of energy examining the original research behind Sax’s claims. In Corso’s 1959 study, for example, Corso didn’t look at children; he looked at adults. And he found only between one-quarter and one-half of a standard deviation in male and female hearing thresholds. What this means, Liberman says, is that if you choose a man and a woman at random, the chances are about 6 in 10 that the woman’s hearing will be more sensitive and about 4 in 10 that the man’s hearing will be more sensitive. Sax uses several other hearing studies to make his case that a teacher who is audible to boys will sound too loud to girls. But Liberman says that if you really look at this research, it shows that girls’ and boys’ hearing is much more similar than different. What’s more, the sample sizes in those studies are far too small to make meaningful conclusions about gender differences in the classroom. The “disproportion between the reported facts and Sax’s interpretation is spectacular,” Liberman wrote on his blog, Language Log. “Dr. Sax isn’t summarizing scientific research; he’s making a political argument,” he wrote in an e-mail message. “The political conclusion comes first, and the scientific evidence — often unrepresentative or misrepresented — is selected to support it.”

One of Sax’s core arguments is that trying to teach a 5-year-old boy to read is as developmentally fraught as trying to teach a 3 1/2-year-old girl and that such an exercise often leads to a kid hating school. This argument resonates with many teachers and parents, who long for the days when kindergarten meant learning how to stand in line for recess, not needing to complete phonics homework. Yet public schools are beholden to state standards, and those standards require kindergartners to learn to read. As a result, even leaders of single-sex public schools, like Jabali Sawicki, the principal of the all-boys Excellence Charter School in the Bedford-Stuyvesant neighborhood of Brooklyn, are using some of what Sax has to offer while quietly refuting other claims.

Sawicki is 30, lanky and mocha-skinned, with an infectious energy. He grew up in a tough part of San Francisco with a single mother who managed to get her son a scholarship for middle school at a private all-boys school. From there he went to a private high school and then on to Oberlin College. The Excellence School is part of Uncommon Schools, a small network of charter schools. Housed in a gracious building on a modest street, Excellence currently teaches children in kindergarten through Grade 4, and will add a grade each year for the next four years, up to Grade 8. Sawicki’s office occupies an empty classroom slated to be overtaken by students as the school grows. There, he told me that educating lower-class black boys is “the new civil rights movement.” He then walked me down the hall to one of his kindergarten classrooms, where a sign on the door read “Fordham, Class of 2024.”

"Jacob," said Sawicki, folding himself into a tiny chair and pointing to a line in a workbook, "will you read that for our guest?"

Jacob, who is 5, straightened his tiny tie under his green cardigan and used his index finger to track his place on the page. "A rat and a rabbit went down the slide."

"Thank you," said Sawicki. "And can you tell our guest what you like about the Excellence School?"

"I like that I get to wear a sweater with buttons," he said, glancing down at his uniform. "And I like that I'm going to college."

While there's some dispute over whether there's an ongoing education crisis for white, middle-class boys, there's no doubt that public schools are failing poor minority students in general and poor minority boys in particular. Despite six years of No Child Left Behind, the achievement gaps between rich and poor students and white and black students have not significantly narrowed. "People are getting desperate" is how Benjamin Wright, chief administrative officer for the Nashville public schools, described the current interest in single-sex education to me. "Coed's not working. Time to try something else."

Wright was one of the first principals in the country to address the racial and socioeconomic achievement gaps by separating boys from girls. In 1999, he was sent to the failing Thurgood Marshall Elementary School, in Seattle, to try to turn the place around. One of the first things he noticed was that three boys were getting suspended for every girl, "and for the most ridiculous things in the world — a boy would burp, or he'd pass gas, or a girl would say, 'He hit me.' " Nationwide, boys are nearly twice as likely as girls to be suspended, and more likely to drop out of high school than girls (65 percent of boys complete high school in four years; 72 percent of girls do). Boys make up two-thirds of special-education students. They are 1.5 times more likely to be held back a grade and 2.5 times more likely to be given diagnoses of A.D.H.D. So Wright met with his fourth-grade teachers and recalls telling them, "O.K., here's what we're going to do: how about *you* take all the boys and *you* take all the girls?" Wright says that in 2001, after Marshall's first year in a single-sex format, the percentage of boys meeting the state's academic standards rose from 10 percent to 35 percent in math and 10 percent to 53 percent in reading and writing.

Wright attributes this both to the insights of "brain researchers" like Sax and to what he calls "the character piece" — giving children a positive sense of themselves as students — which he says is easier to address in a single-sex setting. "*Nobody cares about me, nobody really wants me* — an African American or a Latino boy will tell you that in a hurry," Wright told me when we spoke in January. "Or a Vietnamese or a Cambodian boy, if you're in the right neighborhood. *Don't nobody care*. Teachers need to understand when it's time to stop teaching the content and start teaching the context."

Not all schools see great results from switching to a single-sex format. After transforming the Thurgood Marshall School in Seattle, Wright moved to Philadelphia to work on the district's single-sex programs, and the results were rather modest, a fact Wright attributes to working both with middle- and high-school students and with less-engaged teachers. Other districts have started single-gender programs only to shut them down, as major logistical headaches outweighed the small academic gains. Lori Clark, principal at Jefferson Leadership Academies in Long Beach, Calif., which in 1999 became the first public middle school in the country to convert to a single-gender format, is in the process of reverting her school to coed. "We just didn't get the bang for the buck we'd been hoping for with our test scores," Clark told me. "Our master schedule is like one of those old Rubik's cubes. It's hard enough to make sure each kid gets *this* level English class and *that* level math class — and then we need to account for if that student is a boy or a girl? We just couldn't have our hands tied like that."

When Sawicki first took the job at Excellence, he attended conferences given by Sax and others on single-sex education, and at all of them he'd stand up and say: "Tell me what is it that I should do? What's the magic dust that I should sprinkle?" Now, four years into the job, he's following Wright's lead, trying to take the best of all models. At Excellence, in a third-grade room, the teacher Roberto de Leon roused his students into calling out the two-dimensional sides of three-dimensional shapes while throwing around a big purple eyeball. But the Excellence school couples their games with serious discipline. By

7:30 each morning, 220 boys walk through the school's heavy double doors, each dressed, in the terminology of the school, as a professional scholar: in black sneakers, dress pants, a white shirt, a green cardigan, a belt and a tie. If a child arrives at 7:31 a.m., his parents will receive a call at 5:45 the next morning to make sure that boy will be at school on time. Excellence is a charter school — meaning the school is publicly financed but has been freed from some of the rules that apply to other public schools, in exchange for promising to produce certain results. Its halls are silent from 7:50 to 10:30 a.m. each day. "The school's sacred time," Sawicki explains. "Right now we have 220 boys who are reading. Just a few blocks that way" — he pointed toward Crown Heights, a nearby section of Brooklyn — "you've got 220 boys who are doing something that's not going to get them to college."

After meeting Jacob, Sawicki walked me over to a room labeled "University of North Carolina, 2024," where the kindergarten teacher Trisha Bailey was sitting with nine boys in a reading circle. Part of Excellence's strategy is to keep boys too busy to fall out of line. "Friends, who's sitting tallest?" Bailey said in her brightest voice. "Who has a smile on his face? Whose feet are flat on the floor? O.K., here were go." For the next two minutes, Bailey led the boys in a simple phonics exercise, sounding out together cat, *kitten*, *kiss*. Then she said, as animated as the host of "Blues Clues": "Good job for you! Good job for me! Good job everybody! O.K., next."

Under Bailey's guidance, the boys did two more pages of phonics, and then she jumped to her feet and announced: "Stand up if you need to get your sillies out! Put your hands on your belly. Ha . . . ha, ha . . . ha, ha, ha. Now get ready for a blastoff with me!" Bailey counted down from 10 to 1, crouched down into a squat alongside the boys and then exploded into the air. Then she promptly took her seat. "Sit up tall, fold your hands, three-two-one, here we go." Bailey held up a page and put her index finger on a red dot. "Boys, let's read together now. *This* . . . *is* . . . *my* . . . *kitten.*"

The Young Women's Leadership School in Harlem is widely considered the birthplace of the current single-sex public school movement. This position of eminence stems from both its early beginnings and its success: since opening in 1996, every girl in every senior class at T.Y.W.L.S. has graduated and been accepted at a four-year college.

T.Y.W.L.S. occupies the top five floors of a commercial building in Harlem, on 106th Street near Lexington Avenue. Most of the girls come from the neighborhood, where they walk home so quickly that they often breeze by their own mothers before registering whom they've passed. One afternoon in January, Dalibell Ferreira, a senior, sat drinking a soda in the college counselor's office, where she sometimes stays until 8 p.m. because she finds her own home distracting. Ferreira is tall, poised, with wide-set eyes and her hair neatly pulled back around her fine Dominican face. When she graduates, she wants "to go to Wesleyan and study abroad, then travel, and then work for Unicef." When she entered T.Y.W.L.S. in the seventh grade, she mostly liked that the linoleum floor was so clean she could see her own face reflected on it. Then she started appreciating that people wouldn't snicker, "Oh, she thinks she's so smart" when she raised her hand in class. Then one day last spring, on the way home from a friend's house, Ferreira ran into a classmate from elementary school who was pushing a stroller and also pregnant. "I know that girl is smart, very smart, but now she just hangs around the block," Ferreira told me. "I want to be bigger in life. Maybe that girl had dreams, too, but you can just see: the lights have gone out in her face."

T.Y.W.L.S. was founded by Ann Rubenstein Tisch, wife of Andrew Tisch, the co-chairman of the Loews Corporation. Ferreira's is exactly the story Tisch, a former correspondent for NBC Network News, hoped her students would someday tell. Tisch first got the idea for a public all-girls school while on assignment in Milwaukee in the late '80s. She was interviewing a 15-year-old at a public high school that had just opened a nursery so teenage moms could come back and finish their degrees. "Where do you see yourself in 5 years?" Tisch asked the young mother. The mother started to cry. "I said to myself: 'She's stuck, she knows she's stuck. And she's impacting three generations: her mother, her child and herself.' We need to get these kids on a completely different path, a path that wealthy girls and parochial-school girls and yeshiva girls are offered. Don't you think that might make a difference?"

Tisch is 53 years old, with reddish hair and a strong, warm face. One of the first things she did when she got serious about trying to start an all-girls public school was to hire a lawyer, George Shebitz, to explore

the legality of a single-sex school. Tisch started visiting elite Manhattan all-girls private schools like Brearley and Spence, and once she had a vision of girls in blue-and-white uniforms sitting in circles around tables instead of at rows of desks, Tisch met with Evelyn Castro, who was then the superintendent of New York City's District 4, the district that encompasses part of East Harlem and one known for its innovation. She then spoke to Rosemary Salomone, the legal scholar at St. John's. Salomone knew of a 1994 report by the New York City Department of Education showing a gender gap in math and science scores, which was particularly notable among African American and Hispanic females. Salomone knew that Title IX prohibits schools that receive Federal funds from discriminating on the basis of sex, but she explained to Tisch that this gender gap could work to her advantage.

As the Supreme Court would rule in June 1996, just three months before T.Y.W.L.S. opened, the legality of single-sex schools depends on context. In United States v. Virginia, a case regarding females' exclusion from the all-male Virginia Military Institute, the justices found that the male bastion was in fact violating the equal-protection clause of the 14th Amendment, and that the state of Virginia's proposal to open an all-girls school wasn't a sufficient remedy because V.M.I. gave its students not just a good education but powerful connections within Virginia's military and political elite. Justice Ruth Bader Ginsburg, who earlier in her career had been a founder of the A.C.L.U. Women's Rights Project (a group that has been active in suing single-sex public schools), wrote the majority opinion, composing what some people consider a condensation of feminist thinking up to 1996. Ginsburg's opinion states that in some contexts, single-sex schools might be legal, as long as those schools worked to "dissipate, rather than perpetuate, traditional gender classifications." "The two sexes are not fungible," Ginsburg wrote, quoting a 1946 decision; the physical differences between the sexes are "enduring" and "cause for celebration." Yet, Ginsburg warned, those differences cannot be used to place "artificial constraints on individuals' opportunity."

News of an all-girls school opening in Harlem hit the press in July 1996 and started a firestorm of arguments about whether single-sex public education was illegal, regressive, anti-feminist and a nonanswer to the problem of how to educate both boys and girls well in school. As Salomone recalls, T.Y.W.L.S. "divided the feminist community right down the middle." Later that year at Fordham Law School, Salomone debated the merits of single-sex public education against Anne Conners, then the president of NOW-N.Y.C. According to Salomone, Conners evoked Brown v. Board of Education. Salomone countered that race is substantially different from gender, and, more important, that a child would end up at T.Y.W.L.S., or another single-sex school, only by parental choice. After the debate, Salomone says she asked Conners if she had lost members over the issue and that Conners suggested that she had. Salomone told her, "Well, you lost me."

Thanks to Tisch and the money she raises, T.Y.W.L.S. enjoys some significant advantages over an ordinary urban public school, most notably a health-and-wellness curriculum and a superheroic college counselor, Chris Farmer, who starts taking the girls on field trips to Columbia University in seventh grade and who once drove a student's entire Ghanaian family, Islamic music blaring, from Harlem to Hobart and William Smith Colleges in upstate New York so the father would feel comfortable enough let his daughter attend. Tisch's connections also make for priceless opportunities: Bill Clinton and Katie Couric, among other megawatt notables, have visited the school. But it was inside Emily Wylie's A.P. English class where the real social value of single-sex teaching was on display. Ferreira, among 20 other seniors, sat in a circle discussing "Pride and Prejudice." Wylie asked the girls to call out which characters had which vices and virtues. A serious discussion of whether lust — Lydia's lust — was a vice or virtue ensued.

"She's following her passions!"

"At least she's not sleeping with folks for money."

Wylie regretted to inform her girls that lust is one of the seven deadly sins, which prompted the thoroughly modern question: "But how is lust bad?"

Wylie says she believes she is a better teacher, and her students are better students, because they're in a desexualized — or at least less-sexualized — environment. "Sure," she says, "when they take pictures,

they often present their backsides first. But I think I'm giving girls a better education than I could have if there were guys in the room. I'm freer. I'm more able to be bold in my statements. When I teach poetry and I talk about the sex in poetry I don't need to be worried about the boy in the room who is going to chuckle over the thing he did with the girl last week and embarrass her. Which happened more than once in my last coed environment."

Nearly everyone at T.Y.W.L.S. acknowledges that often parents' most pressing concern when enrolling their 11-year-old daughters is sheltering those girls from sexualized classrooms and sexualized streets. "Harlem's a very intense environment," says Drew Higginbotham, T.Y.W.L.S.'s assistant principal, who lives in the neighborhood. "You're constantly needing to prove yourself physically, to prove yourself sexually. Parents, when they come to our school, they sort of exhale deeply. You can hear them thinking to themselves, I can see my daughter here and she's going to be O.K. for six hours a day." Sax is not above or beyond this kind of thinking, either. In fact, after a nearly-two-hour conversation filled with scientific jargon and brains, he told me, perhaps wishfully, that really the most important reason to send a child to a single-sex high school was that those kids still go on dates. "Boys at boys' schools like Old Farms in Connecticut, or Saint Albans in Washington, D. C., will call up girls at Miss Porter's in Connecticut, at Stone Ridge in Maryland, and they will ask the girl out, and the boy will drive to the girl's house to pick her up and meet her parents. You tell kids at a coed school to do this, and they'll fall on the floor laughing. But the culture of dating is much healthier than the culture of the hookup, in which the primary form of sexual intimacy is a girl on her knees servicing a boy."

In the past few years Tisch's Young Women's Leadership Foundation has opened schools in the Bronx and Queens, as well helping start ones in Chicago, Philadelphia, Dallas and Austin. Tisch wants to be careful about not overextending her network — "we don't want to become Mrs. Fields or Benetton" — but she says she also feels an obligation from her success. Last year, 2,100 students applied for the three open ninth-grade spots in the Harlem school. Many other schools make inquiries about how they might replicate T.W.Y.L.S.'s success. This coming year, for the first time, Tisch plans on holding her own conference on single-sex public education. Though she's meticulously circumspect about not disparaging Sax, her actions suggest that she is aware that if she doesn't engage with the many districts interested in starting up single-sex programs, there's a chance that Sax will run away with the movement.

Education scholarship has contributed surprisingly little to the debate over single-sex public education. In 2005, the United States Department of Education, along with the American Institute for Research, tried to weigh in, publishing a meta-analysis comparing single-sex and coed schooling. The authors started out with 2,221 citations on the subject that they then whittled down to 40 usable studies. Yet even those 40 studies did not yield strong results: 41 percent favored single-sex schools, 45 percent found no positive or negative effects for either single-sex or coed schools, 6 percent were mixed (meaning they found positive results for one gender but not the other) and 8 percent favored coed schools. This meta-analysis is part of a larger project by the Department of Education being led by Cornelius Riordan, a Providence College professor. He explained to me that such muddled findings are the norm for education research on school effects. School-effects studies try to answer questions like whether large schools are better than small schools or whether charter schools are better than public schools. The effects are always small. So many variables are at play in a school: quality of teachers, quality of the principal, quality of the infrastructure, involvement of families, financing, curriculum — the list is nearly endless. Riordan says, "You're never going to be able to compare two types of schools and say, 'The data very strongly suggests that schools that look like a are better than schools that look like *b*.' "

That certainly appears to be the case for single-sex schools. The data do not suggest that they're clearly better for all kids. Nor do they suggest that they're worse. The most concrete findings from the research on single-sex schools come from studies of Catholic schools, which have a long history of single-sex education, and suggest that while single-sex schools may not have much of an impact on the educational achievement of white, middle-class boys, they do measurably benefit poor and minority students. According to Riordan, disadvantaged students at single-sex schools have higher scores on standardized math, reading, science and civics tests than their counterparts in coed schools. There are two prevailing theories to explain this: one is that single-sex schools are indeed better at providing kids with a positive sense of themselves as students, to compete with the antiacademic influences of youth culture; the other is that in order to end up in a single-sex classroom, you need to have a parent who has made what educators

call “a pro-academic choice.” You need a parent who at least cares enough to read the notices sent home and go through the process of making a choice — any choice.

As T.Y.W.L.S. let out on a Friday in January and the girls spilled onto 106th Street, one such parent, a man in saggy jeans and a black parka, walked up the sidewalk clutching his daughter’s dog-eared report card and hoping to secure her a spot for next year. “This where the school at?” he asked a security guard. The engagement of parents like this may be a major part of the success of single-sex public education. These schools are popular with many parents, who are happy to have an option that has long been available in private and parochial schools. And they are also attractive to teachers and administrators, who are offered a relatively easy and inexpensive way to try to improve some of the intractable problems in public education, especially for disadvantaged students.

But schools, inevitably, present many curriculums, some overt and some subtle; and critics argue that with Sax’s model comes a lesson that our gender differences are primary, and this message is at odds with one of the most foundational principles of America’s public schools. Given the myriad ways in which our schools are failing, it may be hard to remember that public schools were intended not only to instruct children in reading and math but also to teach them commonality, tolerance and what it means to be American. “When you segregate, by any means, you lose some of that,” says Richard Kahlenberg, a senior fellow at the Century Foundation. “Even if one could prove that sending a kid off to his or her own school based on religion or race or ethnicity or gender did a little bit better job of raising the academic skills for workers in the economy, there’s also the issue of trying to create tolerant citizens in a democracy.”

Elizabeth Weil is a contributing writer for the magazine. Her most recent article was about when a child should start kindergarten.

http://www.nytimes.com/2008/03/02/magazine/02sex3-t.html?th&emc=th

Green sports car set for launch

By Jonathan Fildes
Science and technology reporter, BBC News

A "zero-emission" sports car with a top speed of nearly 100mph is set to be unveiled at the Geneva Motor Show.

The hydrogen-powered Lifecar, based on the design of the Morgan Aero-8 roadster, produces little noise and only water vapour from its exhaust.

The lightweight model packs advanced fuel cells and an energy storage system that gives the car a range of 250 miles (400km) per tank of hydrogen.

It has been developed by a consortium of UK companies and universities.

"Figures suggest the car should be capable of doing 0-60 [miles per hour] in about seven seconds," Matthew Parkin of classic sports car manufacturer Morgan told BBC News.

However, the exact acceleration will not be known until the complete car is taken for its first test drive.

"It's nearly there and the plan is to drive it when the show is over," said Mr Parkin.

Clever power

The £1.9m project to build the Lifecar, part funded by the UK government, has taken nearly three years.

"The basic concept was to build an entertaining and fun sports car that would act as a showcase for the technology and would deliver 150 miles to the gallon," said Mr Parkin.

"Everything else has tumbled out from that."

The car is powered by a bank of lightweight hydrogen fuel-cells developed by UK defence firm Qinetiq.

"If you took a typical internal combustion engine and replaced it with a fuel cell, the fuel cell would be very large," explained Ian Whiting of Qinetiq. "That's not an efficient way to do things."

The fuel cells in the Lifecar produce about 22 kilowatts - roughly one fifth of the amount of power of a typical combustion engine.

"With that we can provide all of the cruise capability we need to," he said.

When the car needs to accelerate or climb a hill it draws extra power from a bank of ultra-capacitors aligned down the centre of the car.

We may have to supply headphones with the sounds of a five litre V8 linked to the throttle pedal
Matthew Parkin

"They are like a battery but they do not store quite as much energy and they allow the energy in and out much quicker," explained Mr Whiting.

These are primarily charged by a regenerative braking system which slows the car by converting the vehicle's kinetic energy into useful electrical energy using a motor.

"Hybrid cars already use regenerative braking - normally it restores about 10% of the energy," said Mr Parkin. "Lifecar is aiming for 50%."

Quiet runner

The car has a range of about 250 miles (400km) and has a top speed of around 90mph (145km/h).

"The whole thing has to be built around efficiency which comes down to weight at the end of the day," explained Mr Parkin.

As a result, the car has an aluminium chassis and a lightweight wooden interior, including seats.

It also doesn't have any of the "luxuries" such as a stereo, central locking or even airbags, found on many modern cars.

"The objective is to get the weight down to 700kg."

There are also other notable omissions such as a gearbox and - as the fuels cells produce little noise - the roar of an engine.

"We may have to supply headphones with the sounds of a five litre V8 linked to the throttle pedal," said Mr Parkin.

Other car manufacturers have shown off hydrogen-powered sports cars, although many have been conversions of existing models or hybrid cars that can also run on petrol.

For example, Japanese manufacturer Mazda has unveiled a modified version of its RX-8, known as the Hydrogen RE, which uses a dual-fuel system.

Honda has also announced that its petrol hybrid CR-Z sports car concept would launch in 2009.

Bumpy road

However, the road to a hydrogen-fuelled future has a number of obstacles.

Critics point out that to produce hydrogen by splitting water uses a large amount of electricity. At present, the majority of this electricity comes power stations burning fossil fuels and therefore brings no environmental benefit.

In addition, there is little infrastructure for refuelling the vehicles.

"There's a whole range of questions about how you [could roll out a hydrogen infrastructure] and when you could do that," said Mr Whiting.

"For vehicles which have a central base you can readily install a system to refuel those."

For example, hydrogen buses that return to a central depot already operate in many cities.

An infrastructure to refuel personal hydrogen vehicles would take longer, he said.

However, interim solutions do exist, such as so-called "reformer technology".

"It allows you to take the existing fuel infrastructure - diesel for instance - and convert it into hydrogen on the vehicle," said Mr Whiting.

The car is a concept at this stage but Morgan does not rule out going into production at some point in the future.

"We will gauge reaction when we show it," said Mr Parkin. "If there is an enormous response we will have to look at the project, the pricing and how it will function."

The car will be on display at the Geneva Motor Show in Switzerland between 6 and 16 March.

Other collaborators on the project were RiverSimple, Cranfield University, Oxford University and Linde AG.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/1/hi/technology/7265267.stm

Published: 2008/03/03 08:38:13 GMT

Frog skin diabetes treatment hope
Skin secretions from a South American "shrinking" frog could be used to treat type 2 diabetes,

researchers say.

A compound isolated from the frog, which grows to 27cm as a tadpole before shrinking to 4cm in adulthood, stimulates insulin release.

A synthetic version of the compound - pseudin-2 - could be used to produce new drugs, delegates at the Diabetes UK annual conference heard.

Around two million people in the UK have type 2 diabetes.

The condition, which is often associated with being overweight, develops because the body does not produce enough insulin, or when the insulin that is produced does not work properly.

It means people cannot regulate their blood glucose levels properly.

Scientists from the University of Ulster and United Arab Emirates University have tested a synthetic version of pseudin-2, a compound which protects the paradoxical frog from infection.

> **More research is needed, but there is a growing body of work around natural anti-diabetic drug discovery that, as you can see, is already yielding fascinating results**
> Dr Yasser Abdel-Wahab

They found it stimulated the secretion of insulin in pancreatic cells in the laboratory.

And importantly, there were no toxic effects on the cells.

The synthetic version was better at stimulating insulin than the natural compound, opening the way for it potential development as a drug for treating diabetes.

Amphibians

Study leader Dr Yasser Abdel-Wahab, senior lecturer in biomedical sciences at the University of Ulster, said there had been a lot of research into bioactive molecules from amphibian skin secretions.

One recently developed diabetes drug - exenatide - was developed from a hormone in the saliva of the Gila monster - a lizard found in south-western United States and northern Mexico.

"We found that it stimulated the secretion of insulin and that the synthetic version is more potent that pseudin-2 itself.

"More research is needed, but there is a growing body of work around natural anti-diabetic drug discovery that, as you can see, is already yielding fascinating results."

Douglas Smallwood, chief executive of Diabetes UK, said although type 2 diabetes could be managed with diet and physical activity, the condition was progressive and may require medication to control it effectively.

"Good diabetes control reduces the risk of complications including blindness, heart disease, kidney problems and amputation so new treatments are vital."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/1/hi/health/7270714.stm

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Let's dance - for our own good

Sanjoy Roy

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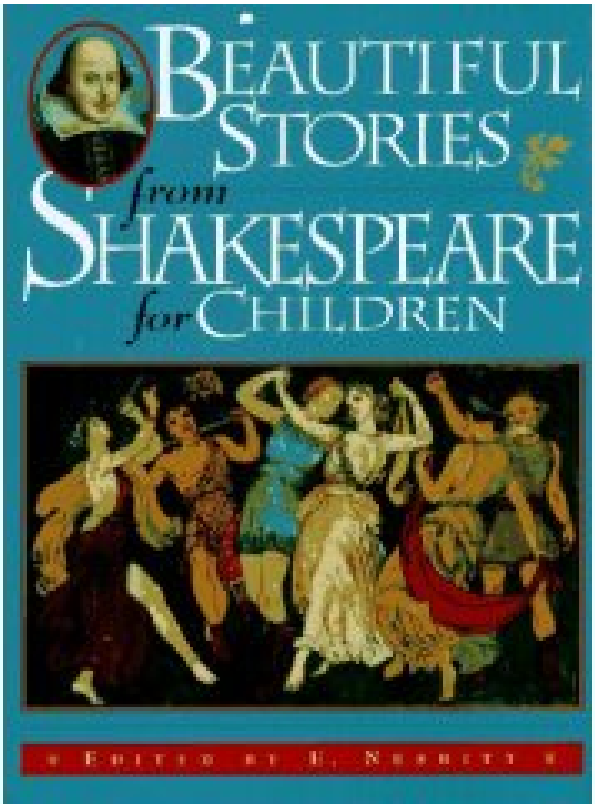
Perfectly balanced: dancers from the Richard Alston Dance Company. Photograph: Tristram Kenton

Wouldn't the world be a little lovelier if everyone moved with a little more elegance and poise? People around us would appear charming and polite. We would exchange gently approving glances as we flowed through our daily lives, spreading harmony. How might we move towards that wonderful vision? Ballet classes. That, at least, is the subtext (OK, in extreme form) behind a recent story of the Romanian transport policemen whose twice-weekly ballet classes help them to signal at junctions and to deal with road rage. Ballet as traffic-calming. How very lovely. How very Cloud Cuckoo Land. Every so often, some such story does the media rounds, and it tends to follow a format that goes something like this: oh my god, you'll never guess the secret training of this policeman/rugby player/Sky newsreader/Jean Claude Van Damme - it's ballet! And we are invited to snigger at the very idea and to read briefly about whatever beneficial effects are claimed for behaviour/productivity/health/teamwork/self-esteem before getting back to our own graceless lives. Well, let's invite ourselves not to follow the standard line. I think dance (let's not restrict it to ballet, it'll only encourage the sniggering at the back) is something we seriously lack in our lives. We should have more of it. No, not more professional dancers (I already see enough dance, and sometimes actively wish there was less of it). I mean we should do more of it in general. Of course it can have practical, instrumental benefits - and those tend to be the justification given in those stories. But it's not just about doing our jobs better, or about tangible results; it's about our quality of existence. We spend most of our lives as disembodied brains and mindless bodies (which, by the way, neatly accounts for the popularity of zombie films). But you can't dance like that. Your body incorporates your brain. Your actual mode of being becomes different. Your physical presence becomes more mindful, your mindfulness more corporeal. It's a quality you could call grace - an old-fashioned, uncommon word. If you look around you, just occasionally you can see it in people. Perhaps in the sway of someone descending a stairway, or perhaps in the waving arm of a traffic cop. Don't you wish you saw it a little more often?

http://blogs.guardian.co.uk/theatre/2008/03/lets_dance.html

Teach children Shakespeare at four, says RSC
Polly Curtis, education editor
Monday March 3, 2008

Guardian



Shakespeare should be taught to children as young as four, before they have become intimidated by the language, the Royal Shakespeare Company will say today.

Introducing the works of Shakespeare to teenagers is too late, the RSC will argue.

Jacqui O'Hanlon, head of education at the RSC, said: "We've seen teachers working extremely well in reception classes. There's been a lot of success with four-year-olds.

"With primary school kids there isn't a fear factor because they've never heard of him. What we do with children from the age of eight is unfold the story piece by piece and engage them with key moments of drama and try to get them involved in an empathetic moment of drama."

The suggestion that young children should learn Shakespeare comes as the RSC launches a campaign to improve the teaching of the Bard.

A spokesman for the exams watchdog, the Qualification and Curriculum Authority, said a review of the primary curriculum ordered by the government would be an opportunity to revisit whether Shakespeare should be taught at a younger age.

Currently, it is compulsory from 13 and Shakespeare is the only writer to be a mandatory component of national tests at 14.

Michael Boyd, artistic director of the RSC, said: "Really, the right time to learn Shakespeare is when children are fearless, when they are used to trying out new language.

"That is very young children's daily existence, new words aren't a problem. You need to get them before they lose the habit of singing songs and have had the fairy dust shaken out of them."

The RSC today publishes a learning manifesto arguing for children to start Shakespeare as early as possible, to see it live and to learn it through drama and practical workshops.

O'Hanlon said: "Shakespeare is only compulsory from 13 and that's a very difficult time to introduce it, when they are struggling with staying involved in their schooling and quite insecure about trying. That's when you get young people saying it's irrelevant."

A spokesman for the QCA said: "You have to do Shakespeare from 13 and you're tested at 14. There is a review of the primary curriculum under way and that would be an opportunity for Jim Rose [the review's author] to look at it again.

"One approach we've recommended with the new secondary curriculum is that many more children should have the chance to see Shakespeare live."

http://arts.guardian.co.uk/theatre/news/story/0,,2261650,00.html

The Outsider in Their Midst: Britten's Tale of the Haunted Misfit

By ANTHONY TOMMASINI

The Metropolitan Opera's landmark 1967 production of Britten's "Peter Grimes," directed by Tyrone Guthrie and mounted for the colossal tenor Jon Vickers, was bound to be a tough act to follow. But the time had come for a new roster of artists to take a fresh look at this work, among the true operatic masterpieces of the 20th century. So there were high expectations on Thursday night when the Met presented a new staging by the noted director John Doyle, in his company debut.

That the impact of Mr. Doyle's production was not fully compelling is hard to explain, since many elements seemed so right, starting with the breakthrough portrayal of the title role by the tenor Anthony Dean Griffey, an elegant singer and courageous actor long overdue for a starring role at the Met. In recent seasons he has sung Peter Grimes to acclaim in Santa Fe, N.M., and Paris and at the Glyndebourne Festival in England. The entire cast was strong. The veteran conductor Donald Runnicles drew a richly colorful and impassioned account of the score from the orchestra. And in an opera in which the chorus — portraying the small-minded and easily threatened citizens of the Borough, a little fishing town on the east coast of England around 1830 — is essentially the other major character, the Met's choristers excelled. Donald Polumbo, the chorus master, continues to do impressive work.

But one aspect of Mr. Doyle's production was a problem: the set, by Scott Pask. It is dominated by a proscenium-filling wall that evokes the rough wooden buildings and sheds of an English fishing town, turned grayish-brown from salty air and sea mists. For long stretches of the opera the wall faces the audience, close to the edge of the stage. There are five levels of doors on this ominous wall, which pop open to reveal characters, allowing for some surreal staging touches. In the first scene, for example, at the inquest into the death of Grimes's apprentice, the coroner and the other officials sing the ensemble from their perches, glancing at the accused like stern judges from on high.

One advantage of the wall is that it keeps the singers close to the audience. Mr. Doyle, acclaimed for his inventive recent Broadway productions of Stephen Sondheim's "Sweeney Todd" and "Company," has clearly worked hard to draw nuanced portrayals from the singers. Still, after a while it becomes tiresome to look at that huge, dark set. It is a relief when the staging opens up now and then, as the creaking wall recedes to evoke public squares and scenes at a tavern.

Few operas explore ambiguity with more piercing clarity and musical specificity than this 1945 work. The title role was conceived for Britten's longtime partner, Peter Pears. With his hauntingly ethereal tenor voice, Pears portrayed the fisherman as an alienated dreamer, a misfit in an uncomprehending town, who, yearning to be accepted, takes out his thwarted anger on the homeless boys who are drafted into work as his apprentices.

Then, in the late 1960s, Mr. Vickers claimed the part, completely altering the public's perception of it. This powerful heldentenor revealed the danger within the twisted psyche of the ostracized fisherman. His Grimes was volatile, wild and craggy, one moment lost in vague reveries, the next erupting with brutality.

Mr. Griffey, even though his voice has heft and carrying power, is essentially a lyric tenor. And it is disarming to hear the role sung with such vocal grace, even sweetness in places. Every word of his diction is clear. You sense Grimes's dreamy side struggling to emerge. The moments of gentleness, though, make Mr. Griffey's impulsive fits of hostility, his bursts of raw vocal power, seem even more threatening.

Mr. Griffey is tall, husky and a little baby-faced. But he uses his appearance to poignant effect in his portrayal. You could imagine the tubby child that this Grimes once was, picked on by bullies. But now a hulking and ostracized adult, he has become, against his will, like the bullies who tormented him. In the scene with the endearing apprentice boy (Logan William Erickson, in a nonsinging role) you almost wanted to avert your eyes as Mr. Griffey alternately smothered the child in an embrace, then slapped him to the floor in an unhinged outburst. In this opera it is often hard to understand why Ellen Orford, the widowed schoolmistress, is drawn to Grimes. Not here, as the fine soprano Patricia Racette brought vocal richness and vulnerability to her subtle portrayal. Her lonely Ellen sees Grimes's coarseness. But like a true teacher, she also sees his potential. For Grimes, Ellen offers a chance at legitimacy. If he can marry her, maybe the townspeople will see him through her eyes.

But the plan collapses during a climactic scene in which Ellen, noticing bruises on the boy's neck, questions Grimes about them. Cornered, he slaps her. Falling to the stage, singing with anguish, Ms. Racette conveyed that, more than the physical hurt, she was suffering from feeling foolish for ever thinking she could save this man.

The baritone Anthony Michaels-Moore was vocally earthy and sympathetic as the wizened merchant skipper Captain Balstrode, Grimes's only other friend. Also very strong were John Del Carlo as Swallow; Felicity Palmer as the gossipy widow Mrs. Sedley; Jill Grove as Auntie, who runs the tavern and makes her "nieces" available for socializing with male clients; and Greg Fedderly as Bob Boles, the town's intemperate Methodist. There was a notable debut by the New Zealand baritone Teddy Tahu Rhodes, robust-voiced and swaggering as Ned Keene, the apothecary who peddles quack remedies to his neighbors. Though the set might have been a miscalculation, the production conveys the tragedy of this complex opera, epitomized in the penultimate scene. The entire chorus, positioned at the rim of the stage as a mob of indignant citizens, faces the audience and sings Britten's vehement cries for vengeance, ending with near shrieks of "Grimes! Grimes!"

This is a moment of rare savagery in Britten and one of the most chilling scenes in all of opera. To achieve a sense of community, like-minded people must find an enemy in their midst, an outsider who does not belong.

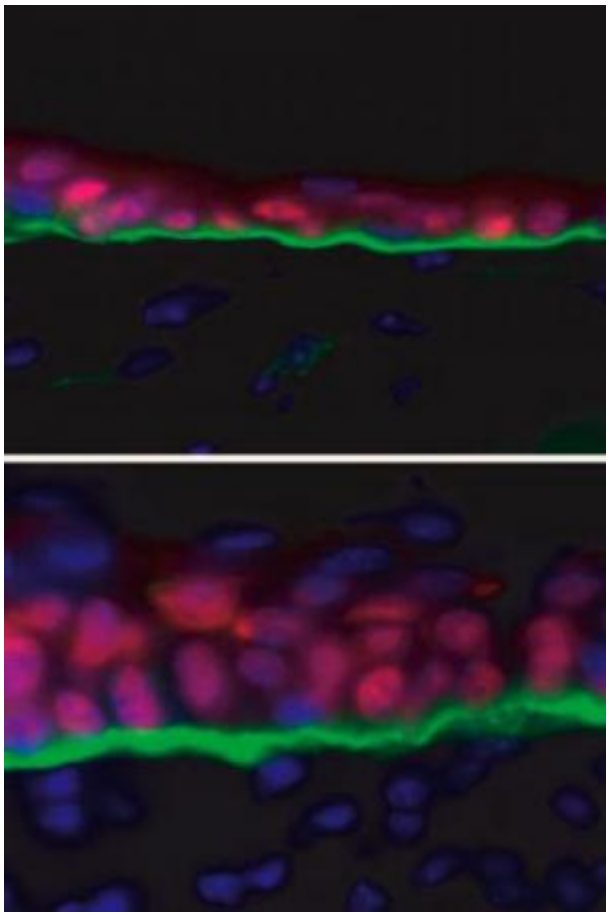
PETER GRIMES

Opera in three acts by Benjamin Britten, libretto by Montagu Slater after George Crabbe's poem "The Borough"; conductor, Donald Runnicles; production by John Doyle; sets by Scott Pask; costumes by Ann Hould-Ward; lighting by Peter Mumford. In repertory at the Metropolitan Opera through March 24; (212) 362-6000, metopera.org.

WITH: Anthony Dean Griffey (Peter Grimes), Patricia Racette (Ellen Orford), Anthony Michaels-Moore (Balstrode); John Del Carlo (Swallow); Felicity Palmer (Mrs. Sedley); Jill Grove (Auntie); Greg Fedderly (Bob Boles); Teddy Tahu Rhodes (Ned Keene); and Logan William Erickson (Boy).

http://www.nytimes.com/2008/03/01/arts/music/01grim.html?_r=1&th&emc=th&oref=slogin

Short RNA Strand Helps Exposed Skin Cells Protect Body From Bacteria, Dehydration And Even Cancer



In the outer layer of the skin, microRNA-203 helps build a tough protective barrier by repressing the activity of a molecule called p63 (red). When microRNA-203 can't stem p63's activity, cells proliferate (bottom) -- findings that may reveal new insights about cancer. (Credit: Rockefeller University)

ScienceDaily (Mar. 5, 2008) — Exposed skin cells weather conditions harsh enough to mutate DNA. To keep these mutations from spreading, evolution has found a way to keep these cells from proliferating. Rockefeller University and HHMI researchers have now discovered evolution's solution: a tiny strand of RNA. But the research's implications go deeper, and may also suggest how healthy cells elsewhere in the body can turn cancerous.

Every minute, 30,000 of our outermost skin cells die so that we can live. When they do, new cells migrate from the inner layer of the skin to the surface of it, where they form a tough protective barrier. In a series of elegant experiments in mice, researchers at Rockefeller University have now discovered a tiny RNA molecule that helps create this barrier. The results not only yield new insight into how skin first evolved, but also suggest how healthy cells can turn cancerous.

Hundreds of these tiny RNA molecules, called microRNAs, are expressed in skin, "But there was something curious about one in particular, microRNA-203," says Rui Yi, a postdoc who works with Elaine Fuchs, head of the Laboratory of Mammalian Cell Biology and Development. "As an embryo develops, the expression of microRNA-203 jumps very quickly over just two days. From being barely detectable at day 13, this microRNA becomes the most abundant expressed in skin," says Yi, whose work will be published as an advance online publication in Nature March 2. MicroRNAs, which were discovered in mammals in 2001, regulate genes outside of the cell's nucleus.

Yi and Fuchs, who is also a Howard Hughes Medical Institute investigator and Rebecca C. Lancefield Professor at Rockefeller, found that during the 13th day of development, mouse skin is primarily composed of undifferentiated stem cells. Two days later, these stem cells exit the inner layer of the skin and begin to differentiate into cells that form the outermost, protective layer. MicroRNA-203's expression skyrockets precisely during this period, suggesting that it plays some key role in the barrier's development.

In order to figure out its role, Yi and Fuchs needed to pinpoint exactly where microRNA-203 is expressed. Other microRNAs have been found to be specific to heart and muscle tissues; some exist almost exclusively in the brain. However, this microRNA was found only in very specific types of skin -- stratified epithelial tissues, to be exact -- and only in this skin type's outer layers. What's more, this expression pattern is identical to that found in humans, zebrafish, chickens and the like -- in other words, vertebrates that evolved more than 400 million years apart.

"If it has been expressed in this very specific tissue for a long time and across several species, it means that it probably plays an important role there," says Yi. To find out its function, Yi, in one set of experiments, used a genetic technique to precociously express microRNA in the inner layer of the skin, where stem cells proliferate at a fast clip. In a second set of experiments, he blocked microRNA-203 from functioning in the outer layer using an antagomir, a molecule that binds directly to microRNA-203 and shuts down its ability to carry out its function.

In the first set, he found that the stem cells proliferated significantly less than they did when microRNA-203 wasn't expressed, and, as a result, the mice formed very thin skin -- hardly a protective layer at all. The stem cells, the researchers saw, lost their ability to proliferate not because microRNA-203 killed them off but because it suppressed the activity of a molecule called p63, whose job is to keep cells, primarily stem cells, proliferating. In the second set of experiments, Yi found that the cells in the outer layer proliferated significantly more than they did when microRNA-203 was expressed. The reason: because microRNA-203 wasn't available to shut down p63's busy work.

"We found that microRNA-203 acts to stop the translation of the p63 protein," says Fuchs. "The result is a swift transition from proliferating stem cells within the innermost layer of the epidermis and terminally differentiating cells as they exit this layer and move outward to the skin surface."

The findings have intriguing implications for cancer, since p63 is found in excess in cancer cells. "As a next step, we are going to examine whether low expression of microRNA-203 is associated with squamous cell carcinomas," says Fuchs, "and whether by putting back microRNA-203 we can inhibit the growth of these cancer cells."

Adapted from materials provided by Rockefeller University.

http://www.sciencedaily.com:80/releases/2008/03/080302150713.htm

New Material Shows Great Promise For Nuclear Waste Clean-Up

A team of Northwestern University chemists is the first to focus on metal sulfide materials as a possible source for nuclear waste remediation methods. Their new material is extremely successful in removing strontium from a sodium-heavy solution, which has concentrations similar to those in real liquid nuclear waste. (Credit: iStockphoto/Björn Kindler)

ScienceDaily (Mar. 5, 2008) — Nuclear power has advantages, but, if this method of making power is to be viable long term, discovering new solutions to radioactive waste disposal and other problems are critical. Otherwise nuclear power is unlikely to become mainstream.

A team of Northwestern University chemists is the first to focus on metal sulfide materials as a possible source for nuclear waste remediation methods. Their new material is extremely successful in removing strontium from a sodium-heavy solution, which has concentrations similar to those in real liquid nuclear waste. Strontium-90, a major waste component, is one of the more dangerous radioactive fission materials created within a nuclear reactor.

By taking advantage of ion exchange, the new method captures and concentrates strontium as a solid material, leaving clean liquid behind. In the case of actual nuclear waste remediation, the radioactive solid could then be dealt with separately -- handled, moved, stored or recycled -- and the liquid disposed.

"It is a very difficult job to capture strontium in vast amounts of liquid nuclear waste," said Mercouri G. Kanatzidis, Charles E. and Emma H. Morrison Professor of Chemistry in the Weinberg College of Arts and Sciences and the paper's senior author.* "Sodium and calcium ions, which are nonradioactive, are present in such enormous amounts compared to strontium that they can be captured instead of the radioactive material, interfering with remediation."

Strontium is like a needle in a haystack: sodium ions outnumber strontium ions by more than a million to one. The material developed at Northwestern -- a layered metal sulfide made of potassium, manganese, tin and sulfur called KMS-1 -- attracts strontium but not sodium.

"The metal sulfide did much, much better than we expected at removing strontium in such an excess of sodium," said Kanatzidis. "We were really amazed at how well it discriminates against sodium and think we have something special. As far as we can tell, this is the best material out there for this kind of application."

KMS-1 works at the extremes of the pH scale -- in very basic and very acidic solutions, the conditions common in nuclear waste -- and everywhere in between. Metal oxides and polymer resins, the materials currently used in nuclear waste remediation, perform reasonably well but are more limited than KMS-1: each typically works in either basic or acidic conditions but not both and definitely not across the pH scale.

In earlier work, Kanatzidis and his team had found KMS-1 to be very quick and facile at ion exchange. (The material gives up an ion and takes another to maintain charge balance.) Knowing this and also that the ion exchange process is a removal process, the researchers decided that strontium was an interesting ion with which to test their new material.

The solution the researchers used in the lab contained strontium and two "interfering" ions, sodium and calcium, in concentrations like those found in the nuclear waste industry. (Nonradioactive strontium, which works the same as the radioactive version, was used in the experiments.) KMS-1, a free flowing black-brown powder, was packaged like tea in a teabag and then dropped into the solution. The all-important ion exchange followed: the metal sulfide "teabag" soaked up the strontium and gave off potassium, which is not radioactive, into the liquid.

KMS-1 does its remarkable work targeting only strontium by taking advantage of two things: strontium is a heavier ion than calcium, and sulfur (a component of KMS-1) attracts heavier ions; and KMS-1 attracts ions with more charge so it attracts strontium, which has a charge of 2+, and doesn't attract sodium, which only has a charge of 1+. So, as Kanatzidis likes to say, "Our material beats both sodium and calcium."

"The nuclear power process generates enormous amounts of radioactive liquid waste, which is stored in large tanks," said Kanatzidis. "If we can concentrate the radioactive material, it can be dealt with and the nonradioactive water thrown away. I can imagine our material as part of a cleansing filter that the solution is passed through."

Looking to the future, to be a scaleable and affordable remediation method, the metal in the metal sulfide needs to be inexpensive and readily available and also make a stable compound.

"We focused on potassium, manganese and tin because we have been working with them for some time," said Manolis J. Manos, a postdoctoral fellow at Northwestern and lead author of the paper. "All three metals make stable compounds and are common and abundant."

"Our next step is to do systematic studies, including using an actual waste solution from the nuclear power industry, to learn how KMS-1 works and how to make even better metal sulfides," added Manos.

The results will be published online the week of March 3 in the Proceedings of the National Academy of Sciences. In addition to Kanatzidis and Manos, Nan Ding, a former graduate student in Kanatzidis' group, now at Claflin College in South Carolina, is the other author of the PNAS paper, titled "Layered Metal Sulfides: Exceptionally Selective Agents for Radioactive Strontium Removal."

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

http://www.sciencedaily.com/releases/2008/03/080303190649.htm

Rare Syndrome Provides Clues On Obesity, Blood Pressure

ScienceDaily (Mar. 5, 2008) — University of Iowa researchers have found a clue about how resistance to the hormone leptin might disrupt the brain signals that tell the body when to stop eating. The research, which focused on the rare genetic disorder Bardet-Biedl syndrome (BBS), also found an association between leptin resistance and high blood pressure.

The findings, which were based on mouse models developed at the UI, have implications for treating BBS as well as obesity and high blood pressure in people without BBS.

"Bardet-Biedl syndrome is rare but its symptoms, including obesity and increased risk of heart disease, are similar to problems faced by many people without the syndrome," said Kamal Rahmouni, Ph.D., the study's principal investigator and assistant professor of internal medicine at the UI Roy J. and Lucille A. Carver College of Medicine. "Leptin normally suppresses appetite and increases caloric use. The more we know about how leptin and gene defects affect people with BBS, the more likely it is that we can improve treatment for them and people with similar symptoms."

The research builds on previous BBS findings, including research led by current study team member Val Sheffield, M.D., Ph.D., the Martin and Ruth Carver Chair in Genetics and professor of pediatrics at the UI and a Howard Hughes Medical Institute investigator.

Fewer than one in 10,000 people have BBS. Sheffield, who has discovered or co-discovered the majority of the 12 known BBS genes, developed BBS mice that have the same features as the human condition. The study used a mouse model without BBS and three mouse models that each lacks a protein (Bbs2, Bbs4 or Bbs6) due to a BBS gene deletion.

The team measured daily food intake and body weight of each mouse. Some mice also received daily leptin injections. Mice without BBS lost weight when injected with leptin. However, the mice with any of the three types of BBS gene defects did not respond to leptin and gained weight.

Rahmouni, who has expertise in metabolism and obesity, said the hormone leptin is an obvious candidate when looking at causes of weight gain.

"Leptin is made in adipose (fat) tissue and is supposed to decrease fat stores. However, if we find high levels of it in the plasma, and people still are obese, we know it's not acting correctly and that there is leptin resistance," he said.

The team also found that even very young mice with BBS, whose body weights were the same as the non-BBS mice, had high levels of leptin in the plasma, indicating leptin resistance. The team then looked at a specific brain region of mice with BBS to understand why this occurred.

"We know that leptin regulates body weight and food intake through the hypothalamus in the brain. In the mice with BBS, we saw that Pomc, one of the three main genes normally regulated by leptin, was not properly regulated," Rahmouni said.

"This finding allowed us to pinpoint a very specific defect that explains why these mice are obese. The brain normally uses the Pomc gene to tell the body to stop eating, but in the animals with BBS, it doesn't work and so the mice won't feel full. We know that people without this gene have the same symptoms as the mice in our study, so the finding is meaningful," he added.

Rahmouni and colleagues will next examine the specific deficit in the neurons in the brain that might cause the problem with the Pomc (pronounced "pom-c") gene.

In another aspect of the study, the team saw that two of the three mouse models with BBS protein problems (Bbs4 and Bbs6) had high blood pressure. Recent research published by another institution has pointed to the same problem in humans with the same gene defects.

The UI team found that using a chemical to block neurotransmission in mice with the Bbs4 and Bbs6 gene defects lowered blood pressure.

"Because there are so few people with BBS, mouse models are very helpful in trying to understand the blood pressure problem," Rahmouni said. "Currently, there is no specific recommendation on what drug or level of drug to use to treat hypertension in BBS patients. In addition, this work may lead to improved treatment of hypertensive patients without BBS. We hope to learn more about the mechanism in order to improve and even customize treatment."

The study appeared online March 3 in the Journal of Clinical Investigation.

The study was supported in part by grants from the American Heart Association, the National Institutes of Health and the Howard Hughes Medical Institute.

Adapted from materials provided by University of Iowa.

http://www.sciencedaily.com/releases/2008/03/080303190558.htm

Innovative Archaeological Survey Reveals Unknown Aspects Of China's Past

Scientists walk through tea fields in southeastern Shandong as part of an innovative settlement pattern regional survey that uncovered important new evidence about how this region of China developed. This photograph was taken in 2006, and the team has completed 13 years of survey to date, making it one of the longest running collaborations of any kind between Chinese and American scientists. On the right, Linda Nicholas, Adjunct Curator of Anthropology at The Field Museum, carries a map on which she marks the distribution of the prehistoric and Early Bronze Age sherds found during the survey. (Credit: Photo by Anne Underhill, courtesy of The Field Museum)

ScienceDaily (Mar. 5, 2008) — Imagine future archaeologists trying to understand Illinois, California or New York based on a few excavations in each of those states. They might excavate small areas in city centers, since those sites would probably be the first ruins they would come across. Meanwhile, the archaeologists they might fail to notice or study farms, suburbs, shopping malls, canals and airports.

Although still relatively unknown to the general public, an archaeological method that is being practiced at several locations around the world helps scientists overcome such bias toward large, readily noticeable sites. The method is called a regional settlement pattern survey. It involves walking systematically over a large landscape to find traces of archaeological sites on the surface of the ground. This field procedure can yield a holistic, integrated view of how settlement has shifted in a region over the course of history.

For the past 13 years, archaeologists from The Field Museum and Shandong University have used this method to develop a multifarious overview of an important but understudied region along the northeastern coast of The People's Republic of China. By the time the project is completed, the archaeologists expect to have walked systematically over 1,500 square kilometers around the coastal city of Rizhao in Shandong Province.

"Most people understand traditional archaeological excavation from TV shows, but the regional survey method is not well known," said Dr. Anne Underhill, Field Museum China specialist and American project director and lead author of research about the Shandong survey to be published in the March 2008

Journal of Anthropological Archaeology. "The team has walked over every kind of terrain possible, including farms and orchards, towns and forested hills."

The Shandong University-Field Museum project in southeastern Shandong Province (including both survey and excavation, and involving four Shandong University professors) is one of the longest running collaborations of any kind between Chinese and American scientists. In the early 1990s, the Chinese government decided to allow foreigners to collaborate in fieldwork with Chinese professionals for the first time since the founding of the People's Republic of China in 1949. The team decided to focus on investigating key changes in settlement and regional organization during the late prehistoric, Longshan period, c. 2600-1900 B.C.

"Scientific archaeology was introduced into China during the 1920s, and during the 1980s, investigations about the rise of civilization increased," said Dr. Hui Fang, Professor of Archaeology at the Center for East Asian Archaeology Studies at Shandong University and co-author of the research. "Then in the 1990s, abundant results from archaeological fieldwork made it possible to adopt new approaches such as the theory and method of settlement pattern studies to interpret the process of the beginning of civilization in areas such as Shandong province."

Expertise with the survey method has been provided by two Field Museum scientists and co-authors of the research, Dr. Gary Feinman, Curator of Mesoamerican Anthropology, and Linda Nicholas, Adjunct Curator of Anthropology. They surveyed extensively for archaeological sites in Oaxaca, Mexico, before joining the Shandong survey team.

"When we began the project in China, systematic regional surveys had already proven to be an empirical key for understanding and evaluating the rise of and changes in early civilizations in highland Mexico, the Andean region, and the Near East," Feinman said. "Since then, two prominent scholars have called the advent of settlement pattern studies across the world the most important breakthrough in archaeology during the second half of the 20th century."

The method is very effective, Nicholas said. "We discover and map many ancient sites on a daily basis. Because so few of these sites will ever be excavated, the survey maps become the only permanent record of most ancient settlements in a region."

Over the years and centuries, human activity (such as plowing and construction) and natural processes (such as erosion) bring many ancient artifacts to the surface of the ground. Survey crews look for such evidence by walking in the late fall or early winter when crops have been harvested, increasing the visibility of objects. Crew members, who are spaced out evenly, learn to identify the characteristics (color, paste, style, etc.) of pottery sherds that indicate particular time periods.

"The large-scale organization of culture can only be understood by revealing the overall layout of settlements in a region and comparing their sizes," Underhill said. "Then one can begin to analyze other aspects of regional organization such as population density, distances between sites, and distances to water sources, all of which can reveal information about economics, trade, interactions, and other factors."

Southeastern Shandong Province poorly understood

China has an extraordinarily rich record of archaeological remains, from the Paleolithic period to the historic dynasties. Given the vast number of sites throughout Shandong Province, southeastern Shandong had not been a focus of research for quite some time prior to this research project.

Previous excavations in 1936 and test excavations during the early 1980s uncovered elegant, black pottery and jade items over a large area, suggesting that the Longshan period site of Liangchengzhen was some kind of regional center during the Longshan (c. 2600-1900 BC).

The systematic, regional survey has been able to identify other Longshan sites in the area and objectively determine that Liangchengzhen was indeed a large center as early investigators hypothesized. It also revealed another large center in the south, Yaowangcheng, that may have been a rival.

The survey also suggests that the agricultural colonization of the region occurred primarily during the later half of the Neolithic period. This was rapidly followed by the development of a four-tiered settlement hierarchy with two primary centers during the Early Longshan. The archaeologists conclude that the region was not merely a marginal backwater throughout its history in comparison to areas in the central Yellow River valley where known early states developed, as some scholars believe.

"Regional survey data are one key to understanding and comparing the rise of early Chinese civilization, both from one part of China to another as well as with other global regions," Feinman said.

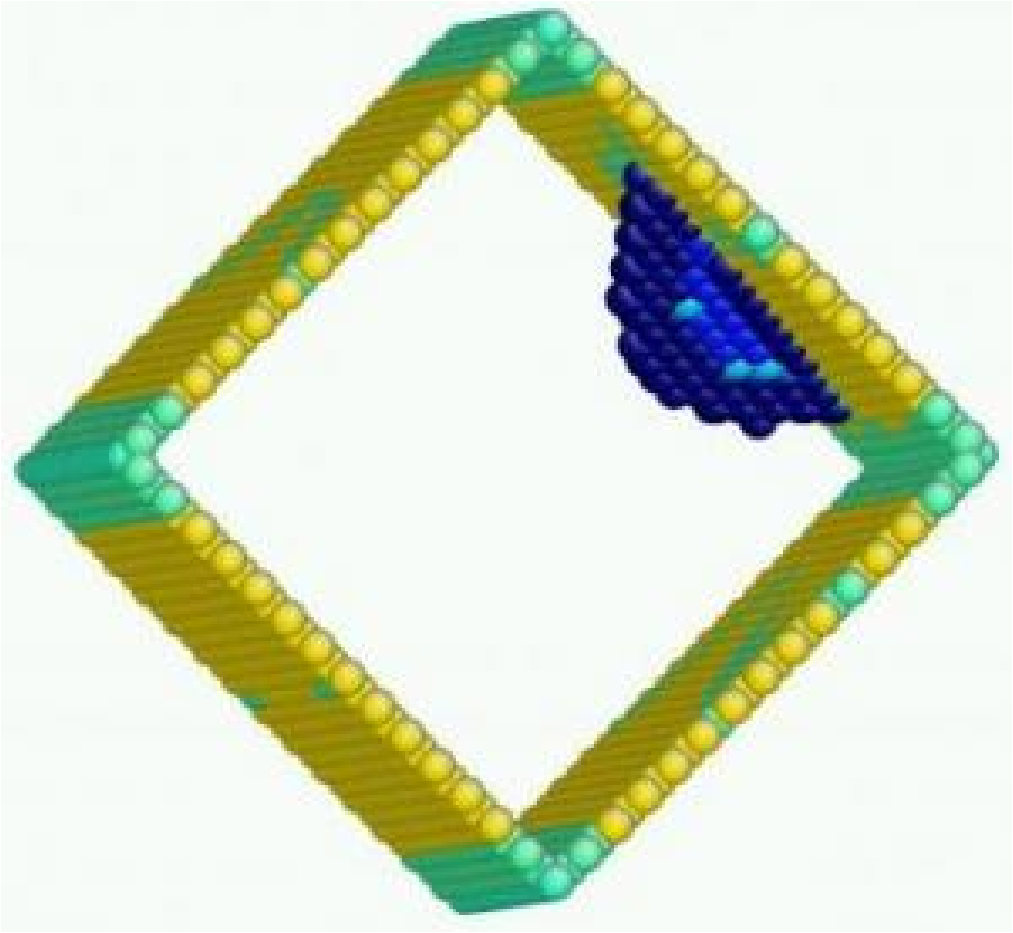
The broad-based results of the regional settlement pattern survey clearly illustrate that there were diverse pathways to social complexity in northern China.

"Our collaborative project has been very successful," Fang said. "In comparison with 13 years ago, we now know much more about the process of the rise of complex society in the southeastern Shandong area."

Adapted from materials provided by Field Museum, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/03/080303113353.htm

Surface Dislocation Nucleation: Strength Is But Skin Deep At The Nanoscale



Atomic configuration of nucleation (blue atom group) in the surface layer of a square copper nanowire (yellow and green atoms) under uniaxial stress. Nucleation occurs at a partial dislocation in the surface layer. Colors refer to the breaking of local inversion symmetry. (Credit: Physical Review Letters and Ju Li, Department of Materials Science in the School of Engineering and Applied Science at Penn)

ScienceDaily (Mar. 5, 2008) — For centuries, engineers have bent and torn metals to test their strength and ductility. Now, materials scientists at the University of Pennsylvania School of Engineering and Applied Science are studying the same metals but at nanoscale sizes in the form of wires a thousand times thinner than a human hair. This work has enable Penn engineers to construct a theoretical model to predict the strength of metals at the nanoscale. Using this model, they have found that, while metals tend to be stronger at nanoscale volumes, their strengths saturate at around 10-50 nanometers diameter, at which point they also become more sensitive to temperature and strain rate. Such prediction of different strength regimes of nano-solids is important for future application and engineering design of nanotechnology.

Such small-volume materials with relatively large surface areas are now routinely employed in microchips and nanoscience and technology, and their mechanical properties can differ vastly from their macroscale counterparts. Typically, smaller is stronger. A gold wire 200 nanometers in diameter can be 50 times stronger per area than centimeter-sized single-crystal gold. Engineers investigated the "smaller is stronger" trend.

Ju Li, an associate professor in the Department of Materials Science and Engineering at Penn, and his collaborators at the Georgia Institute of Technology have combined transition state theory, explicit atomistic energy landscape calculation and computer simulation to establish a theoretical framework to predict the strengths of small-volume materials. Unlike previous models, their prediction can be directly

compared with experiments performed at realistic temperature and loading rates. This research appeared as a cover article in Volume 100 of Physical Review Letters.

Their study demonstrated that the free, exterior surface of nanosized materials can be fertile breeding grounds of dislocations at high stresses. Dislocations are string-like defects whose movements give rise to plastic flow, or shape change, of solids. In large-volume materials, it is easy for dislocations to multiply and entangle and to maintain a decent population inside; however, in small-volume materials, dislocations could show up and then exit the sample, one at a time. To initiate and sustain plastic flow in this case, dislocations need to be frequently nucleated fresh from the surface.

Since surface is itself a defect, researchers asked to what degree the measured strength of a small-volume material reflects surface properties and surface-mediated processes, particularly when the sample size is in the range of tens of nanometers. Li and his team modeled tiny bits of gold and copper to investigate the probabilistic nature of surface dislocation nucleation. The study showed that the activation volume associated with surface dislocation nucleation is characteristically in the range of 1--10 times the atomic volume, much smaller than that of many conventional dislocation processes. Small activation volumes will lead to sensitive temperature and strain-rate dependence of the critical stress, providing an upper bound to the size-strength relation.

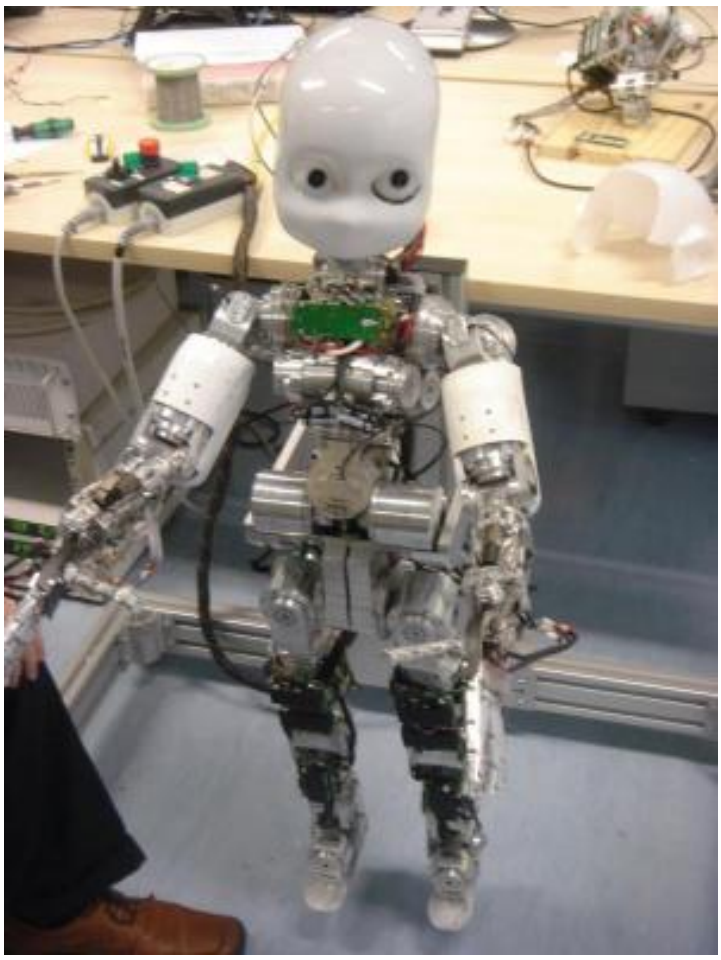
From this, the team predicted that the "smaller is stronger" trend will saturate at wire diameters 10-50 nanometers for most metals. For comparison, computers now contain microchips with 45 nanometer strained silicon features. Associated with this saturation in strength is a transition in the rate-controlling mechanism, from collective dislocation dynamics to single dislocation nucleation.

The National Science Foundation-funded study was performed by Li and Amit Samanta of Penn and, from Georgia Tech, Ting Zhu and Ken Gall of the Woodruff School of Mechanical Engineering and Austin Leach of the School of Materials Science and Engineering.

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

http://www.sciencedaily.com/releases/2008/03/080303190531.htm

First Humanoid Robot That Will Develop Language May Be Coming Soon



iCub, a one meter-high baby robot which will be used to study how a robot could quickly pick up language skills, will be available next year. (Credit: Image courtesy of University of Hertfordshire)

ScienceDaily (Mar. 4, 2008) — iCub, a one metre-high baby robot which will be used to study how a robot could quickly pick up language skills, will be available next year.

Professor Chrystopher Nehaniv and Professor Kerstin Dautenhahn at the University of Hertfordshire's School of Computer Science are working with an international consortium led by the University of Plymouth on ITALK (Integration and Transfer of Action and Language Knowledge in Robots), which begins on 1 March.

ITALK aims to teach the robot to speak by employing the same methods used by parents to teach their children. Professor Nehaniv and Professor Dautenhahn, who are European leaders in Artificial Intelligence and Human Robot Interaction, will conduct experiments in human and robot language interaction to enable the robot to converse with humans.

Typical experiments with the iCub robot will include activities such as inserting objects of various shapes into the corresponding holes in a box, serialising nested cups and stacking wooden blocks. Next, the iCub will be asked to name objects and actions so that it acquires basic phrases such as "robot puts stick on cube".

Professor Nehaniv said: "Our approach is that robot will use what it learns individually and socially from others to bootstrap the acquisition of language, and will use its language abilities in turn to drive its learning of social and manipulative abilities. This creates a positive feedback cycle between using

language and developing other cognitive abilities. Like a child learning by imitation of its parents and interacting with the environment around it, the robot will master basic principles of structured grammar, like negation, by using these abilities in context."

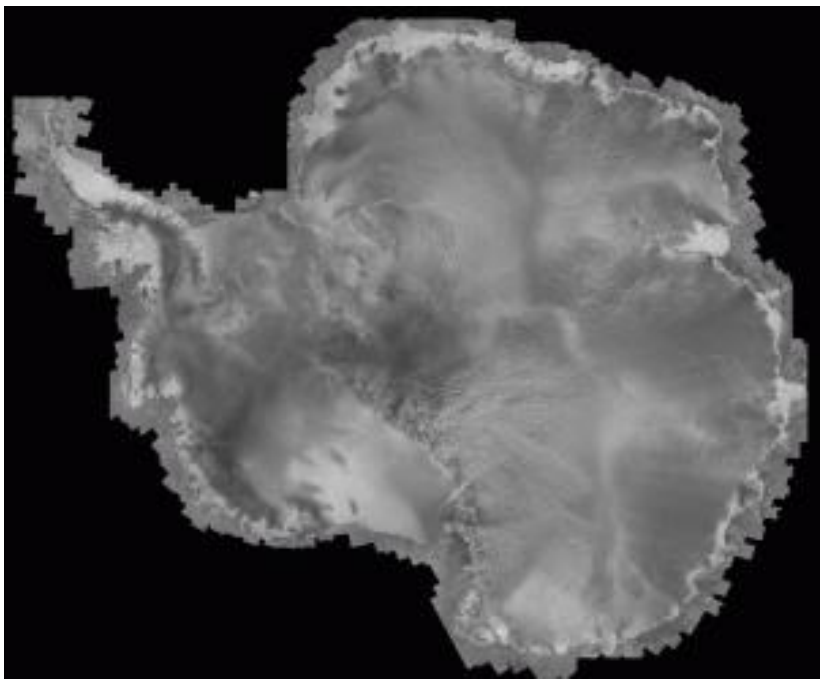
The scientific and technological research developed during the project will have a significant impact on the future generation of interactive robotic systems within the next ten years and the leadership role of Europe in this area.

Speaking about the research, Professor Dautenhahn said: "iCub will take us a stage forward in developing robots as social companions. We have studied issues such as how robots should look and how close people will want them to approach and now, within a year, we will have the first humanoid robot capable to developing language skills."

Adapted from materials provided by University of Hertfordshire.

http://www.sciencedaily.com/releases/2008/02/080229141032.htm

Could Volcanic Activity In West Antarctic Rift Destabilize Ice Sheet?



Antarctica. The West Antarctic rift is a region of volcanic activity and crustal stretching that is roughly the size of the western United States. (Credit: Alaska SAR Facility, Copyright Canadian Space Agency)

ScienceDaily (Mar. 4, 2008) — The West Antarctic rift is a region of volcanic activity and crustal stretching that is roughly the size of the western United States (from Salt Lake City to the Pacific Ocean).About 98 percent of it is buried beneath glacial ice, up to 2.5 miles thick, and bedrock beneath the ice is 2000--3000 feet below sea level over large areas. All of this makes it a difficult region to study.

It is interesting nevertheless, because volcanic eruptions beneath the ice could destabilize the ice sheet, leading to as much as 25 feet of sea-level rise. How likely is it that this could happen is a question scientists have debated for over a decade. LeMasurier addresses the question by comparing the West Antarctic rift with similar areas of crustal stretching elsewhere in the world. The comparison shows that volcanic activity in rifts is most common where the land is a mile or more above sea level, and rising, which can readily be seen in Antarctica along the Transantarctic Mountains, and in the Pacific coast mountains of Marie Byrd Land. The large sub-sea-level interior of the rift does not, therefore, seem to be a likely place for present-day volcanic activity.

This is good news, because the sub-sea-level base of the West Antarctic ice sheet is already especially vulnerable to warming of the atmosphere and surrounding seas. However, this study also shows that the land in West Antarctica has been rising beneath the ice sheet in some areas and subsiding beneath it in others, over roughly the past 25 million years. Some areas have subsided to as much as 8500 feet below sea level. This tectonic restlessness contrasts markedly with the stability of the regions that lay beneath the northern hemisphere ice sheets of the recent geologic past, and its affect on the history of the West Antarctic ice sheet has not yet been evaluated. The article "Neogene extension and basin deepening in the West Antarctic rift inferred from comparisons with the East African rift and other analogs" by Wesley LeMasurier, Institute of Arctic and Alpine Research, University of Colorado at Boulder, was published in the March issue of Geology ,Pages 247-250.

Adapted from materials provided by Geological Society of America, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/02/080229183818.htm

A Little Rosemary Can Go A Long Way In Reducing Acrylamide In Food

Acrylamide is a chemical formed when frying, baking or grilling carbohydrate-rich foods at temperatures above 120°C. Acrylamide is thus found in a number of foods, such as bread, crisps, French fries and biscuits. (Credit: iStockphoto/Andrew Manley)

ScienceDaily (Mar. 4, 2008) — Several animal tests have shown acrylamide to be a carcinogen, and a recent study conducted by the National Food Institute, Technical University of Denmark, has shown a positive association between acrylamide and breast cancer in humans.

"Acrylamide is formed during the preparation of many ordinary foods. It is therefore important both for consumers and the food industry to find methods to reduce the acrylamide content," says Kit Granby, senior scientist at the National Food Institute, Technical University of Denmark.

Over the past five years, a research project has identified several ways of reducing acrylamide in foods. The project is a collaboration between the National Food Institute and the Department of Systems Biology at the Technical University of Denmark, the Faculty of Life Sciences at the University of Copenhagen and five Danish food companies.

Tests with processing conditions

Acrylamide is a chemical formed when frying, baking or grilling carbohydrate-rich foods at temperatures above 120°C. Acrylamide is thus found in a number of foods, such as bread, crisps, French fries and biscuits.

In addition to the heating temperature, tests carried out during the project also show that factors such as time of processing, pH, water content, water activity and the content of the amino acid asparagine and sugar in the raw ingredients influence the formation of acrylamide. For example, the longer the cooking time and the lower the water content, the higher the acrylamide content in the heat-processed food.

"By changing and optimising these factors when producing foods, the acrylamide content of many different types of products can be reduced considerably," says Kit Granby.

Tests with antioxidants

The collaborative project also included a PhD research project which tested the addition of different antioxidants.

The addition of rosemary to dough prior to baking a portion of wheat buns at 225°C reduced the acrylamide content by up to 60 per cent. Even rosemary in small quantities – in one per cent of the dough – was enough to reduce the acrylamide content significantly.

Flavonoids are another type of antioxidant found, among other things, in vegetables, chocolate and tea. Tests also showed that the addition of the flavonoids epicatechin and epigallocatechin from green tea considerably reduced the acrylamide content.

"Antioxidants are substances which inhibit the formation of free radicals in the food and eliminate free radicals in the body. Our tests indicate that free radicals are formed when cooking and potentially increasing the acrylamide content in certain foods," explains Rikke Vingborg Hedegaard, PhD at the National Food Institute, Technical University of Denmark, who is responsible for the PhD project.

"However, the findings do not show a general association between antioxidants and reducing acrylamide in foods. The tests indicate that different antioxidants do not have the same effect on the formation of acrylamide, and that it is important how antioxidants are added to a product to have an effect on the acrylamide content," adds Rikke Vingborg Hedegaard.

The above findings are just some of the results obtained by the research collaboration project. Other tests show that blanching, salt and the enzyme asparaginase may reduce the acrylamide content in potato products.

The findings have been published in a number of scientific journals, most recently in the journals European Food Research and Technology, Food Chemistry, the Journal of Agricultural and Food Chemistry and the Journal of Food Engineering.

Adapted from materials provided by Technical University of Denmark, via AlphaGalileo.

http://www.sciencedaily.com/releases/2008/02/080229142817.htm

Shorter Women May Have Very Long Lives: Gene Mutation Found

A gene linked to living a very long life -- to 90 and beyond -- is also associated with short stature in women. Daughters of centenarians were 2.5 cm shorter than female controls. (Credit: iStockphoto/Alexander Raths)

ScienceDaily (Mar. 4, 2008) — A gene linked to living a very long life -- to 90 and beyond -- is also associated with short stature in women, according to new research.Mutations in genes governing an important cell-signaling pathway influence human longevity, scientists at the Albert Einstein College of Medicine of Yeshiva University have found.

The report is the latest finding in the Einstein researchers' ongoing search for genetic clues to longevity through their study that by now has recruited more than 450 Ashkenazi (Eastern European) Jews between the ages of 95 and 110. Descended from a small founder group, Ashkenazi Jews are more genetically uniform than other groups, making it easier to spot gene differences that are present. In 2003, this study resulted in the first two "longevity genes" ever identified--findings that have since been validated by other research.

The present study focused on genes involved in the action of insulin-like growth factor (IGF-I), a hormone that in humans is regulated by human growth hormone. Affecting virtually every cell type in the body, IGF-I is crucially important for children's growth and continues contributing to tissue synthesis into adulthood. The IGF-I cell-signaling pathway is triggered when IGF-I molecules circulating in blood plasma latch onto receptors on the surface of cells, causing a signal to be sent to the cell's nucleus that may, for example, tell that cell to divide.

Animal research had shown that mutations to genes involved in the IGF-I signaling pathway cause two effects: Affected animals have impaired growth but also longer life spans. So the Einstein scientists reasoned that altered signaling in this pathway might also influence human longevity. To find out, they analyzed IGF-I-related genetic variations in 384 Ashkenazi Jewish centenarians. And since plasma levels of IGF-I do not reflect their levels at a younger age, the researchers also looked at two other groups: the children of these centenarians, and a control group consisting of Ashkenazi Jews the same age as the centenarians' children but with no family history of longevity.

Remarkably, the female children of the centenarians had IGF-I plasma levels that were 35 percent higher than female controls--perhaps a sign that the body was compensating for a glitch in IGF-I signaling by secreting increased amounts of the hormone. That suspicion was strengthened by two other findings: the daughters of centenarians were 2.5 cm shorter than female controls; and when the researchers analyzed the gene coding for the IGF-I cell-surface receptor molecule to which the IGF-I hormone binds, the receptor genes of centenarians and their daughters were much more likely to have a variety of mutations than were the receptor genes of the controls.

"Our findings suggest that, by interfering with IGF-I signaling, these gene mutations somehow play a role in extending the human life span, as they do in many other organisms," says Dr. Nir Barzilai, senior author of the study and director of the Institute for Aging Research at Einstein.

Dr. Barzilai notes that a drug that decreases IGF-I action is currently being tested as a cancer treatment and could be useful in delaying aging. "Since the subjects in our study have been exposed to their mutations since conception, it is not clear whether people would need such a therapy throughout life or if it could help people who received it at a later time."

This research is described in the March 4 issue of the Proceedings of the National Academy of Sciences.

Besides Dr. Barzilai, other Einstein scientists involved in the study were lead author Yousin Suh, Gil Atzmon and Mi-Ook Cho. Other researchers were David Hwang, Bingrong Liu and Pinchas Cohen of UCLA's David Geffen School of Medicine and Daniel J. Leahy of the Johns Hopkins University School of Medicine.

Adapted from materials provided by Albert Einstein College of Medicine, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/03/080304110439.htm

Aromatherapy May Make You Feel Good, But It Won't Make You Well, Study Shows

One of the most comprehensive investigations done to date on aromatherapy failed to show any improvement in either immune status, wound healing or pain control among people exposed to two often-touted scents. (Credit: iStockphoto/Liv Friis-Larsen)

ScienceDaily (Mar. 4, 2008) — One of the most comprehensive investigations done to date on aromatherapy failed to show any improvement in either immune status, wound healing or pain control among people exposed to two often-touted scents.

While one of two popular aromas touted by alternative medicine practitioners – lemon – did appear to enhance moods positively among study subjects, the other – lavender – had no effect on reported mood, based on three psychological tests.

Neither lemon nor lavender showed any enhancement of the subjects' immune status, nor did the compounds mitigate either pain or stress, based on a host of biochemical markers. In some cases, even distilled water showed a more positive effect than lavender.

The study, published online in the journal Psychoneuroendocrinology, looked for evidence that such aromas go beyond increasing pleasure and actually have a positive medical impact on a person's health.While a massive commercial industry has embraced this notion in recent decades, little, if any, scientific proof has been offered supporting the products' health claims.

"We all know that the placebo effect can have a very strong impact on a person's health but beyond that, we wanted to see if these aromatic essential oils actually improved human health in some measurable way," explained Janice Kiecolt-Glaser, professor of psychiatry and psychology at Ohio State University and lead author of the study.

The researchers chose lemon and lavender since they were two of the most popular scents tied to aromatherapy. Recently, two other studies focused on these same two scents.

For the study, Kiecolt-Glaser; Ronald Glaser, a professor of molecular virology, immunology and medical genetics, and William Malarkey, professor of internal medicine, assembled a group of 56 healthy volunteers. These men and women were screened beforehand to confirm their ability to detect standard odors. Some were proponents of the merits of aromatherapy while others expressed no opinion on its use.

Each person took part in three half-day sessions where they were exposed to both scents. Participants were monitored for blood pressure and heart rate during the experiments, and the researchers took regular blood samples from each volunteer.

Researchers taped cotton balls laced with either lemon oil, lavender oil or distilled water below the volunteers' noses for the duration of the tests.

The researchers tested volunteers' ability to heal by using a standard test where tape is applied and removed repeatedly on a specific skin site. The scientists also tested volunteers' reaction to pain by immersing their feet in 32-degree F water.

Lastly, volunteers were asked to fill out three standard psychological tests to gauge mood and stress three times during each session. They also were asked to record a two-minute reaction to the experience which was later analyzed to gauge positive or negative emotional-word use.

The blood samples were later analyzed for changes in several distinct biochemical markers that would signal affects on both the immune and endocrine system. Levels of both Interleukin-6 and Interleukin-10 – two cytokines – were checked, as were stress hormones such as cortisol, norepinephrine and other catacholomines.

While lemon oil showed a clear mood enhancement, lavender oil did not, the researchers said. Neither smell had any positive impact on any of the biochemical markers for stress, pain control or wound healing.

"This is probably the most comprehensive study ever done in this area, but the human body is infinitely complex," explained Malarkey. "If an individual patient uses these oils and feels better, there's no way we can prove it doesn't improve that person's health.

"But we still failed to find any quantitative indication that these oils provide any physiological effect for people in general."

The wound healing experiments measured how fast the skin could repair itself, Glaser said. "Keep in mind that a lot of things have to take place for that healing process to succeed. We measured a lot of complex physiological interactions instead of just a single marker, and still we saw no positive effect," he said.

The project was supported in part by the National Center for Complementary and Alternative Medicine at the National Institutes of Health. Kiecolt-Glaser, Glaser and Malarkey are all members of Ohio State's Institute for Behavioral Medicine Research.

Adapted from materials provided by Ohio State University.

http://www.sciencedaily.com/releases/2008/03/080303093553.htm

New Discovery Of 'Old Growth' Crystals Provides New Record Of Planetary Evolution

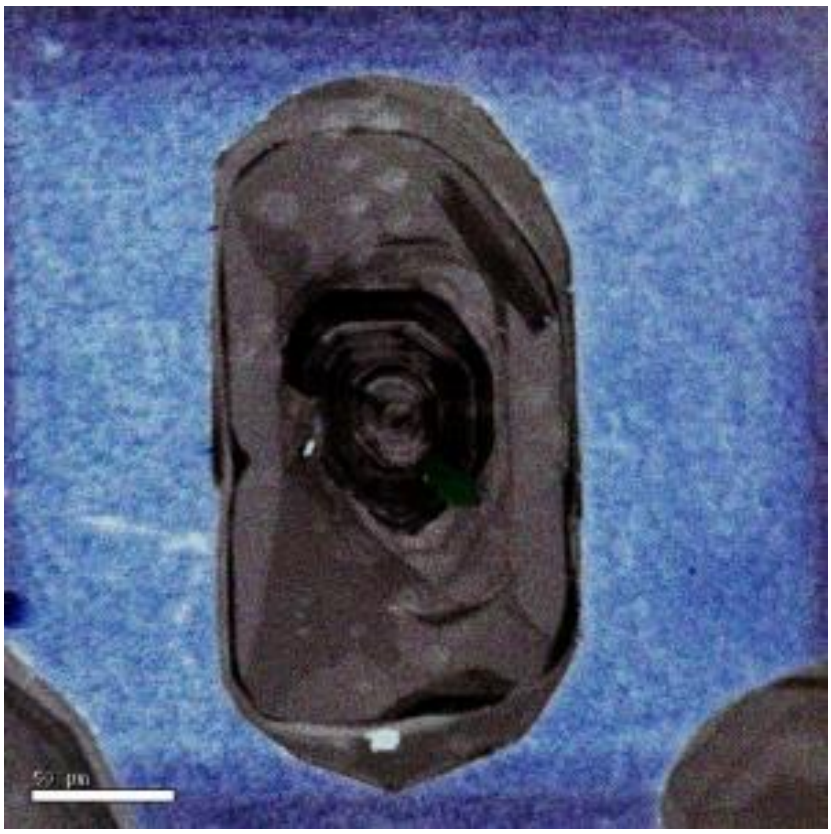


Image of Light stimulated by an electron beam from the surface of a zircon microcrystal as wide as a human hair. The crystal was discovered in Northern Ontario. The growth rings reflect changes in the crystal's environment over its 200 million year growth history that began with formation of the core of the crystal 2.7 billion years ago. The zones represent different stages in the volcanic, mountain building and continental spreading history of early North America and are a new record of planetary history that can be read on Earth and other Rocky planets. (Credit: Image courtesy of University of Western Ontario)

ScienceDaily (Mar. 4, 2008) — Three-billion-year-old zircon microcrystals found in northern Ontario are proving to be a new record of the processes that form continents and their natural resources, including gold and diamonds.

The discovery was made recently by an international research team led by Earth Sciences professor Desmond Moser at The University of Western Ontario. Measuring no more than the width of a human hair, the 200-million-year growth span of these ancient microcrystals is longer than any previously discovered.

The findings provide a new record of planetary evolution and contradict previous experimental predictions that the crystals would change when exposed to heat and pressure upon burial in the deep Earth. Instead, they have an incredible 'memory' of their time below volcanoes, of transport to the shores of ancient oceans and of their burial beneath now-extinct mountain ranges billions of years before the time of dinosaurs.

"This research shows that these crystals are incredibly resistant to change and proves for the first time that the growth zones we see inside them contain an accurate record of their movements through and around the Earth," says Moser.

Containing trace amounts of uranium, the crystals continued to grow over hundreds of millions of years, even as the planet evolved and underwent a series of dramatic shifts. "The oldest pieces of our planet are

crystals of zircon," says Moser. "These crystals are the memory cells of the Earth and with our study we can now say they are an accurate recorder of planetary evolution over eons -- in the same way that rings on an old growth tree can record changes in a forest over hundreds of years."

Keeping with the tree analogy, Moser found that these crystals had roughly circular growth zones that he was able to date and analyze with specialized ion probes. These zones track the formation of the early North American continent, from its beginning as a series of volcanic island chains, to its eventual fusion into a large, thick continental plate that became the core of North America.

As the crystals formed around the same time as gold, diamond and other metal deposits, this research provides not only insight into the formation of Earth itself, it can also help answer the question, "Did plate tectonics operate early in our planet's history or did some other process create the large metal and diamond deposits of the Canadian Shield?" "It also provides a new tool for dating the appearance of oceans on other rocky planets like Mars, where Rover results indicate zircon crystals should exist" says Moser.

Over the course of millions of years, the crystals have been pushed back to the surface from depths of 30 kilometres by a series of pushes on the edges of the original continent, which give us globally-rare exposures in northern Ontario. "It's not every day you find a piece of the deep Earth that you can walk around on and explore," Moser says.

Moser's findings are further detailed in the March issue of Geology, published by the Geological Society of America.

Adapted from materials provided by University of Western Ontario.

http://www.sciencedaily.com/releases/2008/03/080303120343.htm

140-year-old Math Problem Solved

ScienceDaily (Mar. 4, 2008) — A problem which has defeated mathematicians for almost 140 years has been solved by a researcher at Imperial College London. Professor Darren Crowdy, Chair in Applied Mathematics, has made the breakthrough in an area of mathematics known as conformal mapping, a key theoretical tool used by mathematicians, engineers and scientists to translate information from a complicated shape to a simpler circular shape so that it is easier to analyse.

This theoretical tool has a long history and has uses in a large number of fields including modelling airflow patterns over intricate wing shapes in aeronautics. It is also currently being used in neuroscience to visualise the complicated structure of the grey matter in the human brain.

A formula, now known as the Schwarz-Christoffel formula, was developed by two mathematicians in the mid-19th century to enable them to carry out this kind of mapping. However, for 140 years there has been a deficiency in this formula: it only worked for shapes that did not contain any holes or irregularities.

Now Professor Crowdy has made additions to the famous Schwarz-Christoffel formula which mean it can be used for these more complicated shapes. He explains the significance of his work, saying:

"This formula is an essential piece of mathematical kit which is used the world over. Now, with my additions to it, it can be used in far more complex scenarios than before. In industry, for example, this mapping tool was previously inadequate if a piece of metal or other material was not uniform all over - for instance, if it contained parts of a different material, or had holes."

Professor Crowdy's work has overcome these obstacles and he says he hopes it will open up many new opportunities for this kind of conformal mapping to be used in diverse applications.

"With my extensions to this formula, you can take account of these differences and map them onto a simple disk shape for analysis in the same way as you can with less complex shapes without any of the holes," he added.

Professor Crowdy's improvements to the Schwarz-Christoffel formula were published in the March-June 2007 issue of Mathematical Proceedings of the Cambridge Philosophical Society.

Journal reference: 'Schwarz-Christoffel mappings to unbounded multiply connected polygonal regions,' Math. Proc. Camb. Phil. Soc. (2007), 142, 319.

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

http://www.sciencedaily.com/releases/2008/03/080303110214.htm

Literary sex is such a turn-off

Lee Rourke

March 4, 2008 10:00 AM

Martina Gedeck and Moritz Bleibtreu in Oskar Roehler's German adaptation of Michel Houellebecq's novel Atomised

Sex does not belong on the page, not the type of sex scene we read in contemporary literary fiction anyway; for me, when I encounter it there, in countless modern lifestyle novels, it is a form of nothingness, hanging on the page, dislocated from the rest of the book.

When novelists try to make their sex scenes literary, when they try to orchestrate each moan and groan into the book, wasting all that time trying to create the perfect scene, trying to make it seem believable, they fail miserably. The literary approach to writing a decent, believable sex scene is the most embarrassing thing about contemporary literary fiction today.

Michel Houellebecq's novels are saturated with badly written sex scenes. Moreover, they are a joy to read because of it. For if sex is to be used at all, it should be mechanical, dreary and, most importantly, clichéd, which is precisely what you get with Houellebecq.

His entire oeuvre to date hangs on the pessimistic supposition that sex is the one thing we cling onto in a modern world devoid of any meaning. His characters find meaning, away from personal crisis, in its action, unaware of its wider non-action. Sex in a typical Houellebecq novel is mechanical and - crucially - primitive. If we were to open any of his books at random then we would invariably be confronted with some sort of scene involving various naked human beings fornicating in a series of humdrum, unexciting positions without much feeling or mindfulness.

No one seems to care about what it is they are actually doing. These sex scenes are frequent and monotonous: the pistons of a well-oiled engine driving the entire narrative. Atomised, for instance, is heaving with such writing:

"Bruno and Rudi took turns penetrating Hannelore while she licked Christiane's vagina, before getting the women to swap over. Then Hannelore fellated Bruno. She had a beautiful body, heavy but firm and toned through regular exercise. She sucked very sensitively; turned on by the whole situation, Bruno came a little too quickly. Rudi, however, managed to delay his orgasm for 20 minutes [...] Hannelore offered them a glass of kirsch to round off the evening."

For Houellebecq the sexual act is always mechanical, always from one point of view, never complicated, never mawkish and all parties are complicit: women never say no and men always rise to the occasion. It is bad sex. It is clichéd sex. It is wholly misogynistic in practice and point of view. Because of these faults, these annoying fissures of self-referential knowing, these bathetic scenes seem completely real. Even though sex does not happen like this in our lives - misogyny is abhorrent to us - yet, still these passages seem real to us.

They certainly seem real compared to the flowery passages that attempt to describe the same thing in much contemporary literary fiction, where the sexual act is turned into some syrupy, verbose exercise in creative writing. Take a look at Ian McEwan's On Chesil Beach:

"Had she pulled on the wrong thing? Had she gripped too tight? He gave out a wail, a complicated series of agonised, rising vowels, the sort of sound she had heard once in a comedy film when a waiter, weaving this way and that, appeared to be about to drop a pile of towering soup plates. In horror she let go, as Edward, rising up with a bewildered look, his muscular back arching in spasms, emptied himself over her in gouts, in vigorous but diminishing quantities, filling her navel, coating her belly, thighs, and even a portion of her chin and kneecap in tepid, viscous fluid."

"Wail"?, "comedy film"?, "arching in spasms"?. Yes, I know this book is purposely about bad sex, but why dress it up in literary posturing? Why turn it into something laughably unreal? I know which author I would rather read. Do you? When authors try to turn sex into something literary - something it can never be - they begin to miss the point completely.

http://blogs.guardian.co.uk/books/2008/03/literary_sex_is_such_a_turnoff.html

Sure Start young 'behave better'
The government is enhancing Sure Start children's centres in the most disadvantaged parts of England, as research shows they benefit toddlers.

A study by Birkbeck, University of London found children behaved better and more independent under Sure Start.

Their parents provided a better home learning environment than in areas without such Sure Start centres.

The positive effects were modest, researchers said. Ministers are funding more outreach workers and training.

Sure Start has local flexibility, but in general, services include outreach and home visiting, family support and good quality play, learning and childcare facilities.

The study, The Impact of Sure Start Local Programmes on Three Year Olds and Their Families was carried out by the National Evaluation of Sure Start Research Team at Birkbeck, University of London.

It focused on more than 9,000 three-year-olds and their families in 150 areas who initially had been studied when the children were nine months old.

These were compared with 1,879 children and their families who had taken part in a completely different study, the Millennium Cohort Study (MCS) and who lived in similar areas that did not have Sure Start.

They found that the children in Sure Start areas:

- exhibited more positive social behaviour
- exhibited greater independence and self-regulation
- were more likely to have received immunisations and less likely to have had an accidental injury - though these may be due to factors other than Sure Start

Parents:

- provided their children with a better home learning environment

- exhibited less negative parenting
- reported greater use of support services

The comparison was not straightforward, the study points out. The results differed "markedly" from a first evaluation by the same team.

That had indicated that the most disadvantaged families - teen parents, lone parents, jobless households - were doing less well in Sure Start areas than those who were better off.

But this new study provided "almost no evidence of adverse effects".

'**Modest**'

Their report says their cautious conclusion is that the increased benefits detected in the current study may well stem from improvements in the services being provided and the families' longer exposure to them.

Nevertheless, they say, the positive effects should not be exaggerated as all were modest.

"Clearly it will be of importance to see what the next phase of impact evaluation reveals, as it investigates the functioning of the same children included in this phase of inquiry two years later, when they are five years of age."

Speaking at the first national conference for children's centre leaders, children and families secretary Ed Balls said there was more to do and pledged additional measures.

They include two more outreach workers at each centre in the 1,500 most disadvantaged areas, a review of outreach work to clarify good practice, £7m for more training and guidance on working with black and ethnic minority families.

"Parents bring up children not the government, and this research shows that Sure Start centres can help parents give their children the best start in life," Mr Balls said.

"I want to make sure all families can benefit - which is why we are putting in place a package of measures, backed up with funding and new outreach workers to reach out to the most disadvantaged families."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/1/hi/education/7277123.stm

Published: 2008/03/04 12:47:08 GMT

CERN Particle Detector: ATLAS Completes World's Largest Jigsaw Puzzle

Lowering of the second ATLAS Muon small wheel. (Credit: Image courtesy of CERN)

ScienceDaily (Mar. 4, 2008) — A pivotal landmark in the construction of the Large Hadron Collider (LHC) has been achieved -- the lowering of the final piece of the ATLAS particle detector into the underground collision hall at CERN in Geneva, Switzerland. Experiments conducted at this revolutionary LHC facility, poised to become the world's most powerful particle accelerator, may help scientists unravel some of the deepest mysteries in particle physics.

The ATLAS detector is the world's largest general-purpose particle detector, measuring 46 metres long, 25 metres high and 25 metres wide; it weighs 7000 tonnes and consists of 100 million sensors that measure particles produced in proton-proton collisions in CERN's Large Hadron Collider3 (LHC). The first piece of ATLAS was installed in 2003 and since then many detector elements have journeyed down the 100 metre shaft into the ATLAS underground cavern. This last piece completes this gigantic puzzle.

"This is an exciting day for us," said Marzio Nessi, ATLAS technical coordinator. "The installation process is coming to its conclusion and we are gearing up to start a new programme of physics research."

"We believe that muons are signatures of interesting events," says Branadeis physicist James Bensinger. If enough muon-related events are detected, it's entirely likely that high-energy particle physics could cross the threshold to a new era of understanding, perhaps moving closer to that obscure "theory of everything."

Known as the small wheel, this is the final element to complete the ATLAS muon spectrometer, and will be journeying 100 metres into its underground experimental cavern. There are two ATLAS small wheels; though small in comparison to the rest of the ATLAS detector, they are each 9.3 metres in diameter and weigh 100 tonnes including massive shielding elements. They are covered with sensitive detectors to identify and measure the momentum of particles that will be created in the LHC collisions. The entire muon spectrometer system contains an area equal to three football fields, including 1.2 million independent electronic channels. As particles pass through a magnetic field produced by superconducting magnets, this detector has the ability to accurately track them to the width of a human hair.

"These fragile detectors comprise the largest measuring device ever constructed for high energy physics," said George Mikenberg, ATLAS muon project leader.

"One of the major challenges is lowering the small wheel in a slow motion zigzag down the shaft," explained Ariella Cattai, leader of the small wheel team, "and performing precision alignment of the detector within a millimetre of the other detectors already in the cavern."

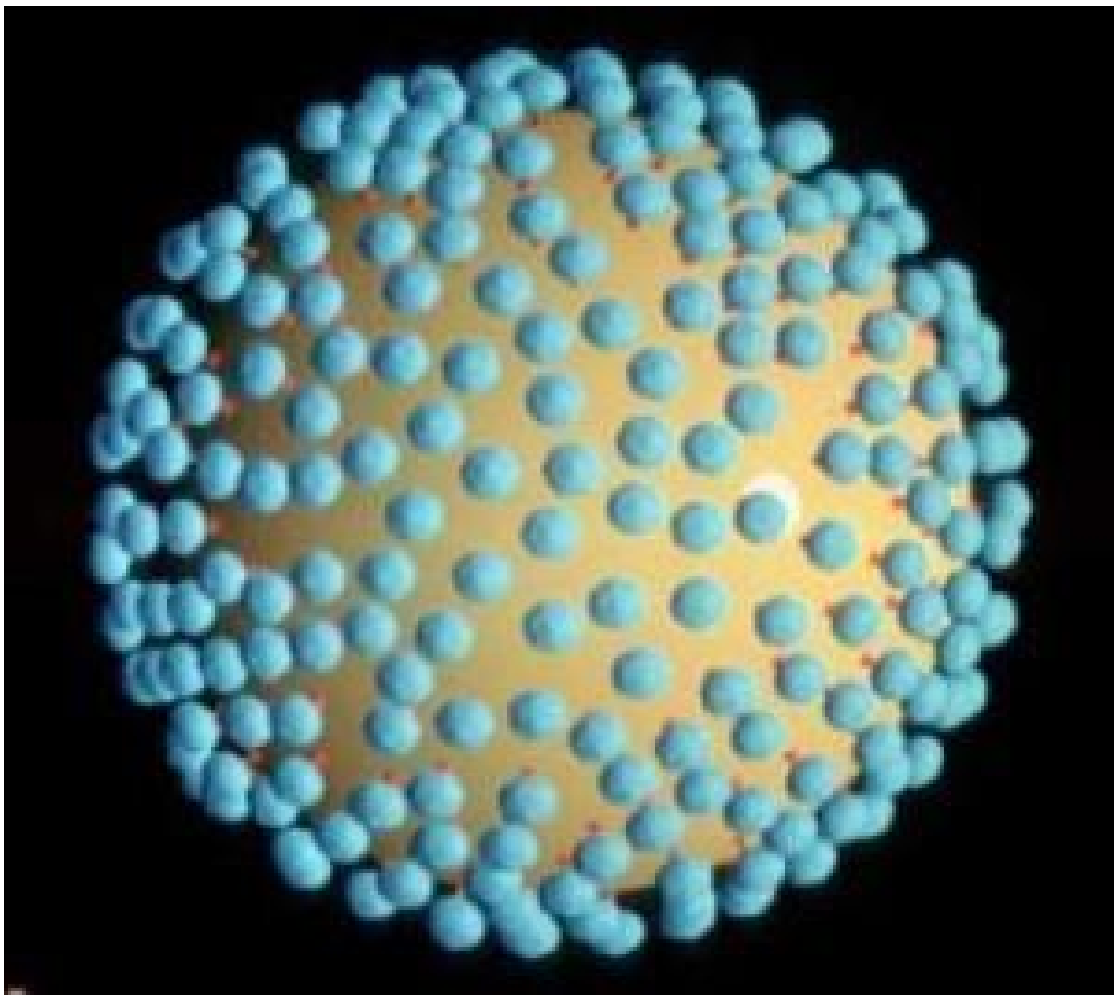
Comprising 450 physicists from 48 institutions, the ATLAS muon spectrometer group includes members from China, France, Germany, Greece, Israel, Italy, Japan, Netherlands, Russia and the United States of America. For them, this event marks the end of more than a decade of development, planning and construction of the muon spectrometer system. The shielding elements of the small wheels have been constructed in Armenia and Serbia.

The ATLAS collaboration will focus now on commissioning work in preparation for the start-up of the LHC this summer. Experiments at the LHC will allow physicists to take a big leap on a journey that started with Newton's description of gravity. Gravity is ubiquitous since it acts on mass, but so far science is unable to explain why particles have the masses they have. Experiments such as ATLAS may provide the answer. LHC experiments will also probe the mysterious dark matter and energy of the Universe, they will investigate the reason for nature's preference for matter over antimatter, probe matter as it existed close to the beginning of time and look for extra dimensions of spacetime.

Adapted from materials provided by CERN.

http://www.sciencedaily.com:80/releases/2008/02/080229112216.htm

HIV Breakthrough: Protein That Fights Immunodeficiency Identified



Computer model of AIDS virus (HIV). (Credit: Produced by Richard Feldmann; courtesy of NIH/National Institute of Allergy and Infectious Diseases)

ScienceDaily (Mar. 3, 2008) — A Canada-U.S. research team has solved a major genetic mystery: How a protein in some people's DNA guards them against killer immune diseases such as HIV. In an advance online edition of Nature Medicine, the scientists explain how the protein, FOX03a, shields against viral attacks and how the discovery will help in the development of a HIV vaccine.

"HIV infection is characterised by the slow demise of T-cells, in particular central memory cells, which can mediate lifelong protection against viruses," said lead researcher Rafick-Pierre Sékaly, a Université de Montréal professor and a researcher at the Centre Hospitalier de l'Université de Montréal and the French Institut national de la santé et de la recherche médicale (Inserm).

"Our group has found how the key protein, FOX03a, is vital to the survival of central memory cells that are defective in HIV-infected individuals even if they are treated," added Dr. Sékaly, who produced his study with CHUM and Inserm colleagues including Elias El Haddad and Julien van Grevenynghe. Collaborators also included Jean-Pierre Routy, a McGill University Health Centre researcher and professor at McGill University and Robert S. Balderas, Vice-President of Research and Development at BD Biosciences of San Diego, CA.

Public support for the research came through Genome Canada and Génome Québec, among others, while private contributions came via a segment of BD (Becton, Dickinson and Company). "Public-private collaborations such as this play an important role in advancing medical research," Robert S. Balderas.

"BD Biosciences was pleased to provide powerful research instruments, reagents and technical expertise to support this breakthrough research."

The breakthrough emerged by studying three groups of men: One HIV-negative sample, a second HIV-positive group whose infection was successfully controlled through tritherapy and a third group whose HIV did not show any symptoms. Called elite controllers, this third group fended off infection without treatment because their immune system, which would normally be attacked by HIV, maintained its resilient immune memory through the regulation of the FOX03a protein.

"Given their perfect resistance to HIV infection, elite controllers represent the ideal study group to examine how proteins are responsible for the maintenance of an immune system with good anti-viral memory," said Dr. Haddad. "This is the first study to examine, in people rather than animals, what shields the body's immune system from infection and to pinpoint the fundamental role of FOX03a in defending the body."

Beyond HIV treatment, Dr. Sékaly said his team's discovery offers promise for other immune diseases. "The discovery of FOX03a will enable scientists to develop appropriate therapies for other viral diseases that weaken the immune system," he said, citing cancer, rheumatoid arthritis, hepatitis C, as well as organ or bone marrow transplant rejection.

Paul L'Archevêque, president and CEO of Génome Québec, lauded Dr. Sékaly's team for their breakthrough and the people who volunteered for the study. "This discovery, the first such study in humans, is a major step forward in the understanding of how our immune system responds to life-threatening infections such as HIV. This advance stems directly from research co-financed by Génome Québec, which demonstrates the impact that genomic research can have in improving healthcare."

This research was made possible by public and private institutions across Canada, the United States and France: the Université de Montréal, CHUM, Inserm, MUHC, Genome Canada, Génome Québec, Fonds de la recherche en santé du Québec, Canadian Institutes of Health Research, National Institutes of Health and BD Biosciences.

Adapted from materials provided by University of Montreal.

http://www.sciencedaily.com/releases/2008/03/080303093559.htm

Tighter Tummies: A New Way To Combat Weight Gain

ScienceDaily (Mar. 3, 2008) — Two cell proteins that relax the gut and help accommodate a big meal have been identified by UCL (University College London) scientists. The proteins could offer a future drug target against weight gain, by preventing the stomach from expanding.

In a paper published in the Journal of Pharmacology and Experimental Therapeutics, Dr Brian King and Dr Andrea Townsend-Nicholson explored the molecular basis of relaxations of the gut. In the study, the authors identified two protein receptors – P2Y1 and P2Y11 – involved in fast and slow relaxations of the gut. These proteins were identified in the guinea pig, but are also present in the human gut, and thus offer the potential as a future target for drug treatment. Further research by the UCL team will focus on the human isoform of the P2Y11 protein receptor.

Dr Brian King of the UCL Department of Neuroscience, Physiology and Pharmacology says: "The mechanisms we have identified are important to the normal workings of the stomach - a hollow organ which actively relaxes to help accommodate the size of your meal. The human stomach has a 'resting' internal volume of 75 millilitres but, by relaxing its muscular wall, can expand to an internal volume of two litres or more - a 25-fold increase in the volume it can accept. This expansion is controlled by nerves inside the stomach wall and these nerves release molecules that stimulate the P2Y1 and P2Y11 receptor proteins embedded in muscle cells in the gut wall.

"The mechanism of slow relaxation of the stomach might represent a future drug target in the fight to control weight gain and reverse obesity. We are looking to identify drugs that would block the P2Y11 receptor and, therefore, prevent slow relaxation of the stomach. As a result of blocking the P2Y11-based mechanism, meal size would be smaller, offering the person a better chance of regulating their food intake.

"This would be a brand new approach to weight control. At present, the most successful way to help obese patients lose weight is gastric banding or stomach stapling, both of which reduce the maximum volume of the stomach. But these are also tricky surgical procedures, not without attendant risks. A pill that could replace this surgery, yet have the same effect, might be a useful alternative."

Journal reference: 'Involvement of P2Y1 and P2Y11 Purinoceptors in Parasympathetic Inhibition of Colonic Smooth Muscle' is published in the March edition of the Journal of Pharmacology and Experimental Therapeutics (Volume 324 (Issue 3), 1055-1063).

This work was primarily funded by the British Heart Foundation, with support from UCL.

Adapted from materials provided by University College London.

http://www.sciencedaily.com/releases/2008/03/080303095618.htm

Avalanches On Mars Photographed By NASA Spacecraft

Image of one of at least four Martian avalanches, or debris falls, captured in action. It was taken on February 19, 2008, by the High Resolution Imaging Science Experiment (HiRISE) camera on NASA's Mars Reconnaissance Orbiter. (Credit: NASA/JPL-Caltech/University of Arizona)

ScienceDaily (Mar. 3, 2008) — A NASA spacecraft in orbit around Mars has taken the first ever image of active avalanches near the Red Planet's north pole. The image shows tan clouds billowing away from the foot of a towering slope, where ice and dust have just cascaded down.

The High Resolution Imaging Experiment (HiRISE) on NASA's Mars Reconnaissance Orbiter took the photograph Feb. 19. It is one of approximately 2,400 HiRISE images being released today.

Ingrid Daubar Spitale of the University of Arizona, Tucson, who works on targeting the camera and has studied hundreds of HiRISE images, was the first person to notice the avalanches. "It really surprised me," she said. "It's great to see something so dynamic on Mars. A lot of what we see there hasn't changed for millions of years."

The camera is looking repeatedly at selected places on Mars to track seasonal changes. However, the main target of the Feb. 19 image was not the steep slope.

"We were checking for springtime changes in the carbon-dioxide frost covering a dune field, and finding the avalanches was completely serendipitous," said Candice Hansen, deputy principal investigator for HiRISE, at NASA's Jet Propulsion Laboratory, Pasadena, Calif.

The full image reveals features as small as a desk in a strip of terrain 6 kilometers (3.7 miles) wide and more than 10 times that long, at 84 degrees north latitude. Reddish layers known to be rich in water ice make up the face of a steep slope more than 700 meters (2,300 feet) tall, running the length of the image.

"We don't know what set off these landslides," said Patrick Russell of the University of Berne, Switzerland, a HiRISE team collaborator. "We plan to take more images of the site through the changing Martian seasons to see if this kind of avalanche happens all year or is restricted to early spring."

More ice than dust probably makes up the material that fell from the upper portion of the scarp. Imaging of the site during coming months will track any changes in the new deposit at the base of the slope. That will help researchers estimate what proportion is ice.

"If blocks of ice broke loose and fell, we expect the water in them will be changing from solid to gas," Russell said. "We'll be watching to see if blocks and other debris shrink in size. What we learn could give us a better understanding of one part of the water cycle on Mars."

Another notable HiRISE image released today shows a blue crescent Earth and its moon, as seen by the Mars Reconnaissance Orbiter. The west coast of South America is visible in the photo. Still other images allow viewers to explore a wide variety of Martian terrains, such as dramatic canyons and rhythmic patterns of sand dunes.

The camera is one of six science instruments on the orbiter. The spacecraft reached Mars in March 2006 and has returned more data than all other current and past missions to Mars combined.

"Our Mars program is the envy of the world," said Alan Stern, associate administrator of NASA's Science Mission Directorate, Washington. "We plan to launch a total of five more missions in the next decade, beginning with the Mars Science Lab rover next year and a Mars Aeronomy Scout mission in 2011."

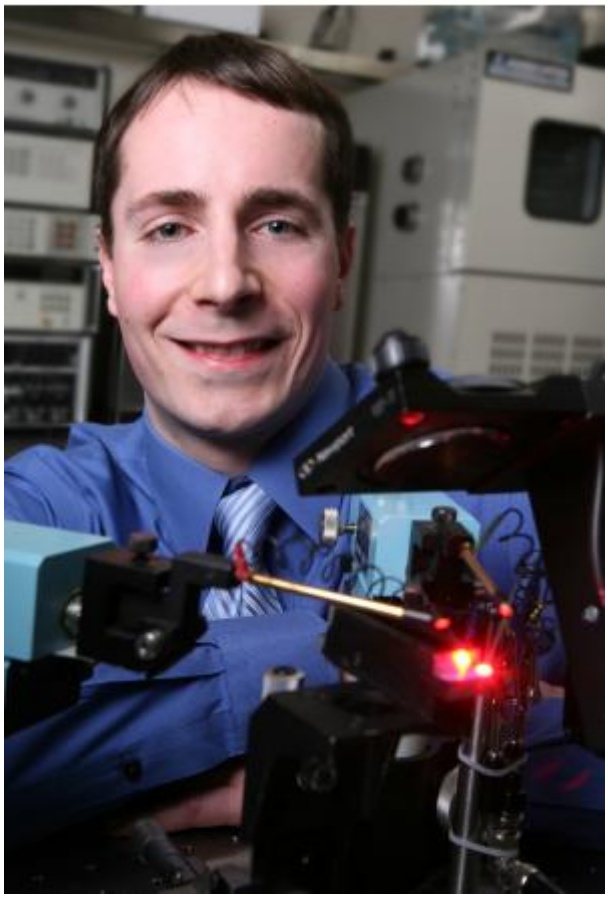
The avalanche image, other selected images, and additional information about the Mars Reconnaissance Orbiter are online at http://www.nasa.gov/mro . All the newly posted and previously posted images from the High Resolution Imaging Science Experiment are available online at http://hirise.lpl.arizona.edu .

The MRO mission is managed by JPL for NASA's Science Mission Directorate, Washington. Lockheed Martin Space Systems, Denver, Colo., is the prime contractor for the project and built the spacecraft. The University of Arizona operates the High Resolution Imaging Science Experiment camera, which was built by Ball Aerospace and Technology Corp., Boulder, Colo.

Adapted from materials provided by NASA/Jet Propulsion Laboratory.

http://www.sciencedaily.com/releases/2008/03/080303155815.htm

Ultra-efficient LED, Developed By Student, Will Vastly Improve LCD Screens, Conserve Energy



Martin Schubert with his new LED. (Credit: Rensselaer/Kris Qua)

ScienceDaily (Mar. 3, 2008) — In recent years, light emitting diodes (LEDs) have begun to change the way we see the world. Now, a Rensselaer Polytechnic Institute student has developed a new type of LED that could allow for their widespread use as light sources for liquid crystal displays (LCDs) on everything from televisions and computers to cell phones and cameras.

Martin Schubert, a doctoral student in electrical, computer, and systems engineering, has developed the first polarized LED, an innovation that could vastly improve LCD screens, conserve energy, and usher in the next generation of ultra-efficient LEDs.

Next Generation of LEDs

Schubert's polarized LED advances current LED technology in its ability to better control the direction and polarization of the light being emitted. With better control over the light, less energy is wasted producing scattered light, allowing more light to reach its desired location. This makes the polarized LED perfectly suited as a backlighting unit for any kind of LCD, according to Schubert. Its focused light will produce images on the display that are more colorful, vibrant, and lifelike, with no motion artifacts.

Schubert first discovered that traditional LEDs actually produce polarized light, but existing LEDs did not capitalize on the light's polarization. Armed with this information, he devised an optics setup around the LED chip to enhance the polarization, creating the first polarized LED.

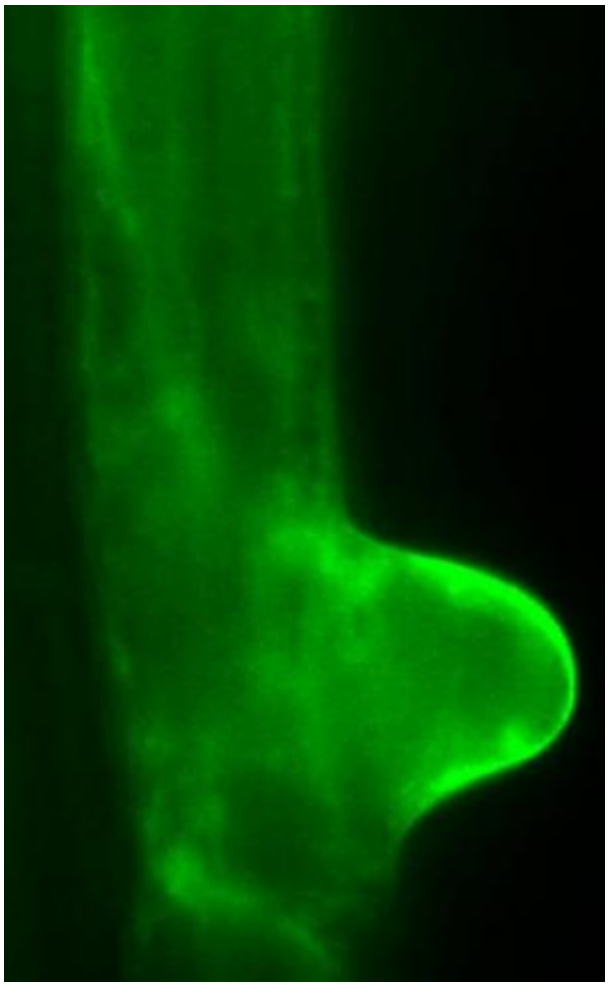
The invention could advance the effort to combine the power and environmental soundness of LEDs with the beauty and clarity of LCDs. Schubert expects that his polarized LED could quickly become commonplace in televisions and monitors around the world, replacing widely used fluorescent lights that are less efficient and laden with mercury. His innovation also could be used for street lighting, high-contrast imaging, sensing, and free-space optics, he said.

Schubert's innovation has earned him the $30,000 Lemelson-Rensselaer Student Prize.

Adapted from materials provided by Rensselaer Polytechnic Institute.

http://www.sciencedaily.com/releases/2008/02/080228205953.htm

How Roots Find A Route Around Obstacles In The Soil



A root growing vertically, with a root hair cell emerging horizontally. (Credit: John Innes Centre)

ScienceDaily (Mar. 3, 2008) — Scientists at the John Innes Centre in Norwich have discovered how roots find their way past obstacles to grow through soil. The discovery, described in the forthcoming edition of Science, also explains how germinating seedlings penetrate the soil without pushing themselves out as they burrow.

"The key is in the fuzzy coat of hairs on the roots of plants" says Professor Liam Dolan. "We have identified a growth control mechanism that enables these hairs to find their way and to elongate when their path is clear."

Root hairs explore the soil in much the same way as a person would feel their way in the dark. If they come across an obstacle, they feel their way around until they can continue growing in an opening. In the meantime, the plant is held in place as the hairs grip the soil.

This ability is governed by a self-reinforcing cycle. A protein at the tip of root hairs called RHD2 produces free radicals that stimulate the uptake of calcium from the soil. Calcium then stimulates the activity of RHD2, producing more free radicals and further uptake of calcium. When an obstacle blocks the hair's path, the cycle is broken and growth starts in another location and direction.

"This remarkable system gives plants the flexibility to explore a complex environment and to colonise even the most unpromising soils," says Professor Dolan.

"It also explains how seedlings are able to grow so quickly once they have established."

In nutrient poor soils such as in parts of Australia and sub-Saharan Africa, plants have adapted by producing more root hairs. A better understanding of this adaptation will allow the development of crops able to grow in inhospitable environments.

This research was funded by the BBSRC, a Marie Curie International Incoming Fellowship and MEXT of Japan.

Adapted from materials provided by Norwich BioScience Institutes, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/02/080228143543.htm

NASA's Newest Concept Vehicles Take Off-Roading Out Of This World

This robot is equipped with a drill designed to find water and oxygen-rich soil on the moon. (Credit: Carnegie Mellon University)

ScienceDaily (Feb. 29, 2008) — In a car commercial, it would sound odd: active suspension, six-wheel drive with independent steering for each wheel, no doors, no windows, no seats and the only color it comes in is gold.

But NASA's latest concept vehicle is meant to go way, way off-road -- as in 240,000 miles from the nearest pavement, driving on the moon. NASA is working to send astronauts to the moon by 2020 to set up a lunar outpost, where they will do scientific research and prepare for journeys to destinations like Mars.

NASA is testing many technologies needed for research on the moon. Two examples are a lunar truck for astronauts and a rover equipped with a drill designed to dig into the moon's soil.

The concept for a future lunar truck was built at NASA's Johnson Space Center, Houston. The vehicle provides an idea of what the transportation possibilities may be when astronauts start exploring the moon. Other than a few basic requirements, the primary instruction given to the designers was to throw away assumptions made on NASA's previous rovers and come up with new ideas.

"To be honest with you, it was scary when we started," said Lucien Junkin, a Johnson robotics engineer and the design lead for the prototype rover. "They tasked us last October to build the next generation rover and challenge the conventional wisdom. The idea is that, in the future, NASA can put this side-by-side with alternate designs and start to pick their features."

One of the first standards to go was the traditional expectation that a vehicle should have four wheels. Mars rovers Spirit and Opportunity, still cruising around the Red Planet, have already proved the value of

a couple of extra wheels. When one of the six wheels became inoperable, the rovers had no problem rolling on the remaining five.

With the number of wheels decided, the next question was just how those wheels should turn. On a car, the front wheels turn a few inches in either direction, and both wheels point in the same direction. On this rover, all six wheels can pivot individually in any direction, regardless of where any other wheel points. To parallel park, a driver could pull up next to the parking place, turn all the wheels to the right and slide right in.

Of course, astronauts will not have trouble finding a parking space on the moon. But the feature, called crab steering, has advantages for a vehicle designed to drive into the craters of the moon. If a slope is too steep to drive down safely, the vehicle could drive sideways instead -- no backing up or three-point turns required. The all-wheels, all-ways steering also could come in handy when unloading and docking payloads or plugging into a habitat for recharging.

Introducing crab steering drove the concept in a few other ways. If the rover's wheels turn to drive in a different direction, the driver needs to be able to do the same. The driver stands at the steering mechanism because sitting in a spacesuit is not comfortable or practical. The astronaut's perch -- steering mechanism, driver and all -- can pivot 360 degrees.

"The Apollo astronauts couldn't back up at all because they couldn't see where they were going in reverse," said Rob Ambrose, assistant chief of the Automation, Robotics and Simulation Division at Johnson. "If you have a payload on the back or are plugging into something, it could be really important to keep your eyes directly on it."

The vehicle also can be the ultimate lowrider. It can lower its belly to the ground, making it easier for astronauts in spacesuits to climb on and off. Individual wheels or sections can be raised and lowered to keep the vehicle level when driving on uneven ground.

Some, all or none of these features may be selected to be in the design of a rover that eventually goes to the moon. NASA's lunar architects currently envision pressurized rovers that would travel in pairs, two astronauts in each rover. The new prototype vehicle is meant to provide ideas as those future designs are developed.

"This rover concept changed the whole paradigm," said Diane Hope, program element manager for NASA's Exploration Technology Development Program at NASA's Langley Research Center in Hampton, Va., which sponsored the vehicle's development. "It's not something I would have expected. It provides an alternative approach."

Adapted from materials provided by National Aeronautics And Space Administration.

http://www.sciencedaily.com:80/releases/2008/02/080227182956.htm

Surgeons Complete Single-incision Gallbladder Removal, Patient Golfing Within A Week

Professional golfer Melanie Willhite wanted to get back on the golf course as soon as possible following surgery. Within a week, she was back on the course putting and two weeks out was able to go through the full range of golf swings. (Credit: UT Southwestern Medical Center)

ScienceDaily (Feb. 29, 2008) — UT Southwestern Medical Center surgeons have removed a gallbladder through a unique operation requiring only a single incision in the bellybutton rather than the traditional four incisions in the abdomen. It is the first such operation in North Texas.

"It went better than we expected," said Dr. Homero Rivas, assistant professor of surgery, who completed the 80-minute procedure with Dr. J. Esteban Varela, assistant professor of surgery. "Through a single hole, we were able to introduce more than one instrument into the patient's abdomen at once, and we were able to remove her gallbladder very safely, just like we do routinely through four incisions."

Melanie Willhite, a 28-year-old professional golfer, said she had suffered for more than a decade with gallbladder attacks that caused recurring abdominal pain, sometimes so intense she could not stand.

"I wasn't eating. I had lost about 12 pounds in the past two months. It came on when I was under stress, so I got attacks after almost every tournament round," said Ms. Willhite, a Farmers Branch resident who has been on the professional circuit for five years.

She said she opted for the single-incision cholecystectomy in January to reduce scarring afterwards and have less down time.

"There were a lot of advantages to doing it through one hole, including less scarring and the possibility for quicker healing," she said. "I'm young. I also wanted to get back on the golf course as soon as

possible. The season technically starts in March. I was a little worried, but not too concerned. I trust Dr. Rivas."

A day after the surgery she was already feeling better and the next day she was eating spaghetti, a meal previously off-limits due to the gallbladder problems. Within a week, she was back on the course putting and two weeks out was able to go through the full range of golf swings.

"I've been really pleased," she said. "I'm looking forward to the start of the season."

Surgeons inserted specialized tools developed for single-incision surgery through a 1/2-inch incision in the bellybutton. The tools included a flexible camera and an instrument to cut and suture. Minimally invasive laparoscopic procedures such as this usually require four small incisions for separate insertion of the instrumentation.

"It is certainly more difficult than a regular operation because there's a learning curve for the instrumentation and the camera," said Dr. Varela. "But gallbladder removal is one of the most common operations for general surgeons, so this would be a breakthrough if we could standardize a technique like this."

Patients are generally attracted by the aesthetic appeal of having fewer post-operative scars. Doctors say the fewer incisions can also mean faster recovery times, less risk for infection, less risk for bleeding, less pain and potentially the opportunity to eventually reduce costs due to less instrumentation being needed.

Eventually, the technique could be used for other common gastrointestinal surgeries, such as appendectomies, some colon resections, weight-loss surgeries and gastrectomies, in which part of the stomach is removed.

Surgeons at UT Southwestern's Center for Minimally Invasive Surgery, under director Dr. Daniel Scott, associate professor of surgery in the division of GI/endocrine surgery, have pioneered new techniques for single-incision surgery. Dr. Jeffrey Cadeddu, associate professor of urology, performed the nation's first single-incision surgery to remove a kidney.

UT Southwestern surgeons are part of a national group evaluating the feasibility and safety of single-incision surgeries and have a joint academic venture with surgeons in Shanghai, China, to develop the techniques.

"There's a worldwide trend to use less and less invasive techniques," said Dr. Rivas. "One of the goals we have is to recruit more patients who could benefit from this."

Dr. Rivas recently performed the first reported single-incision laparoscopic hysterectomy in Durango, Mexico. He has a visiting faculty appointment at the Hospital de la Paz, in Durango, where he frequently teaches other surgeons advanced techniques in minimal-access surgery. Dr. Rivas has also successfully performed another single-incision cholecystectomy and a single-incision appendectomy. Dr. Varela has since performed a single-incision laparoscopic colectomy.

Adapted from materials provided by UT Southwestern Medical Center, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/02/080228080529.htm

Destruction Of Sumatra Forests Driving Global Climate Change And Species Extinction

Without their forest habitat, the future of Sumatran tigers is in jeopardy. (Credit: Copyright WWF / Frédy Mercay)

ScienceDaily (Feb. 29, 2008) — Turning just one Sumatran province's forests and peat swamps into pulpwood and palm oil plantations is generating more annual greenhouse gas emissions than the Netherlands and rapidly driving the province's elephants into extinction, a new study by WWF and partners has found.

The study found that in central Sumatra's Riau Province nearly 10.5 million acres of tropical forests and peat swamp have been cleared in the last 25 years. Forest loss and degradation and peat decomposition and fires are behind average annual carbon emissions equivalent to 122 percent of the Netherlands total annual emissions, 58 percent of Australia's annual emissions, 39 percent of annual UK emissions and 26 percent of annual German emissions.*

Riau was chosen for the study because it is home to vast peatlands estimated to hold Southeast Asia's largest store of carbon, and contains some of the most critical habitat for Sumatran elephants and tigers. It also has Indonesia's highest deforestation rate, substantially driven by the operations of global paper giants Asia Pulp & Paper (APP) and Asia Pacific Resources International Holdings Limited (APRIL).

At last December's Bali Climate Change Conference, the Indonesian minister of Forestry pledged to provide incentives to stop unsustainable forestry practices and protect Indonesia's forests. The governor of Riau province has also made a public commitment to protect the province's remaining forest.

"This groundbreaking report gives U.S. businesses a roadmap for getting the biggest bang for their buck," said Adam Tomasek, managing director of the Borneo and Sumatra program at WWF-US. "An investment in Riau Province would both protect some of the world's largest carbon stores and safeguard endangered tigers, elephants and local communities."

Carbon emissions are likely to increase, the study predicted, as most future forest clearance is planned for areas with deep peat soils. "The loss of Sumatra's carbon-rich forest ecosystems is not just Indonesia's problem -- this affects the environmental health of the entire planet," added Tomasek.

The report by WWF, Remote Sensing Solution GmbH and Hokkaido University breaks new ground by analyzing for the first time the connection between deforestation and forest degradation, global climate change, and population declines of tigers and elephants.

The province has lost 65 percent of its forests over the last 25 years and in recent years has suffered Indonesia's fastest deforestation rates. In the same period there was an 84 percent decline in elephant populations, down to only 210 individuals, while tiger populations are estimated to have declined by 70 percent to perhaps just 192 individuals.

""WWF is alarmed that the loss of forests is taking such a high toll not only on the remaining wild elephants and tigers in Sumatra but also on global climate change," said Dr Sybille Klenzendorf, director of species conservation at WWF-US. "The message is clear -- the world must commit to solutions that can save these forests if we are to significantly slow the rate of climate change and allow nature and people to flourish in Sumatra."

Led by global paper giants APP and APRIL, the pulp & paper and palm oil industries are driving Riau's Sumatran tigers and elephants to local extinction in just a few years by destroying their habitat, the study found.

As part of its efforts to save Sumatra's remaining natural forests, WWF is working urgently with the Indonesian government and the pulp and palm oil industries to identify and protect the forests that are home to elephants, tigers, orang-utans and rhinos. Sumatra is the only place on Earth where all four species co-exist.

Historical perspective

- Most of Riau's forests were cleared since 1982 to make way for new industrial plantations, with approximately 30 percent cleared for the palm oil plantations and around 20 percent for pulpwood plantations.
- Since 1982, as the forest were cleared, there was a clear correlation in Riau with declining Sumatran elephant populations, which suffered up to an 84 percent decline in numbers -- down to as few as 210 individuals in 2007.
- Since 1982, Sumatran tiger population estimates are down 70 percent, to perhaps just 192 individuals. Unless the last remaining patches of tiger habitat are connected by wildlife corridors, Riau will no longer have a viable tiger population, the study predicts.

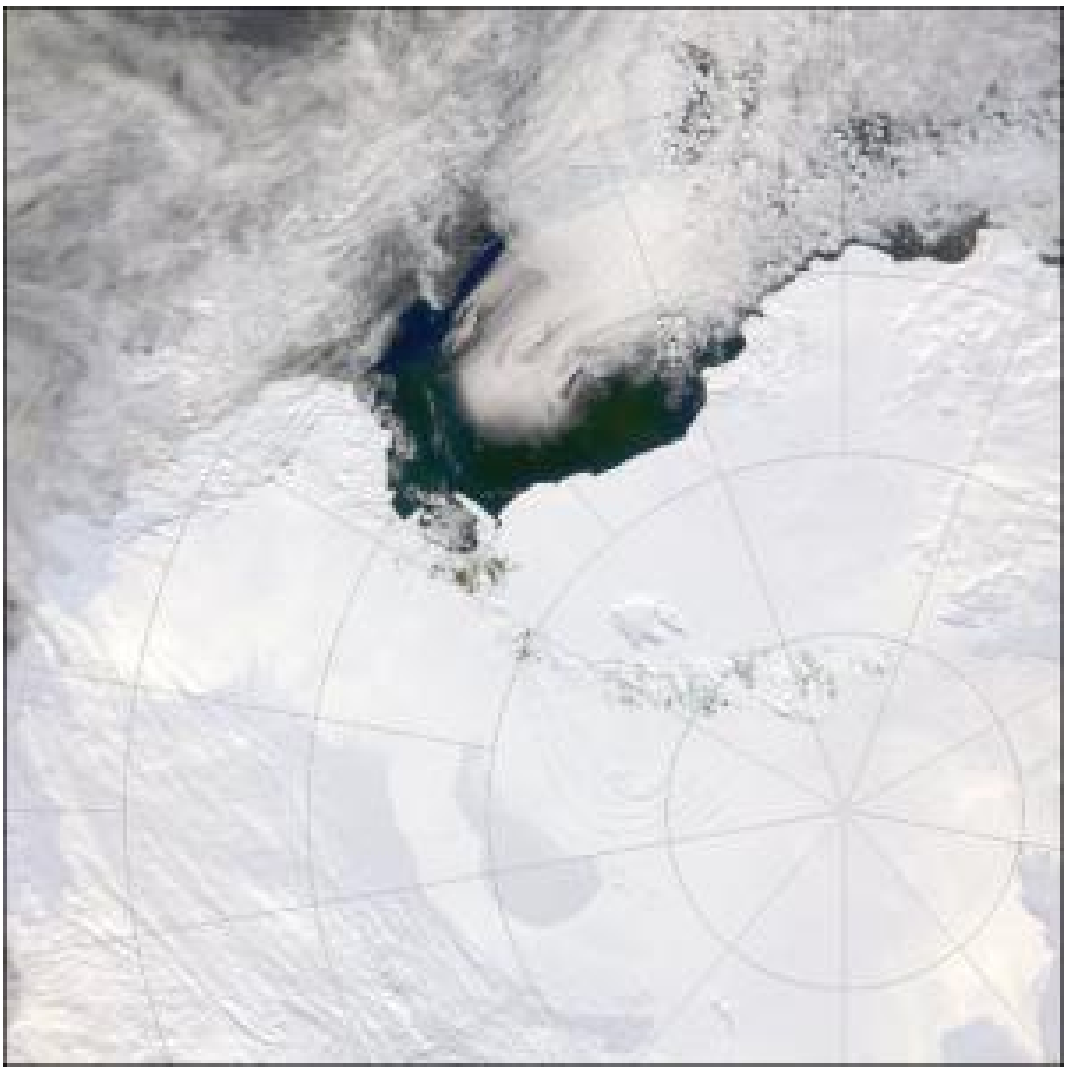
*The study's estimates may over- or underestimate actual carbon emissions due to the fact that for many processes, detailed data on carbon stocks and carbon emissions (stock decrease) are not available. Concerning the historical situation the study solely relied on Landsat satellite imagery, since no other data on land cover are available. Factoring in all possible errors and uncertainties, the study's authors believe that the results indicate at least the order of magnitude of the emissions correctly.

The full report, "Deforestation, Forest Degradation, Biodiversity Loss, and CO_2 Emissions in Riau, Sumatra, Indonesia" and a summary report "How Pulp and Paper and Palm Oil from Sumatra increases Global Climate Change and Drives Tigers and Elephants to Local Extinction" is available at the World Wildlife Organization website (link below).

Adapted from materials provided by World Wildlife Fund.

http://www.sciencedaily.com/releases/2008/02/080226193141.htm

'Lost' Sediments Show Details Of Polar Magnetic Field



The South Pole (lower right) and the Ross Sea, Antarctica. (Credit: SeaWiFS Project, NASA/Goddard Space Flight Center, and ORBIMAGE)

ScienceDaily (Feb. 29, 2008) — UC Davis researchers studying cores of sediment collected 40 years ago have found evidence for magnetic field vortices in the Earth's core beneath the South Pole. The results contrast with earlier studies at lower latitudes, and could lead to a better understanding of processes in the core.

The results came from a seabed sediment core collected by the U.S. Navy in the Antarctic Ross Sea in 1968 as part of Operation Deep Freeze. Samples from the core, covering almost 2.5 million years of the Earth's history, were stored at the Antarctic Marine Geology Research Facility in Tallahassee, Fla., before being re-discovered by Ken Verosub, professor of geology at UC Davis, who brought them back to Davis for magnetic analysis.

Exposed rock on land is weathered into fine grains that are washed out to sea and settle to the bottom. If the grains are magnetic, they will tend to align themselves with the Earth's magnetic field as they settle through the water column.

Verosub's lab uses highly sensitive equipment to measure the orientation of these magnetic grains in the sediments. That ancient magnetic record can be precisely dated by comparison to other rocks, and gives information about the behavior of the planet's magnetic field in the distant past.

"I think this is one of the best palaeomagnetic records yet from the Ross Sea," Verosub said.

Verosub, graduate student Luigi Jovane, postdoctoral researcher Gary Acton and Fabio Florindo at the National Institute for Geophysics and Vulcanology in Rome, Italy, found that there was more "scatter" in the magnetic directions than would be predicted, based on what is known about the Earth's magnetic field from cores collected closer to the equator.

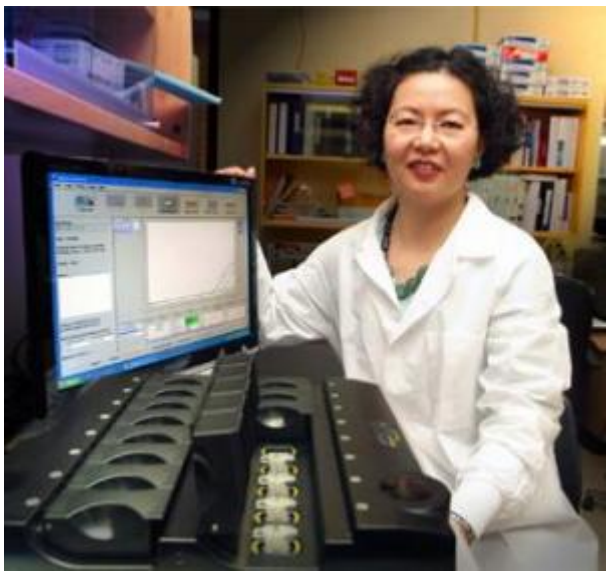
But the results do compare well with recent computer simulations of fluid movement in the planet's core, which predict the existence of vortices in the magnetic field near the poles, Verosub said.

The paper is published online by the journal Earth and Planetary Science Letters, and will appear in the March 30 print edition of the journal.

Adapted from materials provided by University of California - Davis.

http://www.sciencedaily.com/releases/2008/02/080228093233.htm

Test Can Reduce Recurrence Of Breast Cancer



The test is highly sensitive because it examines the tissue with molecular tools according to Dr. Zixuan Wang. (Credit: Image courtesy of Medical College of Georgia)

ScienceDaily (Feb. 28, 2008) — A new test that examines large sections of the sentinel lymph node for genes expressed by breast cancer could reduce the risk of recurrence and multiple surgeries, doctors say.

The GeneSearch Breast Lymph Node Assay, manufactured by Veridex, L.L.C., a Johnson & Johnson company, is being used at the Medical College of Georgia to examine half of the tissue in the sentinel lymph node, the first place breast cancer typically spreads. The sample represents more than 10 times the amount of tissue examined in traditional biopsies.

And because the test examines the tissue with molecular tools, it is more sensitive, says Dr. Zixuan (Zoe) Wang, molecular biologist and scientific director of MCG's Georgia Esoteric and Molecular Diagnostic Labs, L.L.C.

"When we look at the tissue with the GeneSearch test, we are looking for excessive amounts of mamoglobin and cytokeratin 19, both genes that are expressed more in breast cancer tissue," Dr. Wang says. "If those genes are present in excessive amounts, we know the cancer has metastasized."

Done during a lumpectomy, the GeneSearch test uses molecular diagnostic methods to examine more tissue than traditional sentinel node biopsies, reducing the chance of false negative results, says Dr. Stephen Peiper, chair of the MCG Department of Pathology and Georgia Cancer Coalition Distinguished Cancer Clinician and Scientist.

The sentinel node, located in the armpit, filters fluid from the breast.

"During a traditional sentinel node biopsy, a surgeon would remove a node, then the pathologist would cut that section in half and cut that section to a quarter of the original sample size," Dr. Peiper says. "They then would cut wafer-thin slices from those sections, freeze and stain them, and look for cancer cells under a microscope. This technique, called frozen section, would be done during the lumpectomy surgery. If the tissue is positive for cancer cells, the surgeon removes more nodes from the patient, but if it is negative, the surgery is over."

The problem with that type of test, he says, can come when pathologists review more tissue slices during a confirmatory second test, called a permanent section and done a day later.

Permanent section tests are done the day after surgery because the tissue is set with a fixative that causes proteins in cells to harden for better examination.

“The cancer cells may not have been present in the part of the node that we looked at the day before in the frozen section,” Dr. Peiper says. “But on the second day, we may find them in the other section. We perform both the traditional test and the new GeneSearch molecular test in parallel to provide the best care for our patients.”

The larger the sample, he says, the better the chance of catching the cancer during the intraoperative test.

“If there are small amount s of cancer cells in the whole node, we may or may not see those with the traditional tests, because we only examine a small section of tissue,” he says. “With this technology, we increase the chance of detecting them.”

Nearly 20 percent of women with negative nodes confirmed by a traditional biopsy end up having a recurrence and metastasis, Dr. Peiper says.

“There is a higher false-negative rate with traditional sentinel node biopsies,” says Dr. Scott Lind, professor and chief of the MCG Section of Surgical Oncology. “If that happens, the patient has to come back in for another surgery to take out more lymph nodes that have likely harbored the breast cancer cells.”

In clinical trials, the new test correctly identified more than 95 percent of patients whose cancer had spread to their lymph nodes, according to Veridex, L.L.C.

"This will help us provide better care to patients and better overall treatment,” Dr. Lind says.

Adapted from materials provided by Medical College of Georgia.

http://www.sciencedaily.com/releases/2008/02/080225122319.htm

This Is Your Brain On Jazz: Researchers Use MRI To Study Spontaneity, Creativity

Because fMRI uses powerful magnets, the researchers designed an unconventional keyboard with no iron-containing metal parts that the magnets could attract. (Credit: iStockphoto/Eva Serrabassa)

ScienceDaily (Feb. 28, 2008) — A pair of Johns Hopkins and government scientists have discovered that when jazz musicians improvise, their brains turn off areas linked to self-censoring and inhibition, and turn on those that let self-expression flow.

The joint research, using functional magnetic resonance imaging, or fMRI, and musician volunteers from the Johns Hopkins University's Peabody Institute, sheds light on the creative improvisation that artists and non-artists use in everyday life, the investigators say.

It appears, they conclude, that jazz musicians create their unique improvised riffs by turning off inhibition and turning up creativity.

The scientists from the University's School of Medicine and the National Institute on Deafness and Other Communications Disorders describe their curiosity about the possible neurological underpinnings ofthe almost trance-like state jazz artists enter during spontaneous improvisation.

"When jazz musicians improvise, they often play with eyes closed in a distinctive, personal style that transcends traditional rules of melody and rhythm," says Charles J. Limb, M.D., assistant professor in the Department of Otolaryngology-Head and Neck Surgery at the Johns Hopkins School of Medicine and a trained jazz saxophonist himself. "It's a remarkable frame of mind," he adds, "during which, all of a sudden, the musician is generating music that has never been heard, thought, practiced or played before. What comes out is completely spontaneous."

Though many recent studies have focused on understanding what parts of a person's brain are active when listening to music, Limb says few have delved into brain activity while music is being spontaneously composed.

Curious about his own "brain on jazz," he and a colleague, Allen R. Braun, M.D., of NIDCD, devised a plan to view in real time the brain functions of musicians improvising.

For the study, they recruited six trained jazz pianists, three from the Peabody Institute, a music conservatory where Limb holds a joint faculty appointment. Other volunteers learned about the study by word of mouth through the local jazz community.

The researchers designed a special keyboard to allow the pianists to play inside a functional magnetic resonance imaging (fMRI) machine, a brain-scanner that illuminates areas of the brain responding to various stimuli, identifying which areas are active while a person is involved in some mental task, for example.

Because fMRI uses powerful magnets, the researchers designed the unconventional keyboard with no iron-containing metal parts that the magnet could attract. They also used fMRI-compatible headphones that would allow musicians to hear the music they generate while they're playing it.

Each musician first took part in four different exercises designed to separate out the brain activity involved in playing simple memorized piano pieces and activity while improvising their music. While lying in the fMRI machine with the special keyboard propped on their laps, the pianists all began by playing the C-major scale, a well-memorized order of notes that every beginner learns. With the sound of a metronome playing over the headphones, the musicians were instructed to play the scale, making sure that each volunteer played the same notes with the same timing.

In the second exercise, the pianists were asked to improvise in time with the metronome. They were asked to use quarter notes on the C-major scale, but could play any of these notes that they wanted.

Next, the musicians were asked to play an original blues melody that they all memorized in advance, while a recorded jazz quartet that complemented the tune played in the background. In the last exercise, the musicians were told to improvise their own tunes with the same recorded jazz quartet.

Limb and Braun then analyzed the brain scans. Since the brain areas activated during memorized playing are parts that tend to be active during any kind of piano playing, the researchers subtracted those images from ones taken during improvisation. Left only with brain activity unique to improvisation, the scientists saw strikingly similar patterns, regardless of whether the musicians were doing simple improvisation on the C-major scale or playing more complex tunes with the jazz quartet.

The scientists found that a region of the brain known as the dorsolateral prefrontal cortex, a broad portion of the front of the brain that extends to the sides, showed a slowdown in activity during improvisation. This area has been linked to planned actions and self-censoring, such as carefully deciding what words you might say at a job interview. Shutting down this area could lead to lowered inhibitions, Limb suggests.

The researchers also saw increased activity in the medial prefrontal cortex, which sits in the center of the brain's frontal lobe. This area has been linked with self-expression and activities that convey individuality, such as telling a story about yourself.

"Jazz is often described as being an extremely individualistic art form. You can figure out which jazz musician is playing because one person's improvisation sounds only like him or her," says Limb. "What we think is happening is when you're telling your own musical story, you're shutting down impulses that might impede the flow of novel ideas."

Limb notes that this type of brain activity may also be present during other types of improvisational behavior that are integral parts of life for artists and non-artists alike. For example, he notes, people are continually improvising words in conversations and improvising solutions to problems on the spot. "Without this type of creativity, humans wouldn't have advanced as a species. It's an integral part of who we are," Limb says.

He and Braun plan to use similar techniques to see whether the improvisational brain activity they identified matches that in other types of artists, such as poets or visual artists, as well as non-artists asked to improvise.

The study is published in the Feb. 27 issue of the journal Public Library of Science (PLoS) One. http://www.plosone.org/article/fetchArticle.action?articleURI=info:doi/10.1371/journal.pone.0001679

This research was funded by the Division of Intramural Research, National Institute on Deafness and Other Communication Disorders, National Institutes of Health.

Adapted from materials provided by Johns Hopkins Medical Institutions.

http://www.sciencedaily.com/releases/2008/02/080226213431.htm

New twist in Hobbit-human debate
The row over the origins of "Hobbit" fossils found on the Indonesian island of Flores has taken a new twist.

An Australian team claims the little people were not a new human species, but modern humans with a form of dwarfism caused by poor nutrition.

In 2004, international researchers announced the discovery of the ancient remains in the Liang Bua Cave.

There has been debate since then over whether the bones are from diseased humans or a new human "cousin".

The latest theory, published in the scientific journal Proceedings of the Royal Society B, claims the Hobbits were true humans, but did not grow to normal size because of environmental factors.

> **The conclusions in this paper are not supported by the facts**
> Professor Peter Brown

Dr Peter Obendorf from the School of Applied Science at RMIT University, Melbourne, and colleagues, believe the little people developed a dwarfism condition because of severe nutritional deficiencies.

Environmental link

Severe iodine deficiency in pregnancy can cause people to grow little more than a metre tall with bone characteristics very similar to those of the Flores hobbits, said Dr Obendorf.

He added: "Our research suggests that these fossils are not a new species but rather the remains of human hunter-gatherers that suffered from this condition."

They came to this conclusion after studying images of skulls of the Flores fossils. Anatomical features were compared with museum specimens of humans suffering from a condition known as congenital hypothyroidism. The Australian group did not examine the original fossils.

The hypothesis has been described as "sheer speculation" by some experts, including Professor Peter Brown of the University of New England in Armidale, Australia, one of the original members of the team that discovered the remains.

"The conclusions in this paper are not supported by the facts," he said. "The authors have not examined the original fossil, have little and no experience with fossil hominids and depend upon data obtained by others."

Genetic clue

Dr Jeremy Austin, deputy director of the Australian Centre for Ancient DNA at Adelaide University, said genetic data might provide the "casting vote" in the debate.

It would clarify the evolutionary relationship between the Hobbit (*Homo floresiensis*) and modern humans, he said.

Genetic data has not been forthcoming so far, he admitted, mainly due to poor preservation of the Liang Bua material and extensive contamination by modern human DNA of material recovered from the site.

"Collection of fresh, better preserved, Hobbit remains using strict anti-contamination measures currently is the best hope for testing the status of *Homo floresiensis* using genetic data," said Dr Austin.

The little people were nicknamed Hobbits after the fictional creatures in the writings of JRR Tolkien.

They were about a metre tall, with a brain about the size of a chimpanzee's.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7276943.stm

Published: 2008/03/05 10:48:46 GMT

Antarctic fish's winter 'sleep'
The Antarctic cod puts itself into a state similar to hibernation for the winter, researchers have found, which is highly unusual for a fish.

Scientists with the British Antarctic Survey (Bas) found *Notothenia coriiceps* lowers its metabolic rate during winter, saving energy.

As with hibernating mammals, the fish rouse themselves now and again from their dormant state for short periods.

Researchers suspect the "hibernation" is triggered by changes in sunlight.

The sea temperature varies by only about 2C between summer and winter, which is probably too small a difference to induce such a significant change in behaviour.

> **Fish are generally incapable of suppressing their metabolic rate independently of temperature**
> Dr Hamish Campbell

"It appears the fish utilise the short Antarctic summers to gain sufficient energy from feeding to tide them over in winter," said Keiron Fraser from Bas.

"The hibernation-like state... is presumably a mechanism for reducing their energy requirements to the bare minimum.

"The interesting question we still have to answer is why these fish greatly reduce feeding in winter when food is still available."

Slowing down

The research team caught their Antarctic cod - not a true member of the cod family - and fitted them with acoustic transmitters, which meant they could be tracked using hydrophones, and re-caught later.

A smaller number of fish were fitted with heart-rate monitors and kept in sea cages.

The main conclusion was that they showed a significant set of physiological changes with the onset of winter.

Their overall metabolic rate and growth both declined by a factor of five. They lived within a much smaller area, and swam shorter distances each day, travelling about 20 times less far.

The finding, reported in the journal Public Library of Science (PLoS) One, came as something as a surprise.

"Fish are generally incapable of suppressing their metabolic rate independently of temperature," observed Hamish Campbell, who led the study from the University of Birmingham.

"Winter dormancy in fish is typically directly proportional to decreasing water temperatures.

"The interesting thing about these Antarctic cod is that their metabolic rates are reduced in winter, even though the seawater temperature doesn't decrease much."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/science/nature/7279444.stm

Published: 2008/03/05 14:50:17 GMT

Memory trick breaks PC encryption

Encrypted information held on a laptop is more vulnerable than previously thought, US research has shown.

Scientists have shown that it is possible to recover the key that unscrambles data from a PC's memory.

It was previously thought that data held in so-called "volatile memory" was only retained for a few seconds after the machine was switched off.

But the team found that data including encryption keys could be held and retrieved for up to several minutes.

"It was widely believed that when you cut the power to the computer that the information in the volatile memory would disappear, and what we found was that was not the case," Professor Edward Felten of the University of Princeton told BBC World Service's Digital Planet programme.

Volatile memory is typically used in random access memory (RAM), which is used as temporary storage for programs and data when the computer is switched on.

Deep sleep

Disc encryption is the main method by which companies and governments protect sensitive information.

"The key to making it work is to keep the encryption key secret," explained Professor Felten.

Encryption has recently become a hot topic after a number of laptops containing personal records were lost or stolen.

> **Simply locking your screen or switching to 'suspend' or 'hibernate' mode will not provide adequate protection**
> Edward Felten

"What we have found was that the encryption keys needed to access these encrypted files were available in the memory of laptops," he said.

"The information was available for seconds or minutes."

In theory, this is enough time for a hacker or attacker to retrieve the key from the memory chips.

"The real worry is that someone will get hold of your laptop either while it is turned on or while it is in sleeping or hibernation mode," said Professor Felten.

In these modes the laptop is not running, but information is still stored in RAM to allow it to "wake up" quickly.

"The person will get the laptop, cut the power and then re-attach the power, and by doing that will get access to the contents of memory - including the critical encryption keys."

Cool running

Switching the machine off and on and is critical to any attack.

"When it comes out of sleep mode the operating system is there and it is trying to protect this data," explained Professor Felten.

But a full power-down followed by a swift re-start removes this protection.

"By cutting the power and then bringing it back, the adversary can get rid of the operating system and get access directly to the memory."

Professor Felten and his team found that cooling the laptop enhanced the retention of data in memory chips.

"The information stays in the memory for much longer - 10 minutes or more," he said.

For example, where information stays in a computer for around 15 seconds under normal conditions, a laptop cooled to about -50C will keep information in its memory for 10 minutes or more.

Professor Felten said that the best way to protect a computer was to shut it down fully several minutes before going into any situation in which the machine's physical security could be compromised.

"Simply locking your screen or switching to 'suspend' or 'hibernate' mode will not provide adequate protection," he added.

"It does cast some doubt on the value of encryption. I think that over time the encryption products will adapt to this and they will find new ways of protecting information."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/technology/7275407.stm

Published: 2008/03/05 09:16:09 GMT

Test to spot early glaucoma signs
Computer software to spot signs of glaucoma earlier than conventional tests is being developed by UK experts.

The team at London's Moorfields Eye Hospital say the test has the potential to prevent many patients going blind.

Diagnosing glaucoma can be difficult, as patients are often not aware of symptoms until a great deal of useful sight has been permanently destroyed.

It is estimated glaucoma affects 67m people worldwide, including 500,000 in the UK - but only half are diagnosed.

AT RISK OF GLAUCOMA
People with a positive family history of the disease
People over 40 years old, with risk continuing to rise with age
People of West African origin

This has led to glaucoma being dubbed the "silent blinding disease".

It is estimated that if just 10% of UK glaucoma cases were detected and treated earlier it could save up to £1bn a year.

If diagnosed in time, the condition can be easily treated with eye drops.

The condition causes damage to the optic nerve which carries visual information from the eye to the brain.

Over the internet

The Moorfields Motion Detection Test (MDT) is designed to assess the field of vision.

This is a valuable step forward
Steve Winyard RNIB

The software can be downloaded to a laptop computer, and eventually it is hoped to make it available directly from the internet.

A central white spot and several white lines are displayed on a grey screen.

The patient is asked to look steadily at the central spot and to press the computer mouse each time one of the lines is seen to move.

The lines move at the same speed but move different distances as the test proceeds, meaning experts can detect the degree of visual loss.

Moorfields say the test is affordable, portable, quick - and has the potential to spot glaucoma earlier than conventional tests, and with greater accuracy.

Professor Vis Viswanathan, a consultant surgeon in glaucoma at Moorfields who developed the system, said conventional tests - which concentrate on the ability to see light - fail to pick up a patient's ability to detect movement.

However, the ability to perceive motion is one of the first things to vanish in people suffering glaucoma.

He said: "A better test would be based on the ability to perceive motion and that is how this test came about.

"In general terms, if somebody is perceiving very small amounts of motion, they are in pretty good shape."

Steve Winyard, from the RNIB, said current tests often inaccurately diagnosed a problem in people who did not have glaucoma. He said the new test promised to be more accurate.

"This is a valuable step forward," he said.

Raise awareness

From April, clinics in Toronto, Rome, Africa and Singapore will be testing the software with the aim of independently verifying how effective it is.

Next year, researchers hope to be able to secure funding to roll out the software across the UK.

The first World Glaucoma Day is being held on Thursday to raise awareness of the condition.

Professor Peng Tee Khaw, a consultant ophthalmologist at Moorfields, said: "By the time people come to us they have often lost a lot of their sight and the damage is permanent.

"If we could pick these people up at an earlier stage it would make a tremendous difference to their lives."

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/2/hi/health/7276822.stm

Published: 2008/03/06 00:02:46 GMT

A Game Where Resources Dwindle and Partners Shift

By WILLIAM GRIMES

THE SECOND WORLD

Empires and Influence in the New Global Order

By Parag Khanna

Illustrated. 466 pages. Random House. $29.

In the 21st century the empires strike back. The United States, the European Union and China dare not call themselves imperial powers, Parag Khanna argues in "The Second World," his sweeping, often audacious survey of contemporary geopolitics, but they are busy reshaping the globe to suit their interests. The game is afoot, with the natural resources and potential wealth of countries like Ukraine, Turkey and Brazil as the prize.

Mr. Khanna is the director of the Global Governance Initiative at the New America Foundation, a public policy institute. He strides the world in seven-league boots, armed with a powerful thesis: in the postcolonial, post-cold-war era, three superpowers have emerged with a ravenous appetite for energy and natural resources. Restlessly, they look to the second-tier economies of Latin America, the former Soviet bloc, the Middle East and Asia for partners or patsies. This argument was laid out recently in The New York Times Magazine in an excerpt it published from the book.

No shots will be fired. Instead the three imperial rivals will woo and coerce, relying on distinct styles. The United States offers military protection, along with the promise of democracy and human rights. The European Union dangles the prospect of membership in, or affiliation with, the world's most successful economic club, provided that applicants undertake specific reforms. China talks trade, investment and infrastructure projects, with no annoying demands for political reform in its would-be client states.

"To a large extent, the future of the second world hinges on how it relates to the three superpowers," Mr. Khanna writes, "and the future of the superpowers depends on how they manage the second world."

Like a geopolitical tour guide, he moves at lightning speed across the scattered countries of the second world to assess the prospects of, say, Russia or Malaysia, and to see how the superpowers are faring in their courtship rituals.

Russia will be much smaller, its dwindling population "spread so thinly across a territory so vast that it no longer even makes demographic sense as a country." The allure of European Union membership has already drawn Eastern Europe into the union's orbit, while China controls vast swaths of Central Asia, almost by default.

Malaysia's future looks bright. Playing a shrewd second-world game, it cultivates good relations with both the United States and China (just as elusive Kazahkstan has made sure that its oil pipelines run north, south, east and west), while channeling oil revenues into diversifying its economy and building its infrastructure.

Malaysia makes a stark contrast to Indonesia, “a sprawling, waterborne golf course in which a mix of foreign companies and countries claim ownership of different holes,” Mr. Khanna writes. He has a knack for reducing a country to a phrase. Taiwan is “a stateless economic node,” with a relationship to China he describes as “mutual colonization.”

“The Second World” is rewarding simply as a primer on contemporary geopolitics. Anyone curious about the lay of the land in Algeria or Tajikistan can get answers, and a dash of local color, in Mr. Khanna’s succinct chapters, which envelop the reader in a whirlwind of facts and figures, some eye-opening, others merely perplexing.

“Elderly couples learn to tango at night by the illuminated Ming-era city walls,” Mr. Khanna observes of Beijing.

This is fascinating, or perhaps not. Like Arthur Frommer with an economics degree, Mr. Khanna loves to set a scene in 10 words or fewer, getting a few carts carrying bales of mint into the picture frame as he strolls through a Moroccan medina. He seasons the narrative with brief quotations from anonymous taxi drivers, journalists and government officials, each allowed one culturally relevant action, like the engineering student who comments on Egypt’s leadership crisis “while devouring a plate of kebabs.”

Mr. Khanna is not averse to the bland “time will tell” summation either, and on occasion the crystal ball becomes cloudy. “It is hard to overestimate the fluidity of the early-21st-century landscape,” Mr. Khanna writes sagely.

Mr. Khanna, who was born in India but raised in the United Arab Emirates, the United States and Germany, takes a dim view of India’s future, bets on Chile as the South American country most likely to advance to first-world status and predicts, quite calmly, the dissolution of Iraq.

“Iraq has been terminated before, and history will do so again,” he writes. “In the long term, the region could be the better for it.”

Among the superpowers, the big loser could be the United States, which Mr. Khanna describes in contemptuous terms. His admiration for the European Union, which has skillfully concentrated on the long-term transformation and stabilization of prospective partners, knows no bounds. China also wins his admiration, despite its human-rights record. In general, Mr. Khanna, who argues that democracy is a luxury that wealthy nations can afford, more than tolerates the enlightened despotism of countries like Singapore and Malaysia.

The United States, by contrast, is described as naïve and arrogant, a musclebound superpower searching for a brain. The State Department, he writes, is run like “the world’s largest travel agency.” With its special envoys and troubleshooters rushing around the planet to put out brush fires, the United States practices a “diplomacy by dilettantism” unworthy of a great power.

In his polemical conclusion Mr. Khanna becomes a little unhinged in his analysis of the ills afflicting the United States, which, by his description, should collapse sometime in the middle of next month. He works himself into a lather over the popularity of police car chases on television, football and “wasteful motor sports.”

“American socioeconomic attitudes would be laughable if they were not so scary,” he writes.

A prime example of imperial overstretch, the United States faces a highly uncertain future, Mr. Khanna argues, somewhat more coherently, with economic decline and waning international influence distinct possibilities. From a position of world dominance, it must readjust to a fluid international order in which it is “merely one of several competing vendors or brands on the catwalk of credibility.” You sense that Mr. Khanna will enjoy the show.

http://www.nytimes.com/2008/03/05/books/05grim.html?_r=1&ref=books&oref=slogin

Two New Shows Cast Light and Darkness on Early Cultures in the Americas

By EDWARD ROTHSTEIN

As you reach the close of the ambitious exhibition "The Ancient Americas" at the Field Museum in Chicago, after viewing remarkable pottery displays and large-scale evocations of the great empires of the Incas, Maya and Aztecs, you reach a darkened gallery with a display case labeled "When Worlds Collided." At its base is a single object: a tilted, disembodied head of an Aztec stone statue.

The room is a memorial to the cultures celebrated in the show and to the many who died in the wake of the European conquest that began in 1492. The text reads, "Millions of indigenous peoples — with an extraordinary diversity of languages, religions and political systems — were wiped out during decades of disease, warfare and enslavement."

That conquest also has a monumental place in a very different exhibition at the Library of Congress in Washington: "Exploring the Early Americas." That open-ended show, which spotlights a recent bequest of 3,000 objects donated by the businessman and collector Jay I. Kislak, contains hundreds of early American artifacts, along with rare European books and maps. And at its center are eight late-17th-century paintings from Mexico whose creators are unknown. They are called "The Conquest of Mexico," and their large canvases portray the epic history of Cortés's subjugation of the powerful Aztec empire; they teem with armored Spaniards on horseback confronting Aztecs with leopardlike skin.

Executed long after the events depicted, these paintings are partly based on letters Cortés wrote to Emperor Charles V in 1521 and 1522, copies of which are in the library's exhibition. In one letter describing the victorious siege of the Aztec capital by only 800 Spaniards (assisted by more than 150,000 soldiers from local tribes), Cortés writes of the Aztecs, "So great was their suffering that it was beyond our understanding how they could endure it."

But at the library the context of that suffering is quite different from that of the Chicago exhibition. For in the library, the conquest becomes part of a more intricate story, even if not fully told; and at the Field the result is more like a morality tale, whose broad perspective narrows as it proceeds. The contrast gives a hint of how profound a shadow this history still casts over museum presentations.

Deeper issues aside, both shows display impressive objects. In Washington scenes of Mayan court life on pottery contain figures familiar from their European counterparts: the jester, the counselor, the ladies in waiting.

The library also displays various items that don't usually make it into ordinary collections, including a carved, graceful manatee bone called a "vomitive spatula": it was used by the Taínos for purging before they took a "sacred, trance-inducing snuff, cohoba."

Because of the nature of the library's exhibition, though, the effect of the conquest on the Europeans is also evident. Here are documents related to Columbus's explorations; the first dictionary of Quechua, the language of the Incas, published in Peru in 1586; the text of laws to protect Indians proclaimed by Charles V in 1542 and 1543 (and later, unfortunately, rescinded). There are also touch screens with narrations and images, along with displays of exceptional documents, including the only known copy of a famous 1507 map: the first to show the New World's continents and the first on which the name America appears.

The Chicago exhibition, a permanent addition to the Field, has a different domain, proceeding from the ice age to the European incursion. But it too has some vibrant displays, including a circular gallery of hundreds of jars and bowls from the Southwestern United States, created between 750 and 1400, each with black patterns painted on white backgrounds. Nothing, though, is as extraordinary as the faces — comic, pleading, demanding, mocking — on the pottery of the Moche, a society that dominated the north coast of Peru for seven centuries, until about 800.

This show, though, is not simply meant as a display of beautiful objects. It presents a major historical reinterpretation. And of course such reinterpretation is needed. One reason the Field has such a fascinating collection, after all, is that it is a museum of natural history, and such institutions, from their origins in the 19th century, were shaped by ideas of cultural evolution. The natural history museum was partly meant to be a record of cultures and life forms that have been transcended or superseded, which is why they might combine both dinosaur bones and American Indian artifacts.

Such views now betray their limitations, spur guilt-ridden legislation and inspire overcompensating exhibitions like the one at the Field, which resist any hint that any culture under consideration might be less than any other. The message is driven home with the first panel: "The Ancient Americas is a story of diversity and change — not progress." The text refers to a "rich mosaic of peoples" and their "enduring contributions to our lives today." The varied societies surveyed are all described as "problem solvers" trying to relate to their environment. In the show hunter-gatherers are followed by farmers; societies with powerful individual rulers are followed by empires. But such progression, we are told, is not progress. Even old distinctions, like Stone Age and Iron Age, are discarded. Progress is an illusion.

Instead every age has its virtues. "In many ways," one display points out, "hunting and gathering was a great way to live." Those who practiced this "lifestyle" generally "had more leisure time" than farmers and "respected" women and the elderly. Praise is generously proffered: the "peoples of coastal Southern California," according to one display, "created and adopted brilliant new techniques" for surviving between 7000 B.C. and A.D. 1600, inventing harpoons and "ocean-worthy canoes." But the more compelling fact might be that during those 9,000 years so few brilliant techniques appeared; it was a period when other societies developed writing, science and medicine. Only one major comparison to the great Western civilizations is made: that the brutality of the Incan and Aztec empires had a counterpart in the cruelty of ancient Rome. This perspective is persistent. Consider just the indigenous practice of "bloodletting." When vessels are shown for collecting human blood, cultural reputations are immediately and anxiously defended. The Maya "practiced bloodletting, or human sacrifice," but, we are told, "sacrifice and religion are linked in many societies" and "almost all world religions include sacrifice of some kind."

The Moche and Aztecs receive similar defensive treatment. Thus human sacrifice — eliminated early in the biblical cultures of the Middle East — is deftly reconfigured as mere "sacrifice" and placed within the bounds of multicultural appreciation. And lest anyone be tempted in other directions, the Field Web site, fieldmuseum.org, chides, "It is important to remember that there is no best or model culture.""All cultures," we are told, "are equally valid to the individuals living in them."With that reassurance, who would dare to suggest that there is something we could well think of as "progress" in a society's understanding of the world — like, say, the moral progress represented by modern Western societies' finding the brutality of the Spanish conquerors repellent? So an attitude of promotional banality clouds the considerable virtues of this show, which is rich in example and description, if not in analysis; this is a problem shared by many exhibitions about native peoples. The Field even boasts that it brought in indigenous descendants to advise and approve — something that has become perversely obligatory for museums, even if it is a little like consulting today's residents of Tuscany when mounting an exhibition about ancient Rome.Photographs of such descendants are seen throughout the show, their words affirming how valuable native traditions have been in teaching them to overcome racism, preserve the environment and embrace compassion. The problem is that in none of these ancient cultures are those values shown to be paramount. And because of a lack of comprehensive written accounts, we will never know if, say, Mayan philosophers or Aztec priests developed sentiments like these, which actually seem to display hints of Western influence. As for the exhibition's suggestion that European barbarism was of a different order, the early Americas' history of warfare, slavery and human sacrifice suggest that such behavior was more the norm than the exception. The European invasion may be most notable, in fact, because the cultures that executed it were on the cusp of developing a radically different notion of human liberty, evident in the show at the Library of Congress.

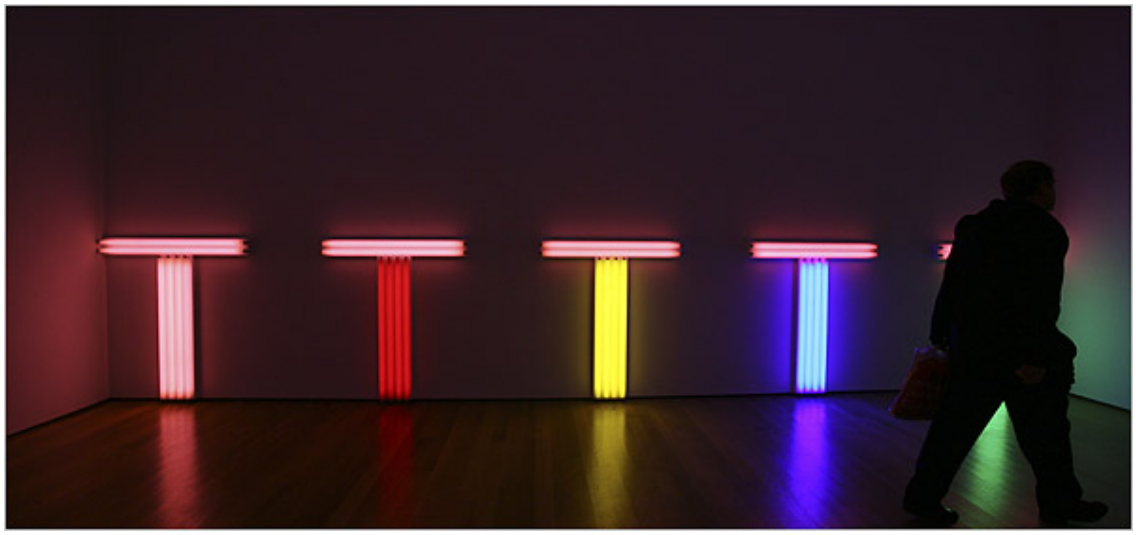
One virtue of that exhibition is that it avoids the distortions of sentimental history. By illuminating multiple perspectives tempered by careful judgment, in which the achievements of past cultures are appreciated, the horrors of the conquest chronicled, and the legacy and subsequent interaction reflected in documents and maps, the complexities of the past become more apparent. It's not full understanding, but it's progress.

"The Ancient Americas" is at the Field Museum, 1400 South Lake Shore Drive, Chicago; (312) 922-9410, fieldmuseum.org. "Exploring the Early Americas" is at the Library of Congress, 101 Independence Avenue SE, Washington, (202) 707-5000; loc.gov/exhibits/earlyamericas/.

http://www.nytimes.com/2008/03/05/arts/design/05amer.html?ref=design

Primary Season at the Modern

By KAREN ROSENBERG



In the film “Pleasantville” (1998) the staid world of a black-and-white 1950s town is upended by the introduction of color. Something similar is happening at the Museum of Modern Art.

In the upper section of the lobby, a floor created by the artist Jim Lambie surrounds Rodin’s sculpture of Balzac with concentric strips of brightly hued tape. Up on the sixth floor, a painted-aluminum construction by Donald Judd gives a lift to the gray towers visible through the skylight. Cheerful striped vests, designed by Daniel Buren, peek out from the regulation charcoal jackets of the museum guards.

These and other interventions are part of “Color Chart: Reinventing Color, 1950 to Today,” which opened at the museum on Sunday. Organized by Ann Temkin, a curator in the museum’s department of painting and sculpture, “Color Chart” looks at contemporary artists for whom color functions as a ready-made — something to be bought or appropriated, rather than mixed on a palette. As Frank Stella famously quipped, “I tried to keep the paint as good as it was in the can.”

The show is a rejoinder to the notion of color as the province of formalists, and to the idea that Minimal and Conceptual art comes only in shades of black, white and gray. That “Color Chart” coincides with “Jasper Johns: Gray” at the Metropolitan Museum is a happy accident; in that show the pairing of Mr. Johns’s red, yellow and blue painting “False Start” and its neutral counterpart “Jubilee” amounts to a “Pleasantville” experience in reverse.

Ms. Temkin’s thesis owes much to the British artist and writer David Batchelor, whose book “Chromophobia” (2000) is a thorough and witty cultural history of color, including in its thematic discussions “Heart of Darkness” and the movie version of “The Wizard of Oz.” Regrettably, photographs from Mr. Batchelor’s series “Found Monochromes of London,” a visual diary of white rectangles glimpsed during his daily travels, have been tucked away near the museum’s sixth-floor bathrooms.

As Mr. Batchelor writes: “The color chart divorces color from conventional theory and turns every color into a ready-made. It promises autonomy for color; in fact, it offers three distinct but related types of autonomy: that of each color from every other color, that of color from the dictates of color theory, and that of color from the register of representation.” In other words, we are far from Goethe’s “Theory of Colors” and from the deceptive relationships of Josef Albers’s homages to the square.

This show’s first gallery makes the novelty of autonomous color gloriously apparent. A series of signature works by Ellsworth Kelly, from 1951, show him experimenting with randomly generated patterns of squares cut from store-bought colored paper. One of these collages gave rise to the

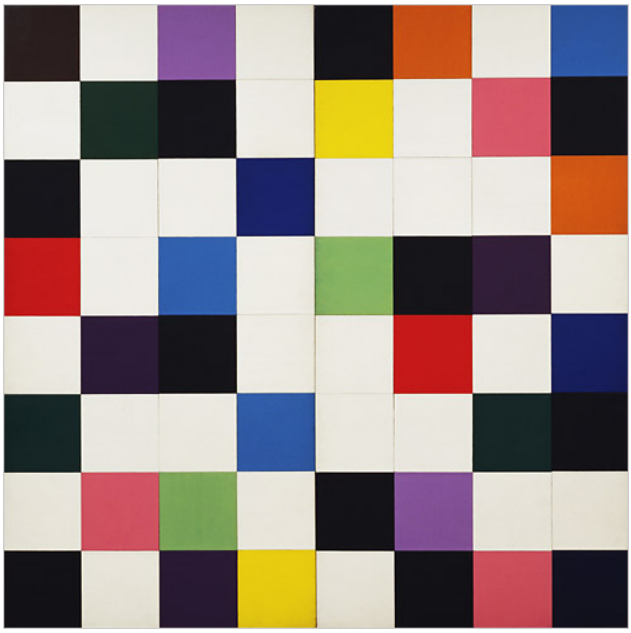
contemporary masterpiece “Colors for a Large Wall,” a stunning, nearly eight-foot-square grid composed of 64 separate canvases.

Mr. Kelly may be an obvious choice, as are Yves Klein, Andy Warhol and Mr. Stella, but the inclusion of Robert Rauschenberg’s “Rebus” (1955) offers a fresh angle on an artist whose color choices are rarely, if ever, analyzed. One of his early “combine” paintings, it includes a horizontal spectrum of cardboard paint samples. More to the point, it contains splashes of colors purchased in unlabeled cans from surplus stock on the Bowery.

In one of many fascinating anecdotes in the exhibition catalog, Mr. Rauschenberg recalls: “It was like 10 cents for a quart can downtown, because nobody knew what color it was. I would just go and buy a whole mess of paint, and the only organization, choice or discipline was that I had to use some or all of it, and I wouldn’t buy any more paint until I’d used that up.”

As subsequent galleries reveal, European artists under the spell of Mr. Rauschenberg and John Cage developed their own strategies for liberating color from aesthetic intent. An entire wall is devoted to Gerhard Richter’s “Ten Large Color Panels” (1966-71/72), a 31-foot sequence that elevates hardware-store paint chips to monumental proportions.

Many of the show’s artists look to the automobile industry for an explicitly commercial palette, one best captured by the Tom Wolfe essay “The Kandy-Kolored Tangerine-Flake Streamline Baby.” “Color Chart” includes John Chamberlain’s suite of album-size paintings, made with car lacquer on Masonite and Formica; Alighiero Boetti’s monochromes made in Turin, Italy, with Fiat motorcycle enamel; and Jan Dibbets’s photographs of car hoods.



“Color Chart” suffers, in places, from the visual redundancy of its many chart-based works. Strained viewers can rest their eyes on Lawrence Weiner’s wall text invoking permutations of red, green and blue, or Sol LeWitt’s ethereal wall drawing composed of thin lines of colored pencil.

Other welcome distractions include works by lesser-known Europeans, several of whom practice a romantic strain of Conceptualism. In a video performance conceived as a homage to Piet Mondrian, the Dutch-born artist Bas Jan Ader separates bouquets of flowers into orderly bunches of uniform color. Sectioned wooden bars by André Cadere, propped casually against the museum’s walls, were once carried into the cafes, subways and galleries of 1970s Paris in a peripatetic hybrid of sculpture and performance.

Artists working some 20 years after Mr. Kelly’s cut-paper experiments still had to contend with art schools that emphasized formal color training. The anti-Albers backlash finds its most concise expression in Richard Serra’s “Color Aid” (1970-71). In this 36-minute film Mr. Serra (who studied with Mr. Albers at Yale) leafs through a packet of 220 colored papers with the flourish of a doctor tearing off a sheet from his prescription pad.

The final section of the show, devoted to art since 1990, feels less inspired. The neutrality of the color chart is predictably violated, first in a 1998 series of paintings by Mike Kelley that form a grid with covers of the bawdy-humor magazine Sex to Sexty, and later in two of Damien Hirst's ubiquitous spot paintings.

The most recent works acknowledge that our experience of color is increasingly mediated by corporations and consultancies, like Pantone and the Color Marketing Group. Angela Bulloch's hypnotic light box "Standard Universal 256: CMY (Cyan)" (2006) flashes through each color of the palette used by the Macintosh OS9 operating system.

The show's newest piece is also, in some ways, one of the oldest. Sherrie Levine's "Salubra No. 4" (2007) consists of 14 monochrome paintings displayed against a gray background. Ms. Levine has taken the colors from a line of painted wallpaper created in 1931 by Le Corbusier — the architect better known as an advocate of pristine white Ripolin paint.

As Mr. Batchelor writes, "Chromophobia is perhaps only chromophilia without the color."

"Color Chart: Reinventing Color, 1950 to Today" continues through May 12 at the Museum of Modern Art; (212) 708-9400 or moma.org.

http://www.nytimes.com/2008/03/04/arts/design/04colo.html?ref=design

City on the Gulf: Koolhaas Lays Out a Grand Urban Experiment in Dubai

By NICOLAI OUROUSSOFF

It has been 12 years since the Dutch architect Rem Koolhaas unleashed his concept of "the generic city," a sprawling metropolis of repetitive buildings centered on an airport and inhabited by a tribe of global nomads with few local loyalties. His argument was that in its profound sameness, the generic city was a more accurate reflection of contemporary urban reality than nostalgic visions of New York or Paris.

Now he may get a chance to create his own version.

Designed for one of the biggest developers in the United Arab Emirates, Nakheel, Mr. Koolhaas's master plan for the proposed 1.5-billion-square-foot Waterfront City in Dubai would simulate the density of Manhattan on an artificial island just off the Persian Gulf. A mix of nondescript towers and occasional bold architectural statements, it would establish Dubai as a center of urban experimentation as well as one of the world's fastest growing metropolises.

The mixed-use project, startling in scale, is a carefully considered critique not just of the generic city but of a potentially greater evil: the growing use of high-end architecture as a tool for self-promotion. To Mr. Koolhaas this strategy, which many architects refer to as the Bilbao syndrome, reduces cities to theme parks of architectural tchotchkes that mask an underlying homogeneity.

His strategy is not to reject either trend outright but to locate each one's hidden, untapped potential, or as he puts it, "to find optimism in the inevitable."

In Dubai Mr. Koolhaas and his Office for Metropolitan Architecture seem at first glance to have simply combined the two concepts, creating a hybrid of the generic and the fantastic. The core of the development would be the island, which would be divided into 25 identical blocks. Neat rows of towers — some tall and slender, others short and squat, depending on the zoning — line the blocks, as if a fragment of Manhattan had been removed with a scalpel and reinserted in the Middle East.

The monotony is broken by mixed-use structures whose immense scale and formal energy draw on mythic examples from architectural history. A spiraling 82-story tower might have been inspired by the minaret of the ninth-century Great Mosque of Samarra in Iraq; a gargantuan 44-story sphere brings to

mind the symbolic forms of the 18th-century architect Étienne-Louis Boullée. The tilting intertwined towers of a complex dubbed “the loop” are a more elaborate version of Mr. Koolhaas’s headquarters for China Central Television, being built in Beijing.

These varied elements are organized with Mr. Koolhaas’s customary flair for composition. (Although his desire to tackle big urban issues can sometimes make him seem dismissive of the design work that makes up the average architect’s life, he remains one of the art’s greatest practitioners.)

The island project would be a perfect square, emphasizing its isolation. The tallest towers are concentrated along the project’s southern edge to shield the interior blocks from the blazing sun. The gigantic sphere is placed precariously at the water’s edge, setting the entire ensemble artfully off balance. The spiraling tower stands just across from it, on a narrow spit of land that forms a barrier between the island and the gulf.

The way Mr. Koolhaas addresses the island’s isolation raises the most difficult questions. If his island of densely packed towers evokes a fragment of the great 20th-century metropolis, it can also conjure its dystopian twin: a miniaturized version of a city of glittering towers built for the global elite, barricaded against the urban poor and its makeshift shantytowns. (Think of George A. Romero’s 2005 flick, “Land of the Dead,” with its menacing corporate masters peering down on a world of faceless zombies.)

Mr. Koolhaas softens this effect by creating a series of somewhat tenuous connections to other developments on the mainland. Along with four slender bridges — one on each side of the square — Mr. Koolhaas plans to link the project to the fledging Dubai transit system, which is already under construction. More towers would rise opposite the island on a curved embankment, as if the island city were spilling beyond its boundaries.

But the thrust of his strategy is to turn the logic of the gated community on its head: isolation becomes a way to trap urban energy rather than keep it out. His goal is to imbue his waterfront enclave with enough complexity to provide a distilled version of the great metropolis within this moated sanctuary.

A waterfront boardwalk would surround the island. A narrow public park slices through its center; shaded sidewalk arcades are meant to draw people out of the air-conditioned buildings. In its northeastern reaches the plan’s geometric grid gives way to an intimate warren of alleyways, like a traditional souk.

Mr. Koolhaas takes a similarly textured approach to the buildings themselves. The sphere, for instance, is conceived as a self-contained three-dimensional urban neighborhood. Various public institutions are encased within smaller spheres suspended inside the space that are connected by escalators enclosed in long tubes. These smaller spheres are embedded in layers of residential housing, like embryos floating in a womb.

In the spiral tower terraces wrap around a soaring public atrium crisscrossed with escalators and walkways, an effort to pull the surrounding street life right up through the interiors.

Will it work? Some of the public zones, still in the earliest stages of design, are surprisingly conventional, including the formal arrangement of the park, which could be likened to the Champs-Élysées. So far the boardwalks framing the project lack the intricate layering of public and private spaces found, say, on the Corniche in Beirut.

Whatever his social goals, Mr. Koolhaas will have little control over the makeup of this community, which, if current development in waterfront Dubai is any indication, is still likely to serve a small wealthy elite.

Then there is the question of scale. Covering six and a half square miles, the island is roughly the size of a small urban neighborhood. Is this large enough to sustain the dense social fabric that Mr. Koolhaas is after? Or is it more likely to become a new species of gated enclave, architecturally stupendous yet profoundly exclusionary? Does its compact size make it easier to seal off from supposed undesirables?

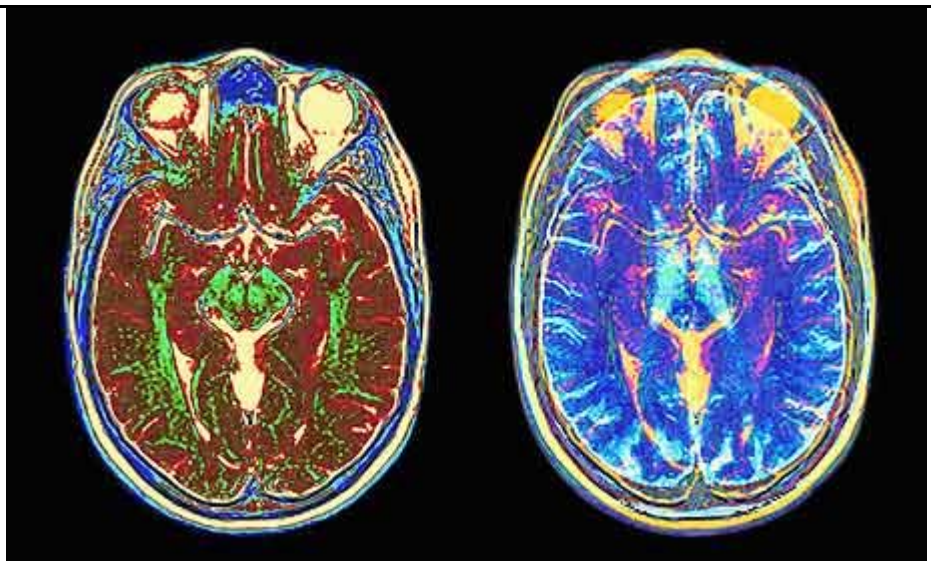
Whatever the answers, Mr. Koolhaas's design proves once again that he is one of the few architects willing to face the crisis of the contemporary city — from its growing superficiality to its deadening sterility — without flinching.

If he fails he at least will have raised questions that most architects would prefer to leave safely unexplored. If he succeeds he could bring us closer to a model of a city that is not only formally complex, but genuinely open to the impure.

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

Scary or sensational? A machine that can look into the mind

- **James Randerson**, science correspondent
- The Guardian,
- Thursday March 6 2008



MRI scans

Scientists have developed a computerised mind-reading technique which lets them accurately predict the images that people are looking at by using scanners to study brain activity.

The breakthrough by American scientists took MRI scanning equipment normally used in hospital diagnosis to observe patterns of brain activity when a subject examined a range of black and white photographs. Then a computer was able to correctly predict in nine out of 10 cases which image people were focused on. Guesswork would have been accurate only eight times in every 1,000 attempts.

The study raises the possibility in the future of the technology being harnessed to visualise scenes from a person's dreams or memory.

Writing in the journal Nature, the scientists, led by Dr Jack Gallant from the University of California at Berkeley, said: "Our results suggest that it may soon be possible to reconstruct a picture of a person's visual experience from measurements of brain activity alone. Imagine a general brain-reading device that could reconstruct a picture of a person's visual experience at any moment in time."

It will inevitably also raise fears that a suspect's brain could be interrogated against their will, raising the nightmarish possibility of interrogation for "thought crimes". The researchers say this is currently firmly in the realm of science fiction because the technique can only be applied to visual images and, to date, the experiments rely on cumbersome MRI scanning equipment and extremely powerful magnets. The software decoder itself has to be adapted to each individual during hours of training while in the scanner.

However the team have warned about potential privacy issues in the future when scanning techniques improve. "It is possible that decoding brain activity could have serious ethical and privacy implications downstream in, say, the 30 to 50-year time frame," said Prof Gallant. "[We] believe strongly that no one should be subjected to any form of brain-reading process involuntarily, covertly, or without complete informed consent."

The technique relies on functional magnetic resonance imaging (fMRI), a standard technique that creates images of brain activity based on changes in blood flow to different brain regions. The first step is to train the software decoder by scanning a subject's visual cortex while they view thousands of images over five hours. This teaches the decoder how that person's brain codes visual information. The next stage is to take a new set of images and use the decoder to predict the brain activity it would expect if the subject was viewing each of them. Finally, the subject views images from this second set while in the scanner. "We simply look through the list of predicted activities to see which one is most similar to the observed activity, and that's our guess," said Gallant.

The software matched their observed brain activity with the predicted activity from the decoder. When using a set of 120 images, the software got it right nine out of 10 times. With 1,000 images, the accuracy was eight out of 10. For 120 images, if the software were to simply make random predictions, its success rate would be just 0.8%.

The team estimate that if they used 1bn images (roughly the number on Google) it would have a success rate of 20%. With that many images, Gallant said, the software is close to doing true image reconstruction - working out what you are seeing from scratch. "There is no reason we shouldn't be able to solve this problem ... That's what we are working on now."

Gallant said it might be possible in future to apply the technology to visual memories or dreams. "Probably the visual hardware is engaged and stuff from memory is sort of downloaded into your visual hardware and then replayed," he said. "To the extent that that is true, we should be able to reconstruct imagery in dreams."

However, tests using moving images are not possible because MRI scanners are only able to take a new scan every three to four seconds. Other scientists say the advance should be welcomed as a major leap in understanding brain function.

"I think it's a significant advance," said Prof Marcel Just, a psychologist at Carnegie Mellon University in Pittsburgh. "It's much more exciting than mind reading and police interrogation ... These people are finding how the brain codes naturalistic scenes. They understand what the brain is saying."

"It's definitely an impressive result. It's pushing still further on how we can make inferences about mental states from looking at fMRI activity," said neurologist Dr Steven Laureys at the University of Liège in Belgium. He said the technique could be useful for understanding the mental state of a person who is in a coma.

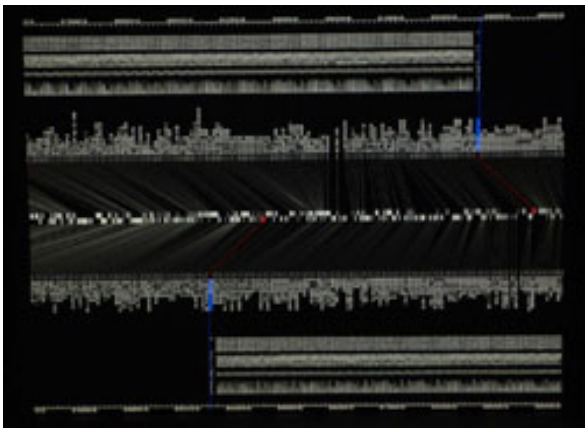
http://www.guardian.co.uk/science/2008/mar/06/medicalresearch

RYOJI IKEDA

The mathematics of music

By DONALD EUBANK Staff writer

So forward-looking that it's hard to categorize him — Is he an artist? A musician? A conceptualist? — Ryoji Ikeda makes the music that we'll lull the robots to sleep with when they ultimately try to take over. Or that we'll use to convince ourselves that we are *the robots.*



A screenshot from Ryoji Ikeda's latest audiovisual work, "datamatics [ver. 2.0]" © RYOJI IKEDA

For performances, Ikeda — who says the most important aspects of his works are "ideas and results" — matches his dense electronic compositions with visuals that could come from a monitor of whatever machine would produce such sounds. The scale of his works feels immense — his last performance in Japan was of "datamatics [prototype]" at the Tokyo International Forum's cavernous Hall C, in which a screen stretched across the full stage projected digital noise. James Brown it's not. Earlier, Ikeda worked with Hiroshi Sugimoto to produce the crunching sonic backdrop at the Mori Art Museum's exhibition of the photographer's iconic prints of ocean horizons. For his latest, the multitalented artist is revising "datamatics" as a "[ver. 2.0]" in Itami on March 13 and Tokyo March 16. Standing on the edge of what music can be, and thus bleeding into the world of art, Ikeda spoke to The Japan Times about mathematicians and the future of music.

How do you see music changing?

We know that we can't concretely predict how music will be in the future, but everybody knows that music will definitely change. Of course, this is not only about music changing, this is about everything changing. It seems to be obvious that the form, style and way of representation will be endlessly transformed by technological trends, which has long been a tradition within music — from the invention of notation, or instruments such as the pianoforte, to digital downloads today. But I am more interested in thinking about what will not change — I naively believe that the essentials of music will never change.

What about "entertainment"?

As long as capitalism continues, entertainment will always be driven by the stock exchange. Aside from such dry thoughts, I like to believe that popular entertainment genres will always have a mutant or alternative form, such as art films in the movie industry — that any genre always keeps its "Art," that which raises questions and encourages deeper considerations about the genre itself.

In the melding of art and music — as in your work and the recent collaboration between Ryuichi Sakamoto and Shiro Takatani at the NTT ICC — is it possible to separate the visual and sonic parts?

My job as an artist is to compose elements. Composition is the key. So any elements, which are brushed up carefully, are the subjects to be composed. I compose sounds. I compose visuals. I compose materials. I can't put, or analyze, myself in the context of something between art and music; I am naturally doing what I am doing.

Who were your original inspirations?

Most of the mathematicians in our modern history, especially Leibnitz, Cantor, Godel, Grothendieck.

Can you compare your works to others'?

First, I believe that the works speak absolutely for themselves — this has always been a strong belief of mine. And if they are too extreme for some people, at least the works can speak much better than the artist can. To be honest, I cannot judge, or even think about, my works myself. I think this should ideally be left to the critics — or at least anybody except me.

What do you think of participating in collaborations?

It depends on the project or work. But I am somewhat skeptical about collaboration. A novel, a painting or an orchestral composition cannot be done by two people — even movies, choreography or architecture. There are some exceptions, but essentially, a work of art is for a single artist. I am saying this through my experiences, such as a decade of collaborating with Dumb Type (Teiji Furuhashi's avante-garde performance group active in the 1990s) and others. Being solo is direct and straight, which I like for the moment.

Who would you like to work with?

At the moment I am collaborating with a mathematician at Harvard whose specialty is pure math, number theory. But it is not a real collaboration, it is to share or confirm the deepest aesthetics between math and art (in what I am doing). I will keep doing so with other mathematicians.

What is your creative process like?

The process happens in a trial-and-error and a back-and-forth way. It's an adventure between the hands and the brain that is both systematic and intuitive, and cannot be generalized. For example, first I make different cookbooks for each project or work — the score or "idea" making. I then follow this plan, preparing all recipes carefully — the production process — and then every single element is judged intuitively by the chef at the very moment when he starts to cook — the live performance or installation of an exhibition. I think this is quite normal for any artist.

What are the most important recent technological advances for what you do?

Many interesting things have happened in the last decade, especially in the development of multitask platform technology for computers, which enables anyone to program their own software. This is a breakthrough for me, since programming requires us to learn very sophisticated computer languages. I myself don't do programming, but to see a new way of thinking among a generation is interesting — as if to witness a major new wave or trend like with DJ kids a decade ago. To me, a drastic shift in people's way of thinking like this is always more exciting than its trigger.

What are your expectations for the next generation of digital artists?

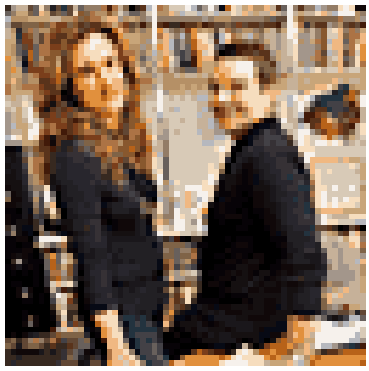
When young programmers grow up and become mature, I believe they get very close to a border between pure math and what they are doing. In the age of (the Greek philosopher) Plato, music was a science (and part of math), and some of the genuine programmers may well come to accept this great concept in the future, even if they are not conscious of what they are doing for art. And then, at some stage, perhaps the music industry will disappear.

"datamatics [ver. 2.0]" is showing on March 13 at AI Hall in Itami and twice on March 16 (4 p.m. and 7 p.m. starts) at The Garden Hall Yebisu in Tokyo ; ¥6,000 in advance, ¥6,500 at the door. For more information call (03) 5280-9996 or visit www.conversation.co.jp

http://search.japantimes.co.jp/rss/ft20080306a2.html

2 editors' online journal gives new life to literature

Tamara Straus, Chronicle Staff Writer
Thursday, March 6, 2008



Tom Jenks and Carol Edgarian refuse to see the bad news about Americans' reading habits as most literary people do - as the end of civilization.

Although the San Francisco couple do not dispute the recent numbers from the National Endowment for the Arts - 2005 saw a 20-year low in spending by American households on books; among high school students, only 35 percent are proficient readers - they see a silver lining in the global reach of the Internet.

"This is a revolutionary period," says Jenks, 57, who has held fiction editor positions at Esquire, GQ and Scribner's. "And as with all revolutionary periods, it's one of enormous opportunity - I don't think there's ever been a greater period of opportunity for writers, for literary work."

"I think the transition for writers (from print to digital) is painful because it's new," adds Edgarian, 46, the author of the critically acclaimed novel "Rise of the Euphrates." "But the opportunities are enormous."

Five years ago this summer, the two set out to test their theory. Over 10 days during a vacation in Martha's Vineyard, they assembled a free online magazine called Narrative (*www.narrativemagazine.com*) with selections from writer friends such as Jane Smiley, Tobias Wolff and Joyce Carol Oates. The magazine's primary goal: to connect more readers to more literary writers. They even taglined the publication "The Future of Reading."

Initially, the nonprofit publication claimed a circulation of 1,200, culled mostly from Jenks and Edgarian's personal e-mail address books. By the end of the first year, 12,000 people had registered to read Narrative and currently there are almost 40,000 registered readers. For the past two months, says Jenks, the magazine has received 25,000 unique visits. Narrative's reach, the editors say, is already international because it's on the Internet and free. The magazine's largest readership outside the United States is in Indonesia - for reasons they don't yet understand.

"At one point (Narrative contributor) Robert Olen Butler did a U.S. Information Agency tour of Indonesia," says Jenks, "and he says he talked about the magazine wherever he went."

Edgarian thinks the spike in Indonesian readership might have something to do with the fact that Narrative, with its reviews and excerpts of contemporary and classic literature and essays on writing, is becoming part of contemporary literature curricula in universities abroad. "The magazine has been taught as a syllabus in the main university in Seoul, Korea," she says.

A joint venture

Narrative may be atypical in terms of circulation for new literary magazines - most "small magazines," on- or offline, have a regular following of about 5,000 people - but its business model, if you can call it

that, is decidedly nonprofit. Almost all of its 65 staff members, including Edgarian and Jenks, toil unpaid. There is no advertising on their site, nor do the editors give much thought to marketing or promotion. Narrative has no central office - except Edgarian and Jenk's storybook yellow Victorian home - though most staffers have never been there.

"We have done this as a labor of love," says Edgarian, who is in the midst of finishing her second novel, "Three Stages of Amazement." Narrative is also atypical in terms of quality. There is no whiff of literary hipsterism here, no veil of coolness to cover up the mediocre writing that is often found in new publications by editors who have spent their college years boning up on David Foster Wallace. Instead, Jenks and Edgarian offer a wide, well-edited and stimulating selection of narrative forms.

Lacy Crawford, who writes most of the author profiles, has produced New Yorker-quality essays on Ann Beattie, Reynolds Price and Frank Conroy. Also top of the line are the author interviews with figures such as Richard Rodriguez and Geoffrey Woolf, which unlike most magazine interviews, can extend as long as 8,500 words.

A few of the new writers Jenks and Edgarian have published have gone on to some acclaim. Min Jin Lee, for example, who won the first Narrative Award for emerging writers in 2004, has written a well-received first novel, "Free Food For Millionaires," the seed of which originally was edited by Jenks and Edgarian. And last summer they "hired" Michael Wiegers, executive editor of the revered poetry publisher Copper Canyon Press, to select verse for the magazine. The Wiegers hire is the equivalent of the Giants signing Barry Zito.

The publication also includes original nonfiction, classic reprints, place-oriented tales called Readers Narratives and a First and Second Looks section of excerpted novels, stories and nonfiction.

A symbiotic life

Like many couples who have been married for 20 years, Edgarian and Jenks finish each other's sentences and even sometimes speak in unison. But their work relationship is even more symbiotic. Not only do they edit the magazine together, they tend to edit manuscripts in tandem, formulating what Jenks calls the "ideal version of the work." Having two editors is most writers' version of hell, but those who work with Jenks and Edgarian seem to be grateful for the critical double-blast. "They're incredibly hard-assed, strict and demanding, possessing a ferocious desire of excellence," says the prolific writer Rick Bass. "As much as any editors I've known - and I am fortunate to have always worked with great ones - they understand that good is the enemy of great."

They also are known for soliciting writers of all stripes. Ned Parker, a foreign correspondent for the Los Angeles Times, recalls how after leaving Iraq in May 2005 he wanted to give himself a break from 800-word dispatches and write a long piece about his experience. He had taken a writing course with Jenks in San Francisco in 1990, but didn't expect the editor to remember him.

Not only did Jenks reply to the e-mail, he and Edgarian published three works of reportage on Iraq by Parker. The editing process, says Parker, "was a real lesson on the maxim of showing not telling. Tom is committed to helping writers find their voice. I think he would go anywhere for a good story - fact or fiction - that tells us something about how people live." Other Narrative contributors and staff members use equally glowing language to describe the passion and diligence with which Jenks and Edgarian approach their work. They seem to be always available, always responsive, always enthusiastic.

Perhaps that's because the couple have created a tight weave between their personal and professional lives. Their kids - they have three daughters, ages 7, 12, and 22 - have grown up talking about things like "when a manuscript is ready" and are regularly enlisted in envelope-stuffing marathons for their parents' magazine.

Jenks is also Edgarian's editor, the reader of her first and last drafts. "I read her work before I met her," says Jenks of his beautiful, raven-haired wife. "And I fell in love with the work, and then I met her."

The two blush like a new couple, as they tell the story of meeting at the Squaw Valley Writers Conference in 1986. Edgarian, an aspiring novelist and recent Stanford grad, was reluctant to show her work to Jenks, who "loomed large," as he had just edited Ernest Hemingway's posthumous "The Garden of Eden." But on the final night of the workshop, she tucked the manuscript into the New York editor's box.

The next morning, Jenks was prowling the workshop grounds, asking passers-by if they knew the author of the manuscript. He was told that Edgarian had just left. "And he got into his car and drove after me," says Edgarian, pulling up next to her at a gas station down the road. "He said, 'Are you Carol Edgarian? I'm Tom Jenks and I want to buy your book.' "

A few months later, they had a four-hour lunch in Manhattan. Two years later, they were married.

Narrative ambitions

Edgarian and Jenks describe a typical day as long. They get up early, squeeze in some manuscript reading, get their girls ready for school, then trade off the school pickup and drop-off as well as dinner cooking duties, so that each can find the hours necessary to work on the magazine and, in Edgarian's case, on her novel. It is not unusual to find them e-mailing authors and colleagues at midnight. And now they are running two online magazines, as in early 2007 they took over the publication of StoryQuarterly, a 30-year-old literary magazine for emerging writers that was about to go under.

"One of the things that's been happening," says Jenks, "is that we're getting contact from other magazines who are having declining subscription rates, declining readerships and want a larger presence on the Web. Editors have been contacting us, saying: How are you doing what you're doing?"

Jenks and Edgarian are not content to remain just publishers, editors and writers. Over the past year, Jenks says, they've been "talking to people in publishing, people in technology and people in retail" about becoming a higher cut of literary entrepreneur. They aren't ready to divulge the details of their enterprise, but neither reject the idea of an online book publishing company or a portal for literary magazines.

"We're looking at every possible channel that we can in order to reach readers and encourage the audience for writers," says Jenks.

Writers like Bass wish them godspeed. "The old ways, though well-intentioned, just aren't working anymore and haven't been working for about 20 years," says Bass. "It's just that books are on their own more than ever, these days. And that's fine, if one prefers to run into a headwind. But sometimes literary works benefit from any slight gust of tailwind, and when you believe in the American literary tradition as deeply as Tom and Carol do, you want to explore ways of empowering and carrying that tradition forward."

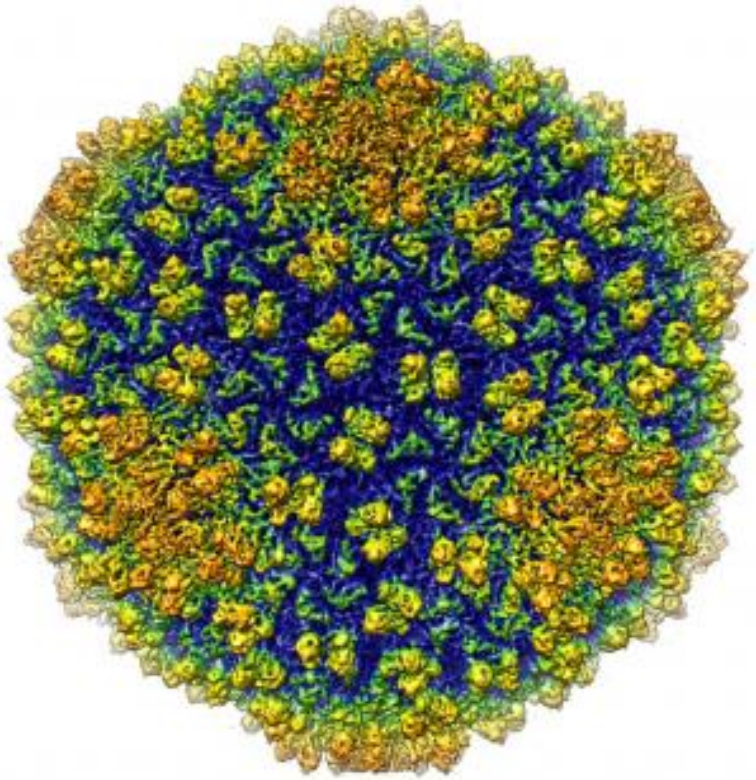
Narrative Magazine will hold an evening of readings with Amy Tan and Tobias Wolff on March 13, 8-10 p.m. at the Fort Mason Center in San Francisco, Building A, Golden Gate Room. There will be a dessert and wine reception. $45. For tickets, call (707) 278-0357 or register online at *www.narrativemagazine.com*.

E-mail Tamara Straus at tstraus@sfchronicle.com.

http://sfgate.com/cgi-bin/article.cgi?f=/c/a/2008/03/06/DD3LV879J.DTL

*This article appeared on page **E - 1** of the San Francisco Chronicle*

3D Virus Image Taken At Highest Resolution Ever



Shown is an image of bacteriophage Epsilon15 studied by Wen Jiang, an assistant professor of biological sciences at Purdue. The bacteriophage is shown at a resolution of 4.5 angstrom - the highest resolution achieved for a living organism of this size. (Credit: Graphic/Wen Jiang lab)

ScienceDaily (Mar. 6, 2008) — A team led by a Purdue University researcher has achieved images of a virus in detail two times greater than had previously been achieved.

Wen Jiang, an assistant professor of biological sciences at Purdue, led a research team that used the emerging technique of single-particle electron cryomicroscopy to capture a three-dimensional image of a virus at a resolution of 4.5 angstroms. Approximately 1 million angstroms would equal the diameter of a human hair.

"This is one of the first projects to refine the technique to the point of near atomic-level resolution," said Jiang, who also is a member of Purdue's structural biology group. "This breaks a threshold and allows us to now see a whole new level of detail in the structure. This is the highest resolution ever achieved for a living organism of this size."

Details of the structure of a virus provide valuable information for development of disease treatments, he said.

"If we understand the system - how the virus particles assemble and how they infect a host cell - it will greatly improve our ability to design a treatment," Jiang said. "Structural biologists perform the basic science and provide information to help those working on the clinical aspects."

Roger Hendrix, a professor of biological sciences at the University of Pittsburgh, said what is learned about viruses can be applied to many other biological systems.

"Understanding the proteins that create the structure of a virus gives us insight into the tiny biological machines found throughout our bodies," he said. "Getting to 4.5 angstrom using this technique is a

watershed of sorts because it is the first time we can actually trace the polypeptide chain - the backbone of proteins. Now we can see the tiny gears and levers that allow the proteins to move and interact as they carry out their intricate biological roles."

The imaging technique, called cryo-EM, has the added benefit of maintaining the sample being studied in a state very similar to its natural environment. Other imaging techniques used regularly, such as X-ray crystallography, require the sample be manipulated.

"This method offers a new approach for modeling the structure of proteins in other macromolecular assemblies, such as DNA, at near-native states," Jiang said. "The sample is purified in a solution that is very similar to the environment that would be found in a host cell. It is as if the virus is frozen in glass and it is alive and infectious while we examine it."

In addition to Jiang, Matthew L. Baker, Joanita Jakana and Wah Chiu from Baylor College of Medicine, and Peter R. Weigele and Jonathan King from Massachusetts Institute of Technology worked on the project, which was funded by the National Institutes of Health and the National Science Foundation.

The team obtained a three-dimensional map of the capsid, or protein shell, of the epsilon15 bacteriophage, a virus that infects bacteria and is a member of a family of viruses that are the most abundant life forms on Earth, Jiang said.

Other methods of determining the structure could not be used for this family of virus. None had been successfully crystallized, and the complexity of members of this family had prevented evaluation through the genome sequence alone.

"This demonstration shows that cryo-EM is doable and is a major step in reaching the full potential of this technique," he said. "The goal is to have it reach a 3 to 4 angstrom resolution, which would allow us to clearly see the amino acids that make up a protein."

In electron microscopy, a beam of electrons takes the place of the light beam used in a conventional microscope. The use of electrons instead of light allows the microscope to "see" in much greater detail.

Cryo-EM cools specimens to temperatures well below the freezing point of water. This decreases damage from the electron beam and allows the specimens to be examined for a longer period of time. Longer exposure time allows for sharper, more detailed images.

Researchers using cryo-EM had obtained images at a resolution of 6-9 angstroms but could not differentiate between smaller elements of the structure spaced only 4.5 angstroms apart.

"There are different elements that make up the protein building blocks of the virus," Jiang said. "It is like examining a striped blanket. From a distance, the stripes blur together and the blanket appears to be one solid color. As you get closer you can see the different stripes, and if you use a magnifying glass you can see the strands of string that make up the material. The resolution needs to be smaller than the distance between the strands of thread in order to see two separate strands.

"By being able to zoom in, researchers were able to see components that blurred together at the earlier achieved resolution."

Cryo-EM requires high-end electron microscopes and powerful computing resources. The research team used the Baylor College of Medicine's cryoelectron microscope. It is expected that Purdue will install a state-of-the-art cryoelectron microscope in 2009.

In 2006 Purdue received a $2 million grant from the National Institute of Health to purchase the microscope. It will be installed in Hockmeyer Hall of Structural Biology, expected to open in 2009.

Computer programs are used to extract the signal from the microscope and to combine thousands of two-dimensional images into an accurate three-dimensional image that maps the structure of the virus. This requires use of a large data set and could not have been done without the resources of Purdue's Office of Information Technology, or ItaP, Jiang said.

Jiang used Purdue's Condor program - which links computers including desktop machines and large, powerful research computers - to create the largest distributed computing network at a university.

"ITaP provided us with computational power at the supercomputer scale that was necessary for this work," he said. "Purdue's Condor program allowed us to take advantage of the power of 7,000 computers. This was a critical element to our success."

Jiang plans to continue to refine every step of the process to improve the capabilities of the technique and to examine more medically relevant virus species.

Purdue's structural biology group studies a diverse group of problems, including cellular signaling pathways, RNA catalysis, bioremediation, molecular evolution, viral entry, viral replication and viral pathogenesis. Researchers use a combination of X-ray crystallography, electron cryomicroscopy, NMR spectroscopy, and advanced computational and modeling tools to study these problems.

A paper detailing the work was published in the Feb. 28 issue of Nature.

Adapted from materials provided by Purdue University.

http://www.sciencedaily.com:80/releases/2008/03/080305153030.htm

Many Patients Can Reach LDL Cholesterol Goal Through Dietary Changes Alone, Study Shows

Reducing saturated and trans fat and increasing "healthy" fats such as olive oil; increasing soluble and insoluble fiber; eating fish twice a week and increasing fruits and vegetables were all recommended. (Credit: iStockphoto/Olga Lyubkina)

ScienceDaily (Mar. 6, 2008) — Worried about your cholesterol? You may want to schedule a few appointments with a registered dietitian, to get some sound advice about how to shape up your eating habits, according to a new national study led by University of Michigan Health System researchers.

Not only are you likely to lower your cholesterol levels, you may be able to avoid having to take cholesterol medication, or having to increase your dose if you're already taking one. And you'll probably lose weight in the process, which also helps your heart.

The new results, published in the Journal of the American Dietetic Association, are based on data from 377 patients with high cholesterol who were counseled by 52 registered dietitians at 24 sites in 11 states.

In the group of 175 patients who started the study with triglycerides less than 400 milligrams per deciliter of blood (mg/dL), and who had their cholesterol measured before they changed or added medication, 44.6 percent either reduced their levels of "bad" cholesterol by at least 15 percent, or reached their cholesterol goal.

The results reflect progress in approximately eight months, after three or more appointments with a dietitian. But the results add further evidence that medical nutrition therapy, as it is called, can make a big difference in a patient's life.

All of the R.D.s in the study based their advice to their patients on the latest research-based evidence about eating habits and cholesterol levels available at the time of the study: the American Dietetic Association's 1998 Medical Nutrition Therapy Hyperlipidemia Protocol.

Since that time, the ADA has updated the clinical guideline based on new research, which means that patients who see an R.D. today may have even more success.

The study was funded by the ADA and its Clinical Nutrition Management Dietetic Practice Group, and based on a framework developed for a pilot project carried out in Michigan by the Michigan Dietetic Association and led by U-M cardiovascular dietitians.

"Everyone knows that nutrition is important for cholesterol management, and that a registered dietitian is the professional most thoroughly trained to help patients choose foods wisely," says lead author Kathy Rhodes, Ph.D., R.D., manager of Nutrition Services with the U-M Cardiovascular Medicine program at Domino's Farms and the U-M Cardiovascular Center. "But this is the first national study to show what happens when high-risk patients work with R.D.s to follow nutrition guidelines grounded in the best evidence."

Key nutrition issues in the 1998 guidelines used in the study include reducing saturated and trans fat and increasing "healthy" fats such as olive oil; increasing soluble and insoluble fiber; eating fish twice a week; increasing fruits and vegetables; regular exercise and healthy weight management. Information about food-label reading and dining out was also included.

Called the Lipid Management Nutrition Outcomes Project or LMNOP, the national study was launched by Rhodes and her U-M colleagues Melvyn Rubenfire, M.D., and Martha Weintraub, MPH, R.D., after the successful completion of the Michigan-wide pilot project. Rubenfire, Weintraub and Christina Biesemeier, M.S., R.D., FADA, of Vanderbilt University are co-authors of the new study.

The study gives us an important "real world" picture of what happens when R.D.s try to implement evidence-based nutrition guidelines in daily practice, Rhodes notes.

Some commercial health insurance plans are beginning to cover appointments with registered dietitians, but many still do not. Only dietitian visits for diabetes or kidney disease are covered by Medicare. It is important for people to check their specific health insurance plan to see whether nutrition is covered, Rhodes says. But even if individuals need to pay for the appointments out of their own pocket, they may find that an R.D.'s advice will pay off in the long run, she says.

To get uniform data, the researchers brought lead R.D.s from each state to U-M for training on the cholesterol and nutrition guidelines, and on the data collection practices used in the study. R.D.s at Veterans Affairs hospitals got their training by phone conferencing. R.D.s then returned to their own practices, trained their colleagues and implemented the ADA guidelines.

The study included only patients between the ages of 25 and 70 years who had high cholesterol levels, or triglyceride levels over 200 mg/dL, and who met other inclusion criteria including no recent changes in their cholesterol medication status. Neither the R.D.s nor their patients were paid to participate in the study.

The "real world" aspect of this study included the disappointing finding that many patients dropped out of nutrition counseling after one or two visits, when three or four sessions with an R.D. is recommended to make and sustain truly effective changes in eating habits. Lack of insurance coverage was a major factor in this dropout rate.

Patients whose doctors changed their cholesterol medication status, either by starting them on a drug for the first time, or increasing their dose before assessing the effect of diet change, were not included in the analysis. But for the 219 patients who didn't have any change in their medication status, the impact of the R.D. counseling became apparent in the first year after the initial visit.

"Although some patients may already be eating a relatively healthy diet, medical nutrition therapy can increase patient's knowledge of 'cardioprotective foods' and assist them in individualizing the guidelines to fit their preferences and lifestyle," says Weintraub. A significant number of patients reduced the fat in their diets to less than 30 percent of calories, as recommended for a heart health. Many participants also lost weight and/or increased the number of days each week on which they exercised for 30 minutes or more.

"Often, we see heart patients who are on multiple cholesterol medications but have never seen a dietitian. And even when a patient with high cholesterol does get to see an R.D., their care team may not allow enough time to see how effective diet is before they add additional treatment," says Rhodes. "We hope that this demonstration of how well cholesterol can be lowered without medication or increases in medication will be very useful for patients and physicians, and perhaps insurers too."

Journal reference: JADA, Vol. 108, No. 2, Feb. 2008.

Adapted from materials provided by University of Michigan Health System, via EurekAlert!, a service of AAAS.

http://www.sciencedaily.com/releases/2008/03/080304105817.htm

Diabetes May Be Disorder Of Upper Intestine: Surgery May Correct It

Growing evidence shows that surgery may effectively cure Type 2 diabetes -- an approach that not only may change the way the disease is treated, but that introduces a new way of thinking about diabetes. (Credit: iStockphoto/Jacob Wackerhausen)

ScienceDaily (Mar. 6, 2008) — Growing evidence shows that surgery may effectively cure Type 2 diabetes — an approach that not only may change the way the disease is treated, but that introduces a new way of thinking about diabetes.

A new article — published in a special supplement to the February issue of Diabetes Care by a leading expert in the emerging field of diabetes surgery — points to the small bowel as the possible site of critical mechanisms for the development of diabetes.

The study's author, Dr. Francesco Rubino of NewYork-Presbyterian Hospital/Weill Cornell Medical Center, presents scientific evidence on the mechanisms of diabetes control after surgery. Clinical studies have shown that procedures that simply restrict the stomach's size (i.e., gastric banding) improve diabetes only by inducing massive weight loss. By studying diabetes in animals, Dr. Rubino was the first to provide scientific evidence that gastrointestinal bypass operations involving rerouting the gastrointestinal tract (i.e., gastric bypass) can cause diabetes remission independently of any weight loss, and even in subjects that are not obese.

"By answering the question of how diabetes surgery works, we may be answering the question of how diabetes itself works," says Dr. Rubino, who is a professor in the Department of Surgery at Weill Cornell Medical College and chief of gastrointestinal metabolic surgery at NewYork-Presbyterian/Weill Cornell.

Dr. Rubino's prior research has shown that the primary mechanisms by which gastrointestinal bypass procedures control diabetes specifically rely on the bypass of the upper small intestine — the duodenum and jejunum. This is a key finding that may point to the origins of diabetes.

"When we bypass the duodenum and jejunum, we are bypassing what may be the source of the problem," says Dr. Rubino, who is heading up NewYork-Presbyterian/Weill Cornell's Diabetes Surgery Center.

In fact, it has become increasingly evident that the gastrointestinal tract plays an important role in energy regulation, and that many gut hormones are involved in the regulation of sugar metabolism. "It should not surprise anyone that surgically altering the bowel's anatomy affects the mechanisms that regulate blood sugar levels, eventually influencing diabetes," Dr. Rubino says.

While other gastrointestinal operations may cure diabetes as an effect of changes that improve blood sugar levels, Dr. Rubino's research findings in animals show that procedures based on a bypass of the upper intestine may work instead by reversing abnormalities of blood glucose regulation.

In fact, bypass of the upper small intestine does not improve the ability of the body to regulate blood sugar levels. "When performed in subjects who are not diabetic, the bypass of the upper intestine may even impair the mechanisms that regulate blood levels of glucose," says Dr. Rubino. In striking contrast, when nutrients' passage is diverted from the upper intestine of diabetic patients, diabetes resolves.

This, he explains, implies that the upper intestine of diabetic patients may be the site where an abnormal signal is produced, causing, or at least favoring, the development of the disease.

How exactly the upper intestine is dysfunctional remains to be seen. Dr. Rubino proposes an original explanation known in the scientific community as the "anti-incretin theory."

Incretins are gastrointestinal hormones, produced in response to the transit of nutrients, that boost insulin production. Because an excess of insulin can determine hypoglycemia (extremely low levels of blood sugar) — a life-threatening condition — Dr. Rubino speculates that the body has a counter-regulatory mechanism (or "anti-incretin" mechanism), activated by the same passage of nutrients through the upper intestine. The latter mechanism would act to decrease both the secretion and the action of insulin.

"In healthy patients, a correct balance between incretin and anti-incretin factors maintains normal excursions of sugar levels in the bloodstream," he explains. "In some individuals, the duodenum and jejunum may be producing too much of this anti-incretin, thereby reducing insulin secretion and blocking the action of insulin, ultimately resulting in Type 2 diabetes."

Indeed, in Type 2 diabetes, cells are resistant to the action of insulin ("insulin resistance"), while the pancreas is unable to produce enough insulin to overcome the resistance.

After gastrointestinal bypass procedures, the exclusion of the upper small intestine from the transit of nutrients may offset the abnormal production of anti-incretin, thereby resulting in remission of diabetes.

In order to better understand these mechanisms, and help make the potential benefits of diabetes surgery more widely available, Dr. Rubino calls for prioritizing research in diabetes surgery. "Further research on the exact molecular mechanisms of diabetes, surgical control of diabetes and the role played by the bowel in the disease may bring us closer to the cause of diabetes."

Today, most patients with diabetes are not offered a surgical option, and bariatric surgery is recommended only for those with severe obesity (a body mass index, or BMI, of greater than 35kg).

"It has become clear, however, that BMI cut-offs can no longer be used to determine who is an ideal candidate for surgical treatment of diabetes," says Dr. Rubino.

"There is, in fact, growing evidence that diabetes surgery can be effective even for patients who are only slightly obese or just overweight. Clinical trials in this field are therefore a priority as they allow us to compare diabetes surgery to other treatment options in the attempt to understand when the benefits of surgery outweigh its risks. Clinical guidelines for diabetes surgery will certainly be different from those for bariatric surgery, and should not be based only on BMI levels," he notes.

"The lesson we have learned with diabetes surgery is that diabetes is not always a chronic and relentless disease, where the only possible treatment goal is just the control of hyperglycemia and minimization of the risk of complications. Gastrointestinal surgery offers the possibility of complete disease remission. This is a major shift in the way we consider treatment goals for diabetes. It is unprecedented in the history of the disease," adds Dr. Rubino.

Type 2 diabetes, which accounts for 90 to 95 percent of all cases of diabetes, is a growing epidemic that afflicts more than 200 million people worldwide.

At a time when diabetes is growing epidemically worldwide, Dr. Rubino says that finding new treatment strategies is a race against time. "At this point, missing the opportunity that surgery offers is not an option."

In addition to having performed landmark studies in the field of diabetes surgery, Dr. Rubino was the principal organizer of an influential Diabetes Surgery Summit, held in Rome in March 2007. This international consensus conference helped establish the field, making international recommendations for the use of surgery and creating an International Diabetes Surgery Task Force. Dr. Rubino serves as a founding member.

Adapted from materials provided by New York- Presbyterian Hospital/Weill Cornell Medical Center.

http://www.sciencedaily.com/releases/2008/03/080305113659.htm

Boys' And Girls' Brains Are Different: Gender Differences In Language Appear Biological

New research shows that areas of the brain associated with language work harder in girls than in boys during language tasks, and that boys and girls rely on different parts of the brain when performing these tasks. (Credit: iStockphoto/Rich Legg)

ScienceDaily (Mar. 5, 2008) — Although researchers have long agreed that girls have superior language abilities than boys, until now no one has clearly provided a biological basis that may account for their differences.

For the first time -- and in unambiguous findings -- researchers from Northwestern University and the University of Haifa show both that areas of the brain associated with language work harder in girls than in boys during language tasks, and that boys and girls rely on different parts of the brain when performing these tasks.

"Our findings -- which suggest that language processing is more sensory in boys and more abstract in girls -- could have major implications for teaching children and even provide support for advocates of single sex classrooms," said Douglas D. Burman, research associate in Northwestern's Roxelyn and Richard Pepper Department of Communication Sciences and Disorders.

Using functional magnetic resonance imaging (fMRI), the researchers measured brain activity in 31 boys and in 31 girls aged 9 to 15 as they performed spelling and writing language tasks.

The tasks were delivered in two sensory modalities -- visual and auditory. When visually presented, the children read certain words without hearing them. Presented in an auditory mode, they heard words aloud but did not see them.

Using a complex statistical model, the researchers accounted for differences associated with age, gender, type of linguistic judgment, performance accuracy and the method -- written or spoken -- in which words were presented.

The researchers found that girls still showed significantly greater activation in language areas of the brain than boys. The information in the tasks got through to girls' language areas of the brain -- areas associated with abstract thinking through language. And their performance accuracy correlated with the degree of activation in some of these language areas.

To their astonishment, however, this was not at all the case for boys. In boys, accurate performance depended -- when reading words -- on how hard visual areas of the brain worked. In hearing words, boys' performance depended on how hard auditory areas of the brain worked.

If that pattern extends to language processing that occurs in the classroom, it could inform teaching and testing methods.

Given boys' sensory approach, boys might be more effectively evaluated on knowledge gained from lectures via oral tests and on knowledge gained by reading via written tests. For girls, whose language processing appears more abstract in approach, these different testing methods would appear unnecessary.

"One possibility is that boys have some kind of bottleneck in their sensory processes that can hold up visual or auditory information and keep it from being fed into the language areas of the brain," Burman said. This could result simply from girls developing faster than boys, in which case the differences between the sexes might disappear by adulthood.

Or, an alternative explanation is that boys create visual and auditory associations such that meanings associated with a word are brought to mind simply from seeing or hearing the word.

While the second explanation puts males at a disadvantage in more abstract language function, those kinds of sensory associations may have provided an evolutionary advantage for primitive men whose survival required them to quickly recognize danger-associated sights and sounds.

If the pattern of females relying on an abstract language network and of males relying on sensory areas of the brain extends into adulthood -- a still unresolved question -- it could explain why women often provide more context and abstract representation than men.

Ask a woman for directions and you may hear something like: "Turn left on Main Street, go one block past the drug store, and then turn right, where there's a flower shop on one corner and a cafe across the street."

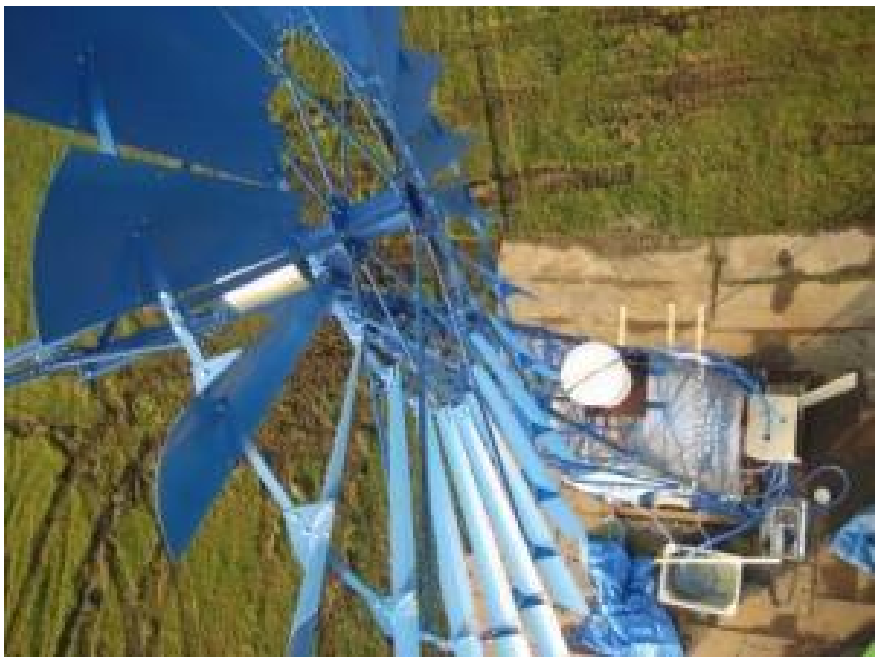
Such information-laden directions may be helpful for women because all information is relevant to the abstract concept of where to turn; however, men may require only one cue and be distracted by additional information.

Burman is primary author of "Sex Differences in Neural Processing of Language Among Children." Co-authored by James R. Booth (Northwestern University) and Tali Bitan (University of Haifa), the article will be published in the March issue of the journal Neuropsychologia and now is available online at http://dx.doi.org/10.1016/j.neuropsychologia.2007.12.021.

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

http://www.sciencedaily.com/releases/2008/03/080303120346.htm

Windmill With A Twist Can Provide Fresh Water From Seawater Directly



The first prototype has been built and is already working at a location near the A13 motorway near Delft. This prototype is to be dismantled and transported to Curaçao the first week of March. There the concept will be tested on seawater. (Credit: Image courtesy of Delft University of Technology) ScienceDaily (Mar. 5, 2008) — A traditional windmill which drives a pump: that is the simple concept behind the combination of windmill/reverse osmosis developed by the Delft University of Technology (TU Delft) in The Netherlands. In this case, it involves a high-pressure pump which pushes water through a membrane using approximately 60 bar. This reverse osmosis membrane produces fresh water from seawater directly.

The windmill is suited for use by, for instance, small villages in isolated, dry coastal areas. The combination of windmills and desalination installations is already commercially available. These windmills produce electricity from wind power, the electricity is stored and subsequently used to drive the high-pressure pump for the reverse osmosis installation. The storage of electricity in particular is very expensive. Energy is also lost during conversion. In the TU Delft installation, the high-pressure pump is driven directly by wind power. Water storage can be used to overcome calm periods. The storage of water is after all a great deal cheaper than that of electricity.

Robust

The chosen windmill is normally used for irrigation purposes. These windmills turn relatively slowly and are also very robust. On the basis of the windmill's capacity at varying wind speeds, it is estimated that it will produce 5 to 10 m3 of fresh water per day: enough drinking water for a small village of 500 inhabitants. A water reservoir ill have to ensure that enough water is available for a calm period lasting up to five days. Three safeguards (in the event of the installation running dry, a low number of revolutions or a high number of revolutions) are also performed mechanically so that no electricity is needed.

Adapted from materials provided by Delft University of Technology.

http://www.sciencedaily.com/releases/2008/02/080229102053.htm

On Ramps and Off, Free-Falling Through Time

- **By MANOHLA DARGIS**

Paranoid Park is a swooping skateboarding free zone where young men learn to fly. It's also the title of Gus Van Sant's most recent film, a haunting, voluptuously beautiful portrait of a teenage boy who, after being suddenly caught in midflight, falls to earth. Like most of Mr. Van Sant's films "Paranoid Park" is about bodies at rest and in motion, and about longing, beauty, youth and death, and as such as much about the artist as his subject. It is a modestly scaled triumph without a false or wasted moment.

One of the most important and critically marginalized American filmmakers working in the commercial mainstream, Mr. Van Sant has traveled from down-and-out independent to Hollywood hire to aesthetic iconoclast, a trajectory that holds its own fascination and mysteries. The Hungarian filmmaker Bela Tarr has been instrumental in Mr. Van Sant's recent artistic renaissance — evident in his newfound love of hypnotically long and gliding camera moves — though his tenure in the mainstream has left its mark too, as demonstrated by his rejection of straight narrative. As in three-act, character-driven, commercially honed narrative in which boys will be boys of a certain type and girls will be girls right alongside them.

The boy in "Paranoid Park," Alex (the newcomer Gabe Nevins), lives and skates in Portland, Ore., where one evening he is implicated in the brutal death of a security guard. In adapting the young-adult novel by Blake Nelson, Mr. Van Sant has retained much of the story — a man dies, Alex writes it all down — but has reshuffled the original's chain of events to create an elliptical narrative that continually folds back on itself. Shortly after the film opens, you see Alex writing the words Paranoid Park in a notebook, a gesture that appears to set off a flurry of seemingly disconnected visuals — boys leaping through the air in slow motion, clouds racing across the sky in fast — that piece together only later.

With his on-and-off narration and pencil, Alex is effectively shaping this story, but in his own singular voice. ("I'm writing this a little out of order. Sorry. I didn't do so well in creative writing.") Although you regularly hear that voice — at times in Alex's surprisingly childish, unmodulated recitation, at times in dialogue with other characters — you mostly experience it visually, as if you were watching a still-evolving film unwinding in the boy's head. Mr. Van Sant isn't simply trying to take us inside another person's consciousness; he's also exploring the byways, dead ends, pitfalls and turning points in the geography of conscience, which makes the recurrent image of the skate park — with its perilous ledges, its soaring ramps and fleetingly liberated bodies — extraordinarily powerful.

Mr. Van Sant's use of different film speeds and jump cuts, and his tendency to underscore his own storytelling — he regularly, almost compulsively repeats certain images and lines — reinforces rather than undermines the story's realism. With its soft, smudged colors and caressing lighting, "Paranoid

Park" looks like a dream — the cinematographers are Christopher Doyle and Rain Kathy Li — but the story is truer than most kitchen-sink dramas. This isn't the canned realism of the tidy psychological exegesis; this is realism that accepts the mystery and ambiguity of human existence. It is the realism that André Bazin sees in the world of Roberto Rossellini: a world of "pure acts, unimportant in themselves," that prepare the way "for the sudden dazzling revelation of their meaning."

The pure acts in "Paranoid Park" mostly involve young male skateboarders gliding and sometimes hurtling through the air. Shot in both grainy Super-8 and velvety 35-millimeter film, these bodies appear alternately grounded and out of this world, reflecting extremes of physical effort while also suggesting different states of being. The Super-8 images of young men rolling along concrete, flipping boards and attitude, have the vaguely battered quality of old home movies, as if someone had just pulled the footage from a drawer. The glossier 35-millimeter images, by contrast, look almost monumental, epic, nowhere more so than when Mr. Van Sant shows one after another skateboarder suspended in the air at the peak of his jump, each a vision of Icarus.

Closer to earth, Alex roams through his world like an alien, a zombie, a prisoner, mostly mute, his features fixed, face blank and impenetrable. He says little, betrays less. His smiles are brief, infrequent. He's adrift in a sea of near-strangers, including his parents, who are almost as conceptual as those in "Peanuts" (Dad's tattoos notwithstanding), and his girlfriend (Taylor Momsen), a coltish cheerleader who wants to lose her virginity to him for the sake of convenience. (Mr. Van Sant has rarely been as patient with his female characters as he is with his male ones.) Alex's single close connection is with his friend Jared (Jake Miller), who brings him to the skate park with the warning "No one's ever really ready for Paranoid Park."

Mr. Van Sant has always made a home for lost boys, from River Phoenix's wanderer in "My Own Private Idaho" to the ghostly Kurt Cobain figure who roams through "Last Days," those downy, itinerant beauties whose words stick to their tongues and whose pain seems as bottomless as their eyes. In some respects Paranoid Park represents adulthood; the critic Amy Taubin has provocatively suggested to Mr. Van Sant that the film's subtext is that of a gay initiation. (He didn't disagree.) Both readings are ripe for the picking. But what strikes me the hardest about "Paranoid Park" is the intimacy, the love — carnal, paternal, human — of Mr. Van Sant's expansive, embracing vision. No one is ever really ready for Paranoid Park, but neither do you have to go there alone.

"Paranoid Park" is rated R (Under 17 requires accompanying parent or adult guardian). There is an extremely graphic, unflinchingly brutal image of a dying man.

PARANOID PARK

Opens on Friday in New York and Los Angeles.

Written, directed and edited by Gus Van Sant; directors of photography, Christopher Doyle and Rain Kathy Li; art director, John Pearson-Denning; produced by Marin Karmitz and Nathanaël Karmitz; released by IFC Films. Running time: 1 hour 18 minutes.

WITH: Gabe Nevins (Alex), Dan Liu (Detective Richard Lu), Jake Miller (Jared), Taylor Momsen (Jennifer), Lauren McKinney (Macy) and Olivier Garnier (Cal).

http://movies.nytimes.com/2008/03/07/movies/07para.html?th&emc=th

The Internet Is Changing the Scientific Method
By Alexis Madrigal March 06, 2008 | 2:00:00

If all other fields can go 2.0, incorporating collaboration and social networking, it's about time that science does too.

In the bellwether journal *Science* this week, a computer scientist argues that many modern problems are resistant to traditional scientific inquiry.
"There is an enormous success story for Science 1.0," Ben Shneiderman, a University of Maryland computer science professor said. "But the Internet is changing both the methods we use and the things we need to study. The challenge for the next 400 years is to understand how trust and empathy work."
In an editorial titled, "Science 2.0," Shneiderman argues that studying the interactions between people will be more important than studying the interactions between particles in bringing scientific solutions to big problems like disaster response, health care and energy sustainability.
The editorial comes amidst growing usage of the Internet to disseminate scientific information through open-access publications like the Public Library of Science. But Shneiderman wants to transform not just the way that scientific information gets to the public, but also the way that scientists go about their work.
"How do we measure the progress of society not by megahertz but by contribs and collabs?" Shneiderman asked, slipping into wiki-slang for contributions and collaborations. "What is it that made Wikipedia so successful? How do we make sure the wave of Wikipedias are successful, not failures?"
The internet is providing access to vast amounts of data about human behavior that Shneiderman argues provide the opportunity to study our interactions with the rigor seen in the natural sciences. He points to the success of design testing by prominent websites like Facebook and sees a future where scientist-designers move quickly from basic to applied research.
"Design science looks at how to make the world a better place," he said. "How do we do sustainable energy? We are going to design a world where the right things happen."
What do Wired Science readers think? Are MySpace and Facebook really important signs of the future of scientific discovery?
(Note: In the 2.0 spirit, I'm measuring the success of this post by the number of contribs, not page views, it receives.)
Image: Ben Shneiderman studies human-computer interactions. Credit: John Consoli.

http://blog.wired.com:80/wiredscience/2008/03/the-internet-is.html

The free-thinking reader is not dead, but found online

As most book publishers bow to bestsellers and celebrity culture, serious literature can still thrive thanks to the internet

Judging by recent media interest it would seem that the big story for books this year will be the arrival of the ebook, and with it a necessary demise of the book - if not today then in time. Not surprisingly, innovation is catching the eye. However, while digitally delivered reading will in the long term have a major effect on how we read and, perhaps, what is written, it is likely to have very little effect on reading in 2008. What is having a profound impact on our reading culture is a much older, less-appealing story; the rising dominance of the mass market.

Writing on World Book Day a year ago I found myself anxious about our narrowing cultural choices. Over the last year my concern has risen further. As has proved the case for film, music and television, the book world is now experiencing a concentration on fewer books derived from an obsession with bestsellers and celebrity, and an increasing sense that what is good is that which sells large volumes. As a result most serious or marginal books now begin life with a decreasing exposure in bookshops.

Last autumn was, as a result, difficult for publishers who support a broad canon from good commercial books to more literary or quirky titles. Like Lear's diminishing retinue these ever-decreasing circles are dangerous. Clearly a huge range of books currently gets published but something fundamental is shifting for publishers and writers which is threatening the range available to readers and the livelihoods of most writers. For example, the only serious piece of non-fiction in the top 100 for 2007 was Richard Dawkins's The God Delusion. Where was the history, literary memoir, science? Buried under a pile of celebrity biography, cookery and misery memoir?

Market forces are of course at the heart of this shift, so is it pointless to complain? Well, no. It does not have to be this way. Alongside a belief in the
wilfulness of readers and writers, my hope for the richness of our future reading culture lies in a cocktail of new technology and strength of range-
holding booksellers.

Technology, often feared by the bookish world, is a growing friend. As the mass market has risen so has the reality of a technologically connected society. This doesn't just mean Facebook. Global communities are gathering around common interests online, just as intellectuals gathered in cafes in 1900s Vienna. They are gloriously beyond corporate control and naturally antipathetic to the reductive mass market. We are only at the beginning of this social revolution. I am not an advocate of the life led online, but as broadband reaches all generations, genders and income brackets, so this will develop usefully. It won't be all of life but it must be a place where niche interests can develop, robbing the mass market of a portion of its control. Literature can thrive in these places.

So publishers must harness the great power of online networks through enriching reader experience. We must provide content that can be searched and browsed, and create extra materials - interviews, podcasts and the like. We mustn't be afraid of inviting readers to be involved. Beyond online retailing, publishers can now build powerful online places to showcase their books through their own and others' websites and build communities around their own areas of particular interest and do so with writers. The key to this is just to make available and to resist too much control. A year ago this felt like a world in its infancy for books; but now it's here, and it is a mighty relief as it provides a new world of conversation about reading.

Print technology has also been transformed by digital technology. It is possible now to keep books in print with no inventory, by printing a single copy of a book on demand. This has a transforming effect on the long tail of books, allowing for perpetual availability of books that would otherwise have died only due to print economics. At Faber in April we are launching a major initiative with 20th century in-copyright titles using only digital printing to demand, a project impossible only 18 months ago.

However, these new energetic ways to alert readers to writing still require a thriving community of range-holding booksellers. At present we have that in the UK but it is fighting a bloody battle with mass-market retailers who commit to only a fraction of titles offered by the online and bricks-and-mortar specialists. Alongside our online efforts, publishers must support booksellers who commit to the more diverse offerings, delivering readers through the fruits of their own online marketing. All our futures still depend on it, even as the technology revolution takes hold.

The industry is closer now to a tipping point that would see a dramatic reduction in range, a shortening of writers' careers, and a reading culture that errs towards mass forms of entertainment alone. Perhaps one day the ebook will play some role in this, but for now hope lies in the new technology-spawned networks and print technologies that give oxygen to diversity, resulting in demand that allows online and range-holding booksellers to thrive.

· Stephen Page is the publisher and chief executive of Faber and Faber info@faber.co.uk

http://www.guardian.co.uk:80/commentisfree/2008/mar/06/internet.gadgets

Just Listening To Cell Phones Significantly Impairs Drivers, Study Shows

Just listening to a cell phone while driving is a significant distraction, and it causes drivers to commit some of the same types of driving errors that can occur under the influence of alcohol. (Credit: iStockphoto/Dennis Oblander)

ScienceDaily (Mar. 6, 2008) — Carnegie Mellon University scientists have shown that just listening to a cell phone while driving is a significant distraction, and it causes drivers to commit some of the same types of driving errors that can occur under the influence of alcohol.

The use of cell phones, including dialing and texting, has long been a safety concern for drivers. But the Carnegie Mellon study, for the first time, used brain imaging to document that listening alone reduces by 37 percent the amount of brain activity associated with driving. This can cause drivers to weave out of their lane, based on the performance of subjects using a driving simulator.

The findings, to be reported in an upcoming issue of the journal Brain Research, show that making cell phones hands-free or voice-activated is not sufficient in eliminating distractions to drivers. "Drivers need to keep not only their hands on the wheel; they also have to keep their brains on the road," said neuroscientist Marcel Just, director of the Center for Cognitive Brain Imaging.

Other distractions, such as eating, listening to the radio or talking with a passenger, also can divert a driver. Though it is not known how these activities compare to cell phone use, Just said there are reasons to believe cell phones may be especially distracting. "Talking on a cell phone has a special social demand, such that not attending to the cell conversation can be interpreted as rude, insulting behavior," he noted. A passenger, by contrast, is likely to recognize increased demands on the driver's attention and stop talking.

The 29 study volunteers used a driving simulator while inside an MRI brain scanner. They steered a car along a virtual winding road at a fixed, challenging speed, either while they were undisturbed, or while they were deciding whether a sentence they heard was true or false. Just's team used state-of-the-art functional magnetic resonance imaging (fMRI) methods to measure activity in 20,000 brain locations, each about the size of a peppercorn. Measurements were made every second.

The driving-while-listening condition produced a 37 percent decrease in activity of the brain's parietal lobe, which is associated with driving. This portion of the brain integrates sensory information and is critical for spatial sense and navigation. Activity was also reduced in the occipital lobe, which processes visual information.

The other impact of driving-while-listening was a significant deterioration in the quality of driving. Subjects who were listening committed more lane maintenance errors, such as hitting a simulated guardrail, and deviating from the middle of the lane. Both kinds of influences decrease the brain's capacity to drive well, and that decrease can be costly when the margin for error is small.

"The clear implication is that engaging in a demanding conversation could jeopardize judgment and reaction time if an atypical or unusual driving situation arose," Just said. "Heavy traffic is no place for an involved personal or business discussion, let alone texting."

Because driving and listening draw on two different brain networks, scientists had previously suspected that the networks could work independently on each task. But Just said this study demonstrates that there is only so much that the brain can do at one time, no matter how different the two tasks are.

The study emerges from the new field of neuroergonomics, which combines brain science with human-computer interaction studies that measure how well a technology matches human capabilities. Neuroergonomics is beginning to be applied to the operation of vehicles like aircraft, ships and cars in which drivers now have navigation systems, iPods and even DVD players at their disposal. Every additional input to a driver consumes some of his or her brain capacity, taking away some of the resources that monitor for other vehicles, lane markers, obstacles, and sudden changes in conditions.

"Drivers' seats in many vehicles are becoming highly instrumented cockpits," Just said, "and during difficult driving situations, they require the undivided attention of the driver's brain."

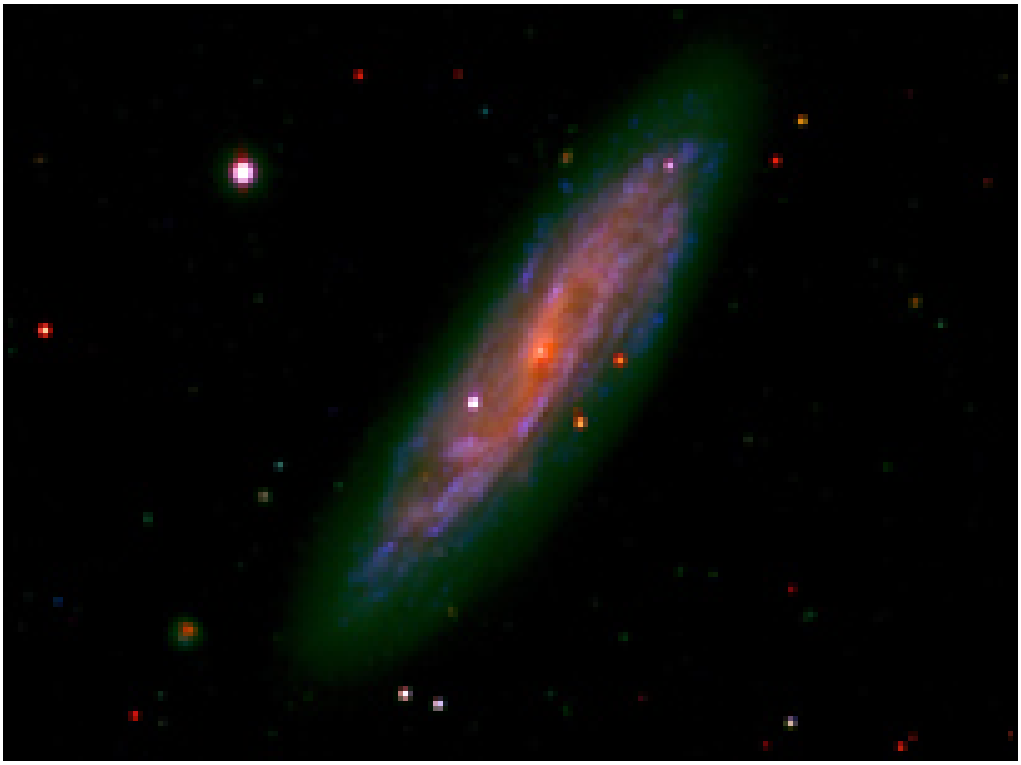
The project was funded by the Office of Naval Research. Other members of the research team included post-doctoral research associate Timothy Keller and research assistant Jacquelyn Cynkar.

Adapted from materials provided by Carnegie Mellon University.

http://www.sciencedaily.com:80/releases/2008/03/080305104905.htm

Giant telescope opens both eyes

The world's most powerful optical telescope has opened both of its eyes.



Astronomers at the Large Binocular Telescope (LBT) in Arizona have released the first images taken using its two giant 8m diameter mirrors.

The detailed pictures show a spiral galaxy located 102 million light-years away from the Milky Way.

LBT has been 20 years in the making but promises to allow astronomers to probe the Universe further back in time and in more detail than ever before.

"The amount of time and work that was put into this project to reach the point where we are today is immense," said LBT Director Richard Green. "To see the telescope operational with both mirrors is a great feeling."

The $120m (£60m) telescope uses two mirrors in tandem to maximise the amount of light it gathers, which allows astronomers to look deep into the Universe.

Using two 8.4 m (27ft) mirrors will give LBT the equivalent light-gathering capacity of a single 11.8m (39ft) instrument and the resolution of a 22.8m (75ft) telescope.

Impressive detail

The resolution is 10 times greater than the space-based Hubble telescope, which has a 2.4m (8ft) mirror.

"The images that this telescope will produce will be like none seen before," said Professor Peter Strittmatter of the University of Arizona.

The first pictures are false-colour images of the spiral galaxy NGC 2770. The pictures show what is a flat disc of stars and glowing gas.

The images - which take advantage of the telescope's ability to view the same point in space with multiple wavelengths of light - emphasise different features of the galaxy.

Combining ultraviolet and green light shows up clumpy regions of newly formed hot stars in the spiral arms, whilst a combination of red wavelengths highlights older, cooler stars.

The images were taken on 11 and 12 January but have only just now been released.

The LBT is located on Mount Graham in southeastern Arizona. It achieved "first light" with one mirror on 12 October 2005 when it imaged a spiral galaxy in the constellation of Andromeda.

Story from BBC NEWS:
http://news.bbc.co.uk/go/pr/fr/-/1/hi/sci/tech/7282385.stm

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